NEW DEFENCE AGENDA

A report of the third meeting of the

New Defence Agenda's Bioterrorism Reporting Group

Next Generation Threat Reduction:

Bioterrorism's challenges and solutions

Bibliothèque Solvay, Brussels
25 January 2005

Next Generation Threat Reduction:

Bioterrorism's challenges and solutions

A report of the third meeting of the New Defence Agenda's Bioterrorism Reporting Group

Bibliothèque Solvay, 25 January 2005

With the support of **Acambis** & **Agilent Technologies**

Editor: Giles Merritt
Editorial Coordinator: Jessica Henderson
Rapporteur: David Ferguson
Design & Production: AOVO DESIGN, www.aovo.net
Photos: New Defence Agenda
Cover photo: NATO, www.nato.int

Contents

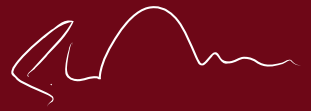
Introduction

The NDA is pleased to present the second publication of its Bioterrorism Reporting Group. Some 70 experts gathered at the Bibliothèque Solvay in Brussels on January 25 to debate next generation threat reduction. They concentrated on the analysis of threat, the marshalling of defences, measurement of the threat, fine-tuning of defences and finally, they attempted the difficult question of political decision-making on cost and benefits.

The recommendations in this report have already had a strong pre-publication impact. In draft form, they reached administrators in national governments across Europe, circulated inside the US State Department and prompted responses from laboratories in Russia, across Europe and as far as Canada.

This report expands on the Bioterrorism Reporting Group's last publication by providing an extensive list of signatories to its recommendations, additional contributions from experts in the field, and a table outlining funding expenditures of the European Commission in the context of the G-8. It also advances food-for-thought in the form of the programme for April 25th's meeting, which will examine transatlantic efforts to counter bioterrorism.

For this report to have even greater impact, I would encourage heeders to contact the NDA with recommendations on topics the Group should cover or parties we should contact. If these NDA reports have already begun to exert considerable influence, it is because our readers have not hesitated to join forces with us.



Giles Merritt
Director, New Defence Agenda

Our recommendations in brief:

- Develop a stronger framework for sustained collaboration between the G-8 (Global Partnership/CTR Kananaskis Agreement), the European Union (ISTC/STCU) and the United States (Bio Industries Initiative);
- Encourage ethical codes of conduct for scientists working in sensitive bio-technologies sectors;
- Implement bio-safety and bio-security standards in order to increase the likelihood of competitive international engagement of Russia in bio-techologies and pharmaceutical sectors;
- Implement regional programmes to secure pathogens and consolidate dangerous pathogen collections;
- Increase partnership opportunities with bio-industries to keep scientists with bio-defence expertise well paid and engaged in research that is peaceful but also market-oriented, to reduce the risk of intellectual flight to nations of concern.

Signatories to the NDA Bioterrorism Reporting Group's Recommendations:

Ronald M Atlas
Co-Director
University of Louisville

Derek Averre
Senior Research Fellow, Center for Russian and East European Studies
University of Birmingham, UK

Alyson JK Bailes
Director of SIPRI and former British Ambassador to Finland

Ayhan Batur
Staff Officer
NATO

Thomas Binz
Biological Safety
Swiss Federal Office of Public Health

Roman V Borovick
Director, Research Centre for Toxicology and Hygienic Regulation of Biopreparations (RCT&HRB), Russia

Mike Bowman
Federal Bureau of Investigation (FBI), USA

Tim Brooks
Head of Novel & Dangerous Pathogens
Health Protection Agency Porton Down, UK

Robert Mark L. Buller
Professor of Molecular Microbiology and Immunology Saint Louis University, USA

Vincenzo Caporale
President, Scientific Commission
World Organisation for Animal Health (OIE)

Antonio Cassone
Director of Department of Infectious, Parasitic and Immune-Mediated Diseases
Instituto Superiore di Sanita, Italy

Joseph Cirincione
Director for Nonproliferation
Carnegie Endowment for International Peace

Raffaele D'Amelio
General Directorate Military Health
University of Rome "La Sapienza", Italy

Marc Deffrennes
Head of Sector Non Proliferation and Disarmament
European Commission: DG External Relations

Raphael Della Ratta
Director of the Bio Threat Reduction Project
Russian American Nuclear Security Advisory Council

Flavio Del Ponte
Chief Medical Advisor
Swiss Federal Department of Foreign Affairs

Christian A Devaux
Scientific Director
CNRS Life Sciences, France

Toon Digneffe
Manager Government Affairs & Public Policy
Baxter

Mehmet Doganay
Professor in Infectious Diseases
Faculty of Medicines, Erciyes University, Turkey

Kees Eberwijn
Director Defence and Public Safety
TNO – Defence Research

Gerald Epstein
Senior Fellow for Science and Security, Homeland Security Program, Center for Strategic and International Studies (CSIS), USA

Gábor Faludi
General Director
Institute of Health Protection of Hungarian Defence Forces

Pierre Frigola
Head of Unit, Nuclear Activities
European Commission: Joint Research Centre

Manfred Green
Director
Israel Center for Disease Control

David Hamon
Chief, Strategy and Policy Studies
Defense Threat Reduction Agency, USA

John Haurum
Chief Scientific Officer
Symphogen

Donald A. Henderson
Senior Advisor and former senior science advisor to the US Secretary of Health and Human Services
Center for Biosecurity of the University of Pittsburgh Medical Center (UPMC), USA

James R. Holmes
Senior Research Associate
Center for International Trade and Security
University of Georgia, USA

Mukhabatsho Khikmatov
Manager
International Science & Technology Center (ISTC), Tajikistan

Cyril Klement
Head Information Centre for Bacteriological Weapons
Regional Institute of Public Health, Slovakia

Hans-Dieter Klenk
Professor and Chairman
Institute of Virology, University of Marburg, Germany

Nikolai Klimov
Deputy Director
Research Institute of UltraPure Biopreparations, Russia

Janusz Kocik
Bio-defence Specialist
Military Institute of Hygiene and Epidemiology, Hungary

Mats Könberg
Consultant and Representative of the Swedish EU-R&D Council, United Nations Interregional Crime and Justice Institute (UNICRI)

Marion Koopmans
Head of Virology Section
National Institute of Public Health and the Environment, The Netherlands

Gaby Lange
EU Liaison Officer
Ministry for Science of the Free Hanseatic City of Bremen

Steve Longoria
Founder and CEO
Aanko Technologies, Inc.

Ake Lundkvist
Head of Laboratory, Center for Microbiological Preparedness (KCB), Swedish Institute for Infectious Disease Control (SMI)

Maurizio Martellini
Secretary General
Landau Network – Centro Volta, Italy

Jules Maaten
Member
Committee on Environment, Public Health and Food Safety, European Parliament

Sergey V. Netesov
Deputy Director, Research
SRC VB VECTOR, Russia

Hanne Nokleby
Director Infectious Disease Control Division
Norwegian Institute of Public Health

Michael W. Oborne
Director, Multidisciplinary Issues
Organisation for Economic Co-operation and Development (OECD), Paris

Michael T. Osterholm
Director
Center for Infectious Disease Research and Policy, USA

Florin N. Paul
Deputy Surgeon General
Romanian Medical Directorate, Romanian Ministry of Defence

Jan-Peter Paul
Advisor
European Commission: DG Health and Consumer Protection

Alexander Pikayev
Director, Department of Disarmament and Conflict Resolution, Russian Academy of Sciences (IMEMO)

Michael Powers
Senior Fellow
Chemical and Biological Arms Control Institute (CBACI)

Juan José Sánchez Ramos
Pharmaceutical Services
Ministry of Defense, Spain

Judith Reppy
Professor of Science & Technological Studies and Associate Director of the Peace Studies Programme
Cornell University, USA

Barbara Rhode
Head of Unit, Multilateral Cooperation
European Commission: DG Research

Roger Roffey
Director of Research
Swedish Defence Research Agency (FOI)

Christine Rohde
Curator
DSMZ - Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH

Maurice Sanciaume
Director European Affairs
Agilent Technologies

Lev S. Sandakhchiev
Director General
SRC VB VECTOR, Russia

Karl-Heinz Schleifer
Head Department of Microbiology
Technische Universität München, Germany

Alejandro Schudel
Head, Scientific and Technical Department
World Organisation for Animal Health (OIE)

Martin Schütz
Head of Biology Department
Spiez Laboratory – the Swiss NDC-Defence Establishment

David Smith
President of the World Federation for Culture Collections
CABI Bioscience UK Centre

Konstantin G Soloviev
Head of Division for Aerosol Toximetry
Research Centre for Toxicology and Hygienic Regulation of Biopreparations (RCT&HRB), Russia

Christian Sommade
Délégué General
Haut Comité pour la Défense Civile, France

Kathrin Summermatter
Head of Biosafety
Institute of Virology and Immunoprophylaxis, Switzerland

Paul Thonon
President
CMI Defence

Oliver Thraenert
Head Research Unit European and Atlantic Security
Stiftung Wissenschaft und Politik, German Institute for International and Security Affairs

Natalya Tomarovskaya
Head of Branch Office
International Science & Technology Center (ISTC), Kazakhstan

Signe Vèlina
Health Attache
Permanent Representation of Latvia to the EU

Kathleen Vogel
Assistant Professor of Science & Technology Studies and the Peace Studies Program
Cornell University, USA

Robert Vranckx
Chief Department Microbiology
Scientific Institute of Public Health, Belgium

Walter Wahli
Director of Center for Integrative Genomics
University of Lausanne, Switzerland

Ralf Wilken
Policy Advisor
Representation of Bremen to the EU

Andrzej Zielinski
Head of Epidemiology Department
National Institute of Hygiene, Poland

Programme of the January 25 meeting

Next Generation Threat Reduction: Bioterrorism's challenges and solutions

How can mutual threat identification in the wider European landscape increase security for Russia, the Newly Independent States and the EU and what are the common challenges? This meeting will address key programmes and policies geared toward mutual threat reduction and counter measures against biological terrorism. It will highlight the successful partnership between the EU and Russian Federation for managing this increasing threat, and will focus on the challenges that still remain. Are conversion programmes for former Soviet Union laboratories and facilities working and what remains to be done? Do the partners need to further increase their collaboration on counter-terror activities and non-proliferation initiatives?

Session I

- What do we mean by "threat reduction"?
- What are the 'mutual' goals of the EU, Russian Federation and NATO Member States in countering terrorism and the proliferation of biological weapons?
- Should we increase shared competences?

◆ Coffee Break

Session II

- Should the EU engage further in Cooperative Threat Reduction in the area of laboratory and programme conversion?
- How has the G-8 enforced the goals of threat reduction?
- How can we best reduce the risk of weapons scientists from assisting rogue states in biological weapons research and development?

Opening statement by

Diego Buriot, Special Advisor, Office of the Assistant Secretary General, World Health Organisation (WHO)*

Moderators:

Giles Merritt, Director, New Defence Agenda

Jill Dekker-Bellamy, Bio-Defence Consultant, New Defence Agenda

Panelists:

Derek Averre, Research Fellow, Centre for Russian and East European Studies, University of Birmingham, United Kingdom

Michael Callahan, Command Physician 77, Biological Threat Defense & Mass Casualty Care CIMIT/Massachusetts General Hospital, Boston

Raphael Della Ratta, Director of the Bio Threat Reduction Project, Russian American Nuclear Security Advisory Council (RANSAC), Washington DC

Maurizio Martellini, Secretary General, Landau Network – Centro Volta, Italy

Michael Powers, Senior Fellow, the Chemical and Biological Arms Control Institute, Washington DC

* Observer at January 25, Observers are not party to recommendations made by the NDA Bioterrorism Reporting Group

Participants

25 January 2005

Grzegorz Ambroziewicz
Member of Commission staff
European Commission, Joint Research Center

Ian Anthony
Project Leader, European Export Controls
Stockholm International Peace Research Institute (SIPRI), Sweden

Derek Averre
Senior Research Fellow
University of Birmingham, United Kingdom

Michele Barsanti
Director, Government Relations
Honeywell Europe

Dieter Becker
Third Secretary
Permanent Representation of Germany to the EU

Corneel Bellanger
Head CBRN Defence
Ministry of Defence, Belgium

Tim Brooks
Head of Novel & Dangerous Pathogens
Health Protection Agency Porton Down, United Kingdom

Michael V. Callahan
Command Physician 77, Biological Threat Defense *& Mass Casualty Care*
CIMIT/Massachusetts General Hospital, USA

Geert Cami
Managing Director
New Defence Agenda

Mark Cantley
Adviser
European Commission, DG Research

Vincenzo Caporale
President, Scientific Commission
World Organization for Animal Health (OIE)

Denis Cavert
Vice President, European Sales and Marketing Vaccines, Baxter Vaccine AG

Helene Champagne
Project Assistant
New Defence Agenda

Steve Crisp
International Business Development Manager
Agilent Technologies

Raffaele D'Amelio
General Directorate Military Health
University of Rome "La Sapienza", Italy

Hans de Vreij
Security and Defence Editor
Radio Netherlands

Marc Deffrennes
Head of Sector Non Proliferation and Disarmament
European Commission, DG External Relations

Jill S. Dekker-Bellamy
Bio-Defence Consultant
New Defence Agenda

Flavio Del Ponte
Chief Medical Advisor
Federal Department of Foreign Affairs, Switzerland

Raphael Della Ratta
Director of the Bio Threat Reduction Project
Russian American Nuclear Security Advisory Council (RANSAC), Washington DC

Toon Digneffe
Government Affairs Manager
Baxter

Mehmet Doganay
Head of Department of Infectious Diseases
Erciyes University, Turkey

Thea Emmerling
Deputy Head of Unit, Health measures
European Commission, DG Health & Consumer Protection

David Ferguson
Rapporteur
New Defence Agenda

Arne Flaoyen
National Expert, Project Officer
European Commission, DG Research

Maria Laura Franciosi
Freelance Journalist
Il Sole 24 Ore

Norval Francis
Minister Counsellor for Agriculture
Mission of the United States of America to the EU

Pierre Frigola
Head of Unit, Nuclear Activities
European Commission, Joint Research Center

Henri Garrigue
Deputy Head, Weapons of Mass Destruction Centre
NATO

Manfred Green
Director
Israel Center for Disease Control

Rainer Hellmann
Journalist
Fuchsbriefe

Jessica Henderson
Project Manager
New Defence Agenda

James R. Holmes
Senior Research Associate
University of Georgia, USA

Linda Karvinen
Project Manager
New Defence Agenda

Yuri Kase
Adviser for Disarmament Affairs
Delegation of Japan to the Conference on Disarmament, Geneva

Cyril Klement
Head Information Centre for Bacteriological Weapons
Regional Institute of Public Health, Slovakia

Mats Könqberg
Consultant, United Nations Interregional Crime and Justice Institute (UNICRI)

Anne Malfroot
Pediatrician, Academisch Ziekenhuis van de Vrije Universiteit Brussel (AZ-VUB), Belgium

Maurizio Martellini
Secretary General
Landau Network - Centro Volta, Italy

Barbara Maténé Lillafüreoi-Nagy
Junior expert, Office for the Prohibition of Chemical and Biological weapons
Hungarian Trade Licensing Office

Danielle McKenzie
Legal Intern
McKenna Long & Aldridge

Kathryn Mc Laughlin
Research Fellow
Landau Network - Centro Volta, Italy

Giles Merritt
Director
New Defence Agenda

Frédéric Moser
Secretary General
European Strategic Intelligence & Security Center (ESISC), Brussels

Mircea Mudura
Counsellor
Mission of Romania to the EU

Hanne Nokleby
Director Infectious Disease Control Division
Norwegian Institute of Public Health

Michael W. Oborne
Director, Multidisciplinary Issues
Organisation for Economic Co-operation and Development (OECD)

Riccardo Olivieri
Technical Officer
World Customs Organization (WCO)

Magnus Ovilius
Senior Administrator
European Commission, DG Justice & Home Affairs

Giuseppe Palizzi
Director Italy, Bioscience and Chemical Analysis
Agilent Technologies

Jan Peter Paul
Adviser, European Commission, DG Health & Consumer Protection

Florin N. Paul
Deputy Surgeon General
Romanian Medical Directorate

Kate Phillips
Research Associate, Biological Threat Reduction Project
Center for Strategic and International Studies (CSIS), Washington DC

Alain Podaire
Scientific Officer
European Commission, DG Research

Michael J. Powers
Senior Fellow
The Chemical and Biological Arms Control Institute, Washington DC

Vittorio Prodi
Member
European Parliament, Committee on Employment and Social Affairs

Gerrard Quille
Deputy Director
International Security Information Service Europe (ISIS Europe), Brussels

Louis Réchaussat
Director of Information System Department
French Institute of Health and Medical Research INSERM

Barbara Rhode
Head of Unit, Multilateral Cooperation
European Commission, DG Research

Hendrik Roggen
Project Assistant
New Defence Agenda

Maurice Sanciaume
Director European Affairs
Agilent Technologies

Alexander Skoryukov
Senior Counsellor
Mission of the Russian Federation to the EU

Alon Snir
Minister Counsellor
Mission of Israel to the EU

Christian Sommade
Délégué General
Haut Comité Français pour la Défense Civile

Helen Spencer
CRTI Portfolio Manager, Biology, CBRN Research & Technology Initiative (CRTI), Canada

Jean Swings
Past President
World Federation for Culture Collections

Signe Vèlina
Health Attaché
Permanent Representation of Latvia to the EU

Rachel Winks
Deputy Director, EU and NATO Relations
Boeing International

Werner Wobbe
Scientific Officer
European Commission, DG Research

Martin Yuille
Head of Research and Development
MRC Rosalind Franklin Centre for Genomics Research, United Kingdom

Jean Pascal Zanders
Director
BioWeapons Prevention Project (BWPP), Geneva

Observers for 25 January 2005*

Diego Buriot
Special Advisor, Office of the Assistant Director-General
United Nations World Health Organisation (WHO)

Reinhard Uhrig
Adviser, Action against Terrorism Unit (ATU)
Organisation for Security and Cooperation in Europe (OSCE)

* Observers will not be part of any recommendations made by the NDA Bioterrorism Reporting Group

Summary of Debates

The Bioterrorism Reporting Group examined the common challenges for mutual threat identification in a wider European landscape and how such strategies will increase security for the US, Russia, the Newly Independent States and the EU. The meeting addressed key international programs and policies geared toward mutual threat reduction and counter-measures against biological terrorism. The Group highlighted successful partnership programs between the US, EU and Russia in this field. Assessments were given of current conversion programs for former Soviet Union laboratories and facilities as well as discussion of the need to further increase collaboration on counter-terror activities and non-proliferation initiatives.

Session I

- What do we mean by "threat reduction"?
- What are the 'mutual' goals of the EU, Russian Federation and NATO Member States in countering terrorism and the proliferation of biological weapons?
- Should we increase shared competences?

In introducing Session I, **Giles Merritt**, Director of the New Defence Agenda, together with **Jill Dekker-Bellamy**, Bio-Defence Consultant at the New Defence Agenda, welcomed participants to the Bioterrorism Reporting Group. Bioterrorism has moved closer to the center of security policy-making. Nonetheless, Merritt noted how complex the issue remains with numerous layers. With this complexity as the driving factor, the Bioterrorism Reporting Group has become a crucial part of the NDA's activities.

Networks of experts

Giles Merritt first introduced **Diego Buriot**, Special Advisor, Office of the Assistant Secretary General, World Health Organization (WHO). Buriot, opening the meeting, briefly outlined the work of WHO. As a UN organisation, the WHO cannot compel countries to implement action plans but remains both a technical and neutral organisation. Neutrality does then

grant WHO access to all countries in the world from the US to North Korea, a key element underlining WHO action. A second important point is the recent widening of the health security mandate toward the field of biosecurity so as to develop new tools and guide national ministries.

A further key issue upon which WHO is currently working is a revision of international health treaties and conventions. Countries are currently only required to report a very limited number of diseases as such as plague, yellow fever and cholera. It is necessary, believes Buriot, to enlarge this list to any epidemics with potential international consequences. He expects the negotiation process to be completed by May 2005 and then to be endorsed by the World Health assembly. Buriot notes how intentional use of biotechnical weapons will fall within this new remit.

Furthermore, the WHO is developing a smallpox vaccine stock for countries that do not have production capacities. A first WHO draft suggests a stock of 205 smallpox vaccine doses. The WHO has also refined surveillance mechanisms and can rely upon a large network of technical experts.

Annually, the WHO investigates 30 to 40 outbreaks of importance and is now looking closely at avian influenza. This mechanism is working fine, stresses Buriot, but it is difficult to predict how mechanisms would work in the case of intentional use of biochemical weapons. Intentional use would not only be a public health but also security problem. Buriot feels the international community has not yet come up with a clear structure to deal with intentional use of bio-weapons.

The WHO is working extensively on prevention and has developed a biosecurity manual. With the support of Sloane Foundation, the WHO is mapping the public health problem in relation to life science research and development and dual use. Buriot is aware that some countries are also working intensely to map research. In conclusion, he noted that the WHO's work in this field is not achieved alone but relies upon WHO networks and support from many countries.

Thin line of ignorance

Michael Powers, Senior Fellow, the Chemical and Biological Arms Control Institute (CBACI), Washington DC, noted how important transatlantic cooperation is in the fight against terrorism and control of biochemical weapons. The terrorist attacks of 11 September 2001, and anthrax attacks thereafter, heightened awareness of transnational terrorist organisations. The October anthrax mailings, noted Powers, were not a mass casualty situation, but had the potential to cause mass destruction. No one has yet been charged with the mailings. Unlike other mass destruction weapons, state-based and terrorist organizations need special knowledge to translate microorganisms into biological weapons. There is a thin line of ignorance, warns Powers, that is currently keeping terrorists out of biological weapons.

At the same time, Soviet biological weapon programs continue, believes Powers, to be one of the the most significant sources for information needed to produce biological weapons. The Soviet Union produced a mass of individuals with the required knowledge as well as the needed physical material. This must be an integral element in anti-terrorism efforts. The international community should therefore increase work to secure the biological infrastructure. This requires, argues Powers, increased US political leadership and commitment.

Powers notes progress made in bio-threat reduction in the former Soviet Union even if much more work needs to be done. The US alone is spending 100 to 120 million dollars on biological threat reduction in the Soviet Union. Bio defence spending, on the other hand, has jumped from 6.7 billion in 2002 to 11 billion dollars in the 2004 fiscal year.

The biological challenge is that of innate insecurity, argues Powers. There is great uncertainty about the number of scientists and institutes involved and difficulties in assessing related work at other institutions. There is secrecy mainly due to the desire to protect a competitive edge. Key factors shaping biological weapons threat reduction are how policy makers treat uncertainty. There has been cautious skepticism with regards to biological activities in the Soviet Union and this has made many policy makers in the current administration and congress reluctant to expand funding of US programs.

Bio threat reduction programs need more funding and greater support from political figures. Further international cooperation, especially from sources like the EU, may also provide a spark that increases support in the US itself.

Plausible threats

Michael Callahan, Command Physician 77 for Biological Threat Defense & Mass

Casualty Care at CIMIT, spoke of his experiences at the Department of Homeland Security, gained as a special subject matter expert, but not as a government official, on behalf of the State Office of Proliferation and Threat Reduction. Callahan pointed to some of the mistakes made by the Department of Homeland Security in its initial period. Many of the models of plausible threats have diminished after being considered more fully.

The Department of State had been active for just over ten years in the former Soviet Union and aimed at enlarging shared priorities and mutual missions with scientists there. For Callahan, the BioIndustry Initiative (BII) program is a model for success that engages former Soviet Union scientists and uses market sources to make them competitive. This vitalizes commercialization efforts. Other programs are based more on NGO activities like the Gates and Soros Foundations. In financial terms, 36 million dollars of Congressional appropriation in 2003 has been translated into 330 million dollars of commercialization activities with venture capital and major pharmaceutical backing.

Callahan noted some essential points in the BII programs. Firstly, there is a crucial focus on scientific validation working intimately with scientists at the bench top level to develop low-cost counter-measures to bio-agents. A background to this program is Russian concern about terrorism. He stated, however, that scientists cannot be transferred from Siberia and be expected to flourish immediately in a new environment. Time needs to be given for adjustment.

Nonetheless, Russia is a remarkable resource for new medicine. There has even been reverse migration back into Russia and numerous dotcom startups. This has helped move away from reliance on government spending and instilled commercial expertise. Callahan noted a successful case study with the low cost production of an alternative anti-cancer agent (GMP) thanks to Russian scientists.

Another successful program concerns avian flu. There is no better opportunity to test accuracy in preparing for bioterrorism than live fire exercises represented by naturally occurring epidemics, believes Callahan, such as SARS, H5, and even the variants of H3 and H2. These learning environments produce data that can guide our research and policy-making. Currently Russia is embarking on a vary large 'Russian Siberian flu surveillance network' that is built to be inherited by WHO structures, and is funded by BII.

Nature of the threat

Maurizio Martellini, Secretary General, Landau Network in Centro Volta, Italy, had numerous questions as to the nature of the threat. Since the scale of organisation is important, is the threat from rogue states or from smaller terrorists organizations? Before making a suggestion to governments, Martellini noted the need for a fresh assessment of risks including first and second lines of defence. This may include striking first at potential sources of proliferation.

Concerning joint action and commercialisation, Martellini stressed the need to give more emphasis on commercialization so as to help institutes and ministries in the CIS and Russia move out of the deep secrecy regarding former biological programs. Commercialization and cooperation is a bio-threat reduction tool.

Jill Dekker-Bellamy, Bio-Defence Consultant, New Defence Agenda, wondered how isolated countries like the Democratic People's Republic of Korea are brought into contact with international threat reduction frameworks.

In this respect, **Michael Callahan** noted the importance of finding intermediaries and needs of the North Korean government. For instance, providing scientific information on the problems of the food chain in North Korea, as to avian flu and other diseases, has opened up collaboration possibilities. Callahan stressed the need for cooperation from other international players in approaching marginal countries facing similar health and food chain problems.

At this point, **Giles Merritt** sought to structure the discussion once again by first addressing the question of state and non-state bio threat actors. Merritt suggests both types of actors may merge with rogue scientists born of the state placing their knowledge at the use of terrorists.

Merritt then suggested the following structure for debate:

1) **Analysis of threat.** To what degree do we agree on the nature and extent of the threat?

2) **Marshalling of defenses.** What can we do against the threat?

3) **Measurement of the threat.** How can we assess the degree to which our protection capabilities reduce threats?

4) **Fine-tuning of defenses.** How do we implement our capabilities most efficiently.

5) **Political decision-making on cost and benefits.** How much money must we spend to reduce the threat to manageable proportions?

Analysis of the Threat

Michael Powers agreed with these five steps concerning analysis of the threat. But there are significant differences, he noted, between the US and EU countries on the immanency and seriousness of a biological threat. Some persons talk of terrorist organisations being only months away from an attack. Others note the great operational and technological difficulties in carrying out a biological task even for state actors. Part of the challenge is risk analysis and making decisions in such uncertainty. In the US, there has been great focus on the immanency of the attack.

Jan-Peter Paul, Adviser at the European Commission's Directorate General for Health and Consumer Protection, noted the importance of the whole subject. He sketched the thinking within his department at the European Commission as that of risk managers in public health working on a daily basis with various risk analyses of diseases in including SARS and avian flu. He noted how the Commission has set up a separate organization to deal with bioterrorism. There is also a European Food Safety agency dealing with the current and future risks and an extensive European network closely monitoring movements of various diseases.

Concerning the analysis, Paul underlined the fact that the EU is in a very different situation as it, unlike the US, is not at war. Yet whilst there has not really been any major bioterrorist attack up until now, there is an awareness of the risk in Europe and efforts towards a pragmatic international approach.

Jean-Pascal Zanders, BioWeapons Prevention Project, stressed that many aspects of terrorism do not attack humans but the economy or the food supply. There must be discrimination between these different types of terrorism and their impact on society. We need, furthermore, to avoid an overly territorial concept of threat. Many weak states, for instance in Africa, may present a fertile ground for small organizations to produce biological threats. Countries and areas such as Africa do figure in terms of risk assessment especially as there is a widespread lack of disease surveillance. Zanders noted a case in India, where an outbreak of plague, was determined to be non-indigenous. This led to the military taking over and creating more casualties than if the outbreak had been treated as a health threat. He suggests looking at the legislation and institutions in various countries so to assess capacities to react to a biological threat.

Michael Callahan pointed to re-crafting and updating threat assessment with experience coming increasingly from low resource countries and a growing threat from wild-type agents that can be developed in small laboratories. We need to look closely at who is using such information.

Pierre Frigola, Head of Unit Nuclear Activities, at the European Commission's Joint Research, has been involved in threat reduction in Russia for the past ten years. Coming from the nuclear side he felt familiar with the focus on Russia. However, he noted here one of the main differences between the nuclear and bio industry. The nuclear industry is more focused, whilst the biological side – and thus its risks – is more spread around the world. Frigola feels the Russians are increasingly able to control themselves and notes that the only real bioterrorist activity till date has been the gas attack in a Japanese metro station. His question is to what extent will the industry be ready to support and contribute to bio defense.

Diego Buriot turned to polio that is on the verge of being eradicated. An inventory of some 260,000 laboratories with polio samples is being drawn up – and this does not even include China yet. Buriot states that this number of laboratories indicates the vast scale of the challenge. And, moreover, it is easier to go to remote places in Africa like Congo and isolate Ebola samples than to get anthrax samples from Novosibirsk in Russia. There is then clearly a major risk in developing countries. Focusing on former Soviet Union countries is important but one needs to look much wider.

For **Michael Powers**, the challenge, in the final analysis, is increasingly that of securing knowledge and not merely physical materials. Yet how do we secure sensitive knowledge and information? An integral part of the answer still lies in the former Soviet Union. Yet it has proved difficult to convince the biological industry of the vital importance of engaging itself in safety and security if this may not at first appear profitable. Industry has had difficulty in rec-

ognizing their role in securing information and knowledge yet may find itself being regulated upon. There has been increasing talk of licensing scientists at certain levels of expertise. This would be akin to lawyers or doctors registering with national bodies. The challenge will be to securing information and bio-expertise that is both safe and allows technology to develop.

On discussion of point 1 concerning the 'Analysis of threat', **Giles Merritt** noted how discussion focuses on reducing the size of the unknowable. The unknowable appears to be that of a human or set of humans initiating an attack – and not epidemics brought about by natural disease. Merritt then asked, moving on to step 2 – the marshaling of defenses – what can be done against such threats. Are Europeans sufficiently organized and efficient, he wondered?

"Show me the money?"

With respect to such bio threat reduction, **Maurizio Martellini** noted the importance of common regulations. There is a major world wide black market for nuclear technology. There needs to be a common regulatory structure for biotechnology for individuals and enterprises.

Jan-Peter Paul, Adviser at the European Commission's Directorate General for Health and Consumer Protection, noted the work of the European Union in counteracting the terrorist threat amongst both members and with the US and Russia. There are initiatives, he continued, notably many taken in 2004. Information exchange is also very important for the European Commission even if it can be developed much further. Administrative efficiency can also be improved. A further important issue is the elimination of corruption in NIS countries so as to allow for greater general economic growth and also prevents patterns of misconduct in sensitive organizations. In developing control, various forms of export administration will be necessary. There will also be a need to criminalize the possession of certain dangerous substances as well as increase cooperation between security and policy organizations, Paul noted.

Michael Callahan made a brief comment on financing bio threat reduction capabilities. The low amount of money spent in the EU may not necessarily be an indication of inefficiency or greater unpreparedness. Monies spent just after 11 September in the US were poorly and urgently allocated to highly visible programs. Bio-technology is moving very fast and threat reduction programs must reflect that. Concerning policing, Russia is very effective. A scientist that behaves suspiciously there may cause serious problems for his or her institute. Nonetheless there is a continuing need to understand the economic pressures on individual scientists and institutes in the former Soviet Union.

Manfred Green, Director of the Israel Center for Disease control, expressed concern at the greater degree of focus on so-called category A agents such as anthrax and smallpox in discussions about preparedness, surveillance and funding. Anthrax and smallpox can be important models but our focus must be wider, he noted.

Helen Spencer, Portfolio Manager at CBRN Research and Technology Initiative (CRTI) Canada, noted how smaller Canadian organizations may offer lessons in using smaller budgets more efficiently. The CRTI was mandated after 11 September to aid Canadians in countering terrorism and has brought experts from diverse Canadian provinces together under one umbrella. Throwing money at the problem, believes Spencer, is not necessarily the answer. A joint risk assessment from various experts allowed focusing of scarce resources on specific risk priorities. This has now been followed up with joint risk assessment with the US that has led to concrete collaborative action.

Magnus Ovilius, Senior Administrator at the European Commission's Directorate General for Justice, Freedom and Security, noted the Commission's elaboration of a security programme, covering the period from 2007 to 2013, against threats from terrorism that will clearly focus on response and preparedness to terrorism threats.

With terrorists extending and adapting their technical and strategic skills, this cannot always be clearly separated from response and preparedness to other threats such as accidents, natural and health disasters. Regardless of whether there is a terrorist attack or an industrial accident, the consequences may be the same. Nevertheless, the programme does not aim to replace or take over any of the activities carried out by other services, but to complement them by adding information and responses specifically designed on terrorism threats.

The main purposes of the programme will be to ensure effective protection of vulnerable infrastructure against terrorism threats Many small laboratories may need help in meeting

security demands and there may be a need for further EU legislation establishing obligatory minimum security standards. Ovilius also wondered whether governments are monitoring the bio-research currently being conducted and pointed to horror stories of scientists transporting extremely dangerous substances by airplane. If such substances are accidentally or indeed intentionally released, he continued, we may face an epidemic.

The EU is in the process of setting up the necessary financial instruments to make available money from a EU solidarity rapid reaction instrument – envisaged funding at 1 billion euros per annum – as well as from a research budget of 1 billion euros/annum for security issues. Although this falls short of US funding, Ovilius believes the money are significant. He also pointed to the envisaged Commission crisis management system – Argus –which will provide for better coordination and faster response capacity for alerts at EU level that will be composed of existing European rapid alert systems including law enforcement, and critical infrastructure protection. Ovilius concluded by noting that Europeans have much to learn from colleagues in Canada and the US, but in order to justify expenditure on new security enhancing measures a public private security dialogue will be initiated to identify vulnerabilities, methodologies, determine industry security standards which together with regular analysis from the various European security services would provide better overall EU security.

Session II

Welcoming participants back to the second session, moderator **Giles Merritt** recalled the discussion in the first session in terms, firstly, of an analysis of threat, and secondly, the marshaling of defenses. In this second session, Merritt asked participants to keep in mind three additional points:

3) Measurement of the threat. Can we assess how much our protection capabilities will reduce the threat?

4) Fine-tuning of defenses. How do we mobilize and use our capabilities most efficiently.

5) Political decision-making on cost and benefits. How much money must we spend to reduce the threat to manageable proportions?

Open and supportive

First to take the floor in the second session, **Derek Averre**, Senior Research Fellow at University of Birmingham's Centre for Russian and East European Studies, focused on progress made toward bio threat reduction in Russia and the NIS. Averre noted the need for greater action by Russian leadership to become more open and supportive. Whilst in the nuclear sphere Rosatom[1] has proved a very useful instrument, this has been lacking in the biological sphere. In terms of transparency, there needs to be access to Russian centers. Furthermore, the Russian defence establishment should understand that it is missing out on commercial opportunities. This indicates weak governmental support in Russia, and in the NIS generally, for commercialisation of defence-related R&D in the bio defense area.

For Averre, the G8 partnership should continue to press for a memorandum or implementation agreement with Russia. Additionally, Russia needs to overhaul its administrative capacity to reduce bio threats whilst making greater efforts to engage agencies involved. Averre also believes that international organizations should organize high-level briefings and outreach programs with the aim of promoting new legislation. Other actions could include promoting the concept of foreign investment rather than foreign aid; shifting from biochemical disarmament to cooperation in biochemical threat reduction within international networks. The biotechnology sector should, moreover, be developed towards better competitiveness whilst continuing international support for Russian institutes in the medium to longer term.

Averre noted that in accessing commercialization, high tech science may not be commercially viable in Russia whilst low tech may provide a more immediate solution. In his view, there remains a danger of brain drain due to institutes closing down. This points to the need for an accurate assessment of the brain drain threat from Russia as well as to better human resources via education of biotechnologists in non-proliferation goals.

As a final point, Averre noted that commercialization is not the only way to transform

[1] "[Rosatom] exercises centralized state administration of ten nuclear power plants in Russia. Pursuant to the Law of the Russian Federation in the area of use of nuclear power, the «Rosenergoatom» concern serves as the operating organization and is fully responsible for nuclear, engineering and fire safety at all stages of the plant lifetime, including accident mitigation measures." URL: http://eng.rosatom.ru/?razdel=20

military related research and development. Some competence may be used in other areas like health and agriculture.

Looming threat reduction crisis

Raphael Della Ratta, Director of the Bio-Threat Reduction Project at the Russian American Nuclear Security Advisory Council (RANSAC) in Washington DC, outlined a looming threat reduction crisis that many in Europe, Russia, and the U.S. may not be aware of. The umbrella agreement that governs the U.S. Department of Defense's cooperative threat reduction program, Della Ratta stated, is up for renewal in June 2006. There are issues that may impede renewal, particularly that of liability protection. Liability disputes between the U.S. and Russia have already brought an end to the Nuclear Cities Initaive, and has hampered progress on bilateral plutonium disposition activities. If this agreement is not renewed, the vast majority of threat reduction programs funded by the U.S. will come to an end. This calls for a greater European role in threat reduction.

The time may come, continued Della Ratta, when the EU will have to become the driving force behind threat reduction in Russia and the FSU. While a number of counter bio-proliferation programs from the State Department are not affected by the non-renewal of the umbrella agreement, if the US role in threat reduction decreases, much of the global threat reduction effort will be reduced. Della Ratta wonders, if the 1 billion the U.S. is providing under the context of the Global Partnership evaporates, what will happen to other nation's willingness to contribute to the global effort.

In addition, the US is currently trying to expand threat reduction as a concept around the world – by creating an a scientist redirection program based on the ISTC model in Iraq, and assisting in the WMD dismantlement initiative within Libya. If threat reduction in Russia and the FSU is prematurely halted, it could undermine the chances of expanding threat reduction globally.

The need for multilateral mechanisms

Secretary General of the Landau Network, **Maurizio Martellini**, pointed to the need to create a multilateral mechanism more oriented to bioprevention. Still, experience from Cold War threats shows how important long term experience of partnership is. There thus needs to be a real and deep partnership in a multilateral environment with NIS countries over a long period in the bio sphere. Unfortunately, this is currently lacking. Conventions are new and verification is difficult, he noted. What can be done in such circumstances?

Martellini then referred to the legal instruments for verification noting how, in North Korea, the word verification raises suspicion. Perhaps, suggests Martellini, the move from security to a cooperation and trade paradigm, is the answer. This throws up the benefits of engaging partners in cooperation and would help create the mutual trust and experience of partnership needed. Perhaps the ISTC can be extended to the biochemical sphere and expand geographically around the world.

Where such cooperation is not existent, then there needs to be more concentration on the basic needs of marginal states. We should move away from terms like "rogue state" and concentrate on cooperation for bio and health safety rather than looking at threats.

Within such limits, sustainability in terms of international law should bring about an engagement for non-proliferation with common practices, a focus on safety, addressing primary resources and needs of marginal states. Europe, too, believes Martellini, should establish a mechanism for bio audit and non-proliferation. If we talk about defence, countries are reluctant, but they will talk about auditing mechanisms for safety.

Arne Flåøyen, National Expert at the European Commission's Directorate General for Research, responded to questions concerning European actions and noted the existence of a European Commission advisory group on biosecurity. This group has established an on-going inventory of research in Member States. However, Flåøyen continued, not all Member States seem to be happy to share all information, as some Members seem happier to share information with non-member states than with EU countries. This, he believes, is a challenge for coordinating biosecurity research within an EU framework.

In terms of research and development, there has been a call within the Sixth Framework program in October 2004 (Scientific Support to Policies) with closing date 1 February 2005. Seven topics, related to biosecurity and risks arising from terrorist attacks, were given. Currently, noted Flåøyen, the Seventh Framework Program

is being developed and the Commission is listening to advice and suggestions. Biosecurity will be an important element of the Seventh Framework Program.

Kananaskis summit

Marc Deffrennes, Head of Sector Non-Proliferation and Disarmament at the European Commission's Directorate General for External Relations, then took the floor. Working in non-proliferation within the G8 framework, Deffrennes pointed to the difficulty of the negotiations at the Kananaskis summit. Due to this, there are still some differences of interpretation of the outcome of this summit.

For Deffrennes, Russians when talking about the G8 partnership insist on two sole priorities: North West Russia submarines dismantlement, and, secondly, chemical weapons destruction program. These two priorities, for which the Russians are looking for finance, proceed from either nuclear and environmental concerns, either from the deadline of 2012 for the Chemical Weapons Treaty, to which Russia is committed.

Other members of the G8 have wider issues including biosecurity, according to Deffrennes. The G8, furthermore, is broadening to other countries with the Ukraine already a recognized partner. Under US chairmanship of the G8, biosecurity was brought on the table of the Non Proliferation Expert Group and the Senior Officials Group and was mentioned in the Sea Island Action Plan. There are now regular discussions in the G8 framework and specific meetings of bio experts are called when necessary. Care is taken not to duplicate with what is done in other fora. This evolution means a probable channeling of discussions on biosecurity also next year under Russian chairmanship of the G8.

The EU has committed 1 billion euros over 10 years to the G8 global partnership. The EU is committed to ISTC program spending around 25 million euros per year. Another element is the EU's joint action in the CFSP focusing chemical weapons destruction and on plutonium disposition at an average of 5 million euros per year. Then there is the contribution to the Nordic Dimension Environmental Plan handling the nuclear legacy in North West Russia at 5 to 10 million euros per year. TACIS also contributes with some 5 to 10 million euros per year for nuclear safeguards and border security related activities. Altogether EU WMD specific contributions, noted Deffrennes, amount to around 40 million euros annually. This will continue to 2006 when the current budget cycle ends.

The EU is now looking to the future with the next Financial Perspectives of 2007-2013. The Commission' tabled a proposal to the Council and the Parliament at the end of September 2004 for a security and stability program. There is a special reference to commitments against the proliferation of weapons of mass destruction. This is something very new in Community related documents, notes Deffrennes. This is also the result of the profile that non-proliferation and disarmament have gained within the EU, and of the adoption, in 2003, of the EU strategy against proliferation and mass destruction weapons. Discussion has now started in the Parliament and Council, and is continuing internally in the Commission. Results will come within 2005.

In preparing the ground for the future programming of this new financial instrument, the Commission signed a contract with Swedish International Peace Research Institute (SIPRI) to perform a study to help define and set priorities for the use of EU financial means, if and when they become available. The Institute will look at existing programs and will make a broad study examining nuclear non proliferation and disarmament, chemical disarmament, biosecurity, export control of dual use items and other issues.

Operating the ISTC and STCU

Barbara Rhode, Head of Unit Multilateral Cooperation at the Commission's Directorate General for Research, notes as her budget comes from External Relations the implementation of which through ISTC and STCU is with DG Research. Much attention is recently paid to NIS countries by establishing branch offices in nearly all countries, the secretariat of ISTC being located in Moscow and the STCU in Kiev. To operate through two independent centers is valuable as not all countries can work with each other.

As regards the EU approach to biosecurity to be funded through the Centres, there is a steady EU contribution to biotechnology. Even though until now the nuclear was more in the focus, the distribution might be slightly revised. The Centres in the past funded projects bottom up, as they came to the Centres. Gradually now the strategy is moving towards a more program-based funding so as to better structurealso the topics for industrial recipiants.

Rhode referred to the model set by a certain success of long-term integration of scientists – that is given by rockets engineers in the aeronautics industry. This was possibly also due to the open-minded nature of the industry. In the biosector there is more hesitationand it has been more difficult in Europe to get interested industry involved with long term engagements, Rhode noted.

Russia, Al-Qaeda or rogue states

Giles Merritt subsequently moved discussion forward to the measurement of threats and risks (step 3) looking at audit systems and monitoring threats. Should we not look more at organizations like Al-Qaeda or rogue states rather the dealing so extensively with the Russian problem? Merritt also suggested turning later to the fine-tuning of defenses (step 4).

For **Michael Callahan**, there has been much discussion about Russia. He pointed to Vector, which has been perceived as a rich scientific institution. This is a large organization with few effective commercialization programs to offset costs. Callahan noted that institutes cannot be saved if they do not generate sufficient own funds. This means many institutes in Russia will be downsized.

Callahan nonetheless noted the need to be careful with terminology – the term 'audit' still makes Russians upset. The focus should be upon building scientific collaborators and colleagues rather than 'auditing'. That means looking at areas where Russia has shared priorities. For instance, the country is most concerned about domestic terrorist events and is keen to listen to input from other states. This is good international citizenship.

For Callahan, the intertwining of personal relationships between Russians and Western individuals makes less likely the passing of information onto dangerous parties. The Russian model is translatable to other countries like Libya or Iraq.

Bio-Defense Consultant at New Defence Agenda, **Jill Dekker-Bellamy**, turned to South Africa and the lack of response to certain South African scientists who made statements as to transporting biological knowledge to other states. Is this not a worldwide threat?

Replying, **Michael Callahan** noted that he is not an authority on South Africa. The bio warfare program in South Africa, according to him, was very Western-looking but had covert goals and missions. They were not, however, effective and the program as a whole appeared to have suffered severe problems in R&D.

This opinion was shared by **Jean Pascal Zanders**. He did not consider the South African program a militarily significant threat but one that remained elementary. Many scientists were attracted to the program in order to get funding by joining a 'covert' state project. These scientists did, however, devote a minor part of their time to 'covert' research. Furthermore the whole program appears more associated with assassination efforts rather than battlefield situations and was thus geared to internal insurgency. There are today only a few figures are problematic. These persons appear more interested in regaining status and money but do not pose a major threat. Zanders considered that the South African programme was not a major BW programme like the USA or the Soviet Union once had. It was rather a-typical.

Wider range goals?

Florin Paul from the Romanian Ministry of Defense noted the need to meet wider range goals in biosecurity. There are many issues that need to be solved. This might mean pulling together the efforts of various institutes and organizations to come up with specific goals and solutions. Paul noted that we are at the very start of the bio threat agenda in terms of identifying threats and risk assessment. Perhaps we should try clarify what we really want to focus upon: problems in Russia, Europe or the US?

Michael Oborne, Director Multi-disciplinary Issues at the Organization for Economic Co-operation and Development (OECD) suggested looking at the risk question from a behavioral point of view. In this context of biosecurity, he argued, there are at least four behavior patterns. Ignorance – where we do not know what we are doing and make mistakes. Secondly, negligence, where actors are aware of but do not follow the rules. Thirdly, there is willful misaction or diplomatically aggressive behavior, where action targeted by a state or strategic source. Finally, there is socio-pathic or normally criminal behavior. For all of these different groups there are different tool kits. In discussion, borders have become blurred and one tool is being used for different behavior patterns, he warned.

Kate Phillips, Research Associate at the Center for Strategic and International Studies (CSIS) in Washington DC, introduced the group to a new project

underway for Biological Threat Reduction (BTR). The BTR Project will utilize a comprehensive framework--looking across several regions of the world, various professional communities, and all phases of the problem--to develop a global agenda for reducing the threat from biological weapons. The project is currently building an international consortium of experts that will address three key areas. The first is understanding the varying perceptions of the biothreat in different regions and professional communities. The second is the developing a 'baseline assessment' of all policies and activities underway in biological threat reduction. From this assessment, CSIS and the consortium will identify key gaps and publish policy recommendations in the form of a Global Agenda for Biological Threat Reduction.

A threat difficult to perceive

Concerning the bio-defense and homeland security, **Christian Sommade**, Délégué Général at the Haut Comité Français pour la Défense Civile, noted that it is not politically attractive to spend money on a bio threat if is difficult to perceive. It is then necessary to combine health and bio threats so as to gain support. The issue of natural outbreaks helps politicians understand the dangers. Special Advisor at the WHO **Diego Buriot** fully supports this view. If there are good public health systems, then they will cope for both natural and unnatural mass casualty situations. The WHO does not, however, have a specific program for responding to bioterrorism but wants good public health systems in place.

Michael Callahan noted how the US has produced many mathematical models and operational guidelines. When these are compared to experience in the field, as recently in Iran, Indonesia or Africa, models degrade despite being carefully prepared. This explains the commitment to learning from experience in humanitarian help situations. Much has been learned from organizations like Médecins Sans Frontières that have developed new levels of professionalism in data analysis of mass casualty situations.

Mark Cantley, Adviser at the European Commission's Directorate General for Research, noted the need for professional risk analysis. There is a certain amateurishness in bio threat analysis, he argued. Real professionals in risk analysis are in the insurance industry. In biotechnology, there have been debates with the reinsurance industry about the limits of insurable risk. What are the public liability risks of research laboratories? At what point will governments pick up the bill? In the European Commission, there has been a similar debate with the insurance industry, in the discussions leading up to the adoption of Directive 2004/35/CE on environmental liability with regard to the prevention and remedying of environmental damage – the industry pointing out the problem of trying to insure a type of damage which scientists could neither define nor measure. There is a great deal of expertise in the reinsurance industry. This could contribute significantly to the bio threat risk assessment, Cantley suggested.

Conclusions

Senior Administrator **Magnus Ovilius**, also referred to personal risks involved in gaining money. Personal conviction and money are important personal motivating factors. With an average salary in the Russian research industry of some 150 to 160 dollars, there is heightened risk of trying to sell information to suspicious parties. This points to the need of maintaining a register of experts in certain sensitive fields with additional registration for enterprises that provide equipment being licensed. For Ovilius, registration can make it much more difficult for sensitive knowledge to be misused in the biosector.

Louis Réchaussat, Director of the Information System Department at the French institute of Health and Medical Research (INSERM). As Chair of the OECD Task Force on BRCs, Réchaussat stated that one of the major problems is not from outside countries but OECD countries where there are dangerous materials. We need to regulate materials in a proper manner, not to ban but to make both the use and transport of materials safer. The OECD Task Force on BRCs is drawing up guidelines for member countries.

Vincenzo Caporale, President of the Scientific Commission at the World Organization for Animal Health (OIE) turned to agents that cause problems as infectious agents for animals. He believes it is necessary to confront both naturally occurring and criminally induced epidemics. The OIE is defining norms that could and should be taken on board by the 169 member countries. This will define how agents are handled in various laboratories. One of the major problems at this point in time is the totally free use of agents that

can cause serious difficulties like rabies, food and mouth diseases, etc. Such types of agent spread fast, and even if there are norms governing their use are they being implemented? Existing international norms should be enforced as a first measure. And there also is a need to identify the main dangers. For instance, even if there has been much distress caused by avian influenza, is it the most serious problem in terms of final impact on humans, Caporale asked?

Summarizing the two sessions, moderator **Giles Merritt** made an observation as to the great number of topics covered and the danger of making generalizations in the area of biosecurity. He announced that recommendation would soon be circulated among experts as a result of the day's debate. The next meeting of the group is set for 25 April 2005.

Session II's panel: Maurizio Martellini, Jill Dekker-Bellamy, Raphael Della Ratta and Derek Averre.

Analysis

Jill Dekker-Bellamy
Bio-Defence Consultant, New Defence Agenda

> *"Until a little more than a decade ago, the biggest single threat in the world was the power of weapons of mass destruction in the hands of governments. Washington and Moscow's greatest fear was each other. Today, things have changed dramatically and Russia and the US face a common enemy: terrorist groups in possession of chemical, biological and nuclear weapons."*
>
> **Ashton Carter** and **Richard Lugar**

Next Generation Threat Reduction

January 25th's meeting focused on identifying counter measures to prevent and deter the use of biological weapons and technology either by rouge states or terrorists. It assessed major Cooperative Threat Reduction (CTR) programmes and stakeholders whose collaboration is essential in the fight against biological terrorism, technology proliferation and scientific flight. How can we strengthen and sustain CTR not only in Russia but in other states such as Newly Independent States or states with whom little engagement has been undertaken such as Syria, the DPRK and Iran?

Recent events in Beslan, similar to the events of 911, seem to cross another threshold in ethical and moral proclivity of terrorist intent on mass casualty terrorism. The terrorists who carried out this horrific act are also responsible for planting a radio-active device (RDD) containing cesium 137 several years ago in a Moscow park. Members of this same terror network, run by Chechen terrorist Shamil Basayev, carried out the Moscow Dubrovka theatre

[2] Carter, Ashton B., and Richard Lugar. "A New Era, A New Threat." Belfer Center for Science and International Affairs, Financial Times, 23 May 2002.

siege in October 2002 in which 175 people were ultimately killed. Besayev's group also detonated a canister of toxic agents in a village near Grosny in 1999. Since this time, Basayev has expressed an interest in biological weapons and has conducted reconnaissance on biological laboratories prior to the Beslan siege. The Riyadus-Salikhin Battalion organization, lead by Basayev, issued a warning on 20 November 2002 that it would henceforth target various European bodies and NATO because of their allegedly hypocritical pro-Russian stances.[3] Since 1999 there has been a steady increase in the number of reports indicating that Chechens have been carrying out surveillance on sensitive Russian facilities, presumably in order to attack them or access them and thereby acquire dangerous materials.[4] This may suggest such terror groups are taking a more active interest in CBRN materials acquisition. In the event of a biological attack, particularly within a nation with limited public health resources and no infrastructure for detecting or containing an act of biological terrorism, depending on the pathogen, the international community will be placed at immediate risk.

Given the extensive structure of Russia's former Biopreparat pharmaceutical and bio-defence programme, the security of laboratories within Russia and in states with former high containment facilities such as Kazakhstan, Uzbekistan and Georgia are critical to international security. Equally vital are programmes which convert former laboratories and redirect highly trained biological weapons scientists into productive bio-technology sectors.

The Problem in Focus: why do we need Cooperative Threat Reduction?

When we talk about advancing cooperative threat reduction the areas which spring to mind include facility security, culture collection and pathogen security, reducing scientific flight, addressing undisclosed or hidden stocks of BW agents, and preventing theft, diversion or sale of high consequence pathogens on an illicit black market. This session saw participants address a number of issues related to threat reduction:

- How has our perception changed from a primary focus on state-level BW programmes addressed partially by the Biological and Toxin Weapons Convention to a more contemporary threat assessment based on sub-state actors?
- Are we using all appropriate and available methods to reduce the threat of bio-terrorism and state biological warfare programmes?
- Are we collaborating at the highest policy and action level with all stakeholders?
- Do we need to develop a mechanism which cross cuts all threat reduction programmes from the US, the EU, Russia and the G-8 to achieve the highest integration and efficiency of CTR?
- How can we adequately sustain redirect programmes?

Although the threat of biological terrorism is more recently considered as a sub-state threat or in terms of asymmetric attacks, the scope of the problem and its underlying issues are far more complex. The need to strengthen a multi-level approach and sustain current threat reduction activities is a priority goal of stakeholders.

The CTR equation: security, science and technology

> ***"What sets BII apart is its focus on developing and implementing an 'exit strategy' for USG non-proliferation funding."***
>
> **Jason Rao**, Ph.D, Director, Bio Industry Initiave, US Department January 2003

The nature of biological pathogens to silently spread, the potential for advanced bio-technology and genetic manipulation to make them more virulent or resistant to current known treatments, and the person-to person infection of disease puts biological terrorism in a class all it's own. The only rational counter-measure to the threat of a deliberate, possibly global epidemic is to build an infrastructure based on mutual and coordinated threat reduction policies.

Contrary to general perception, US biological, chemical and nuclear threat reduction initiatives and response to weapons of mass destruction are not a result of 911 or anthrax. In fact, the major US non-proliferation and threat reduction programmes were launched under the

[3-4] Bale, Jeffrey M., "The Chechen Resistance and Radiological Terrorism", Center for Non-proliferation Studies, April 2004. URL: http://www.nti.org/e_research/e3_47b.html

patronage of Senators Sam Nunn and Richard Lugar who recognized this threat in the early 1990's and moved forward with a comprehensive system of CTR. One of the primary US programmes to counter the threat of bio-terrorism is the Bio-Industries Initiative. Its mission is to counter the threat of bioterrorism through targeted transformation of former Soviet biological weapons research and production capacities. The U.S. Department of State Bio-Industry Initiative (BII) is a nonproliferation programme which focuses on two objectives:

- The reconfiguration of former Soviet biological weapons (BW) production facilities, their technology and expertise for peaceful uses;

- The engagement of Soviet biological and chemical weapons scientists in collaborative R&D projects to accelerate drug and vaccine development for highly infectious diseases.

The United States has been actively engaged in threat reduction for over two decades. In the late 1980's when it became apparent the Soviet Union could not adequately safeguard its CBRN arsenals, nor the associated technology and know-how, and with the collapse of the Soviet economy in 1991, the US government foreign assistance programmes' goals were to ensure the safety and security of WMD assets in NIS. The US allocated around 4 billion over the last decade to threat reduction programmes through the departments of Energy, Defence, State and Commerce. Following the September 11th 2001 attack on the World Trade Center, US spending on threat reduction increased. Although the United States has indeed been a leader in CTR, the European Union and the G-8 have made significant and sustained contributions in this area as well. Should we consider building in more cohesive mechanisms to further integration of our mutual threat initiatives? What form should this integration take? Our goal into the 21st Century should be to advance threat reduction mechanisms, in order to adequately sustain programmes with an existing strategy.

[5-6] Jasinski, Michael, "Nonproliferation Assistance to Russia and the New Independent States", CNS NIS Nonproliferation Program, August, 2001 (updated August 2001), URL: http://www.nti.org/e_research/e3_4a.html

European CTR Initiatives: ISTC/CTSU[7]

"In the past the failure of the EU to develop a coherent strategy to address the threat posed by weapons proliferation was a barrier to the development of a programme of mutually supportive transatlantic activities."[8] In June of 2003, the European Union adopted an Action Plan against proliferation of WMD. The Action Plan specifically sets out to expand threat reduction programmes. The climate of international security and the increased recognition of the threat posed by unsecured technology, scientific flight and the potential for sensitive technology transfer have heightened both awareness and spending by the EU in the area of threat reduction. The EU has designated €125 million for ISTC/STCU[9] former weapons scientist assistance through 2006. The Joint Action, establishing a European Union Cooperative Programme for Non-Proliferation and Disarmament in the Russian Federation was adopted by the EU Council on 17 December 1999. Although the primary areas of support run through TACIS are based on nuclear and chemical weapons threat reduction, the EU is committed to cooperation in biological threat reduction programmes as well. Action in this area however must be increased and obligations implemented in order for the EU to continue collaborative CTR and engage more fully with the Russian Federation. Ensuring sustained threat reduction engagement and meeting the EU objectives will require greater economic investment and technical support. The ISTC is a primary source of funding for redirection. By 2000 more than 2200 former Soviet Bio-defence personnel were funded and access gained to 30 out of approximately 50 non-military Bio-defence related institutes.[10] The ISTC projects were funded at 29 institutes, 19 of which where bio-defence related institutes and 10 supporting facilities.[11] The ISTC is an intergovernmental organization established in 1992 by agreement between the European

[7] In 1992 the EU, Japan, Russia and the USA established the ISTC as an international organization with a Governing Board made up of representatives from the EU, Japan, Russia and the USA. In addition, one seat on the board is occupied on a rotational basis by countries located on the territory of the FSU that have become parties to the agreement. Apart from Russia, six other states are currently parties to the ISTC Agreement: Armenia, Belarus, Georgia, Kazakhstan, the Kyrgyz Republic and (as of 2003) Tajikistan. *Strengthening Threat Reduction:ISTC and STCU, Stockholm International Peace Research Institute*

[8] The ISTC (International Science and Technology Centre) is an intergovernmental organization based in Moscow. It was established in 1992 by an agreement between the EU, the US, Japan and the Russian Federation. Its aim was to offer highly skilled scientists working on the former Soviet Union's military research programmes opportunities to redirect their talents to peaceful activities. See: European Communities "EU Cooperation with the NIS in Science and Technology", The European Commission , 2005, URL: http://europa.eu.int/comm/research/nis/en/istc.html

[9] The ISTC (International Science and Technology Centre) is an intergovernmental organization based in Moscow. It was established in 1992 by an agreement between the EU, the US, Japan and the Russian Federation. Its aim was to offer highly skilled scientists working on the former Soviet Union's military research programmes opportunities to redirect their talents to peaceful activities. See: European Communities "EU Cooperation with the NIS in Science and Technology", The European Commission , 2005, URL: http://europa.eu.int/comm/research/nis/en/istc.html

[11] Roffey, Roger, "The legacy of former Soviet BW programmes and need for enhanced support for redirecting to civilian commercial and R&D activities", Presented at the Workshop on Building a Global Agenda for Bio-proliferation: Current Status and Future of Russian Biotechnology, Como, Italy, 17-18 November 2003. URL:http://www.sgpproject.org/press/Roffey%20on%20Russian%BW%20Nov03.pdf

Union, Japan, Russian Federation, and United States of America.

Armenia, Belarus, Georgia, Kazakstan and the Kyrgyz Republic also have joined the ISTC. Norway has acceded to the ISTC in 1997, the Republic of Korea - in May 1998 and Tajikistan - in March 2003. Canada has become a full member of the ISTC on 1 March 2004.[11] The ISTC framework program is "Science Projects", supporting thousands of Russian and CIS scientists in peaceful research including the resources of hundreds of collaborators and Partners. Through 2003, the ISTC has funded over 58,000 scientists and their team members in 765 research institutes.

Russia

Although the focus of the NDA session was squarely set on evaluating the scope, achievements and gaps of current US, EU and G-8 CTR programmes, Russia should be credited as well with recognizing and addressing the threat of bio-terrorism. Russia has undertaken initiatives to increase its biological defence preparedness. The Russian Government launched a Pathogen Defence Programme running from 1999 to 2005.[16] Given recent events in Beslan, terrorists increased interest in WMD and possible access to biological facilities, Russian partnership and collaboration to extend threat reduction programmes is vital. Russia has a valuable contribution to make in an area in which they have unrivaled competence in scientific areas applicable to bio-terrorism, bio-defence, vaccine research, diagnostics and analysis. Increasing Russian participation in threat reduction programmes would strengthen mutual counter measures against the use of disease as a weapon.

The G-8 Global Partnership: "10 Plus 10 over 10"

"The attacks of September 11 demonstrated that terrorists are prepared to use any means to cause terror and inflict appalling casualties on innocent people. We commit ourselves to prevent terrorists, or those that harbour them, from acquiring or developing nuclear, chemical, radiological and biological weapons; missiles; and related materials, equipment and technology. We call on all countries to join us in adopting the set of non-proliferation principles we have announced today."

Statement by G-8 Leaders, Kananaskis

The United States has initiated various biosecurity and biosafety projects in Kazakhstan and Uzbekistan, and plans to expand these activities to Georgia and Ukraine. There is however tremendous opportunities for greater Global Partnership involvement in these programmes and activities in Tajikistan, Belarus, Armenia, Azerbaijan, Kyrgyzstan, and Turkmenistan.[17] The nature and scope of BW expertise, infrastructure, and stocks of pathogens vary widely across these states.[18] Each of them hosts a variety of biomedical facilities that were connected to the network of Soviet Anti-Plague system; the system in the late 1980s encompassed six institutes and approximately 200 regional and field stations scattered throughout the southern and south-eastern parts of the Soviet Union.[19]

As noted by William Potter, "Among the specific tasks that other Global Partnership states might undertake at these sites outside of Russia, in addition to consolidating dangerous pathogens at fewer sites in fewer countries as much as possible, are:

- Upgrading the biosafety and biosecurity of microbial collections and research facilities to reduce the risk of accidental infections and the potential for theft or diversion of dangerous pathogens;
- Strengthening systems for epidemiological surveillance of both human and veterinary infectious diseases at the Anti-Plague Institutes and stations;
- Exploring the feasibility of better integrating the disparate disease surveillance systems operated by the Anti-Plague Institutes, the military, and other agencies, which are poorly, if at all, coordinated; and
- Computerizing the voluminous paper archives at the Anti-Plague Institutes that contain historical data on past disease outbreaks in order to create searchable databases that could serve as valuable epidemiological research tools."

[11] Roffey, Roger, "The legacy of former Soviet BW programmes and need for enhanced support for redirecting to civilian commercial and R&D activities", Presented at the Workshop on Building a Global Agenda for Bio-proliferation: Current Status and Future of Russian Biotechnology, Como, Italy, 17-18 November 2003. URL:http://www.sgpproject.org/press/Roffey%20on%20Russian%BW%20Nov03.pdf

[12-15] International Science and Technology Centre. URL: http://www.istc.ru/

[16] Roffey, Roger, "The legacy of former Soviet BW programmes and need for enhanced support for redirecting to civilian commercial and R&D activities", Presented at the Workshop on Building a Global Agenda for Bio-proliferation: Current Status and Future of Russian Biotechnology, Como, Italy, 17-18 November 2003. URL:http://www.sgpproject.org/press/Roffey%20on%20Russian%BW%20Nov03.pdf

[17-19] Potter, William C., "Prospects for International Cooperation on Bio-Security, the Global partnership and Biological Weapons, PIR Center Conference, Monterey Institute of International Studies. Moscow, April 2004. URL: http://cns.miis.edu/research/globpart/pottertalk.htm

"While America's attention has been riveted on Iraq and the war on terrorism, the Nunn-Lugar cooperative threat reduction agenda has, with little fanfare, protected the nation against major nuclear, chemical, and biological weapons threats."[20]

Kenneth N. Luongo and **William E. Hoehn III**

These potential areas of engagement were reflected by participants at the NDA session as a high priority for advancing threat reduction and collaborative efforts among the G-8, EU, US and Russian Federation. It should be noted that several nations outside the G-8 have contributed to a number of threat reduction programmes and continue to fulfill national obligations to regional CTR initiatives.

The Future of Threat Reduction

What direction is cooperative threat reduction likely to take over the next decade? What are the most significant elements of constructing efficient CTR likely to be? A few points to consider: A strong indicator that threat reduction will continue to be an important and sustainable tool in the fight against bio-terrorism is the example of programme expansion and collaborative engagement. The United States and Kazakhstan signed an amendment to a bilateral agreement that will expand cooperation against the threat of bioterrorism through the Nunn-Lugar Cooperative Threat Reduction Program. The goal of ongoing U.S.-Kazakhstan cooperation in this area is to counter the threat of bioterrorism and prevent proliferation of biological weapons technology, pathogens, and expertise at their source.

Nunn-Lugar assistance has five key goals: (1) prevention of the proliferation of biological weapons expertise through the cooperative biological research program; (2) securing dangerous pathogens and strains by strengthening biosafety and biosecurity at facilities; (3) consolidation of dangerous pathogens at secure central repositories; (4) elimination of biological weapons-related equipment and infrastructure; and (5) fortification of Kazakhstan's biological threat agent detection and response system to protect against bioterror attacks.[21] Should the European Union consider structuring their current programmes to reflect these key areas and expand threat reduction into regions which directly impact EU security?

Country	Amount Committed Under 10+10 Initiative	Approximate Amount Previously Spent or Pledged for the former Soviet Union
United States	$10 billion [1]	$7 billion since 1992 [2]
United Kingdom	up to $750 million promised by PM [3]	$128 million since 2000 [4]
France	No amount publicly announced	$130 million since 1992, excluding TACIS [5]
Germany	$1.5 billion [6]	$30.5 million from 1993 to 1999 [7]
Japan	$200 million [8]	$70 million since 1993 [9]
Italy	No official commitment; media indicates $600-650 million ($60-65 million anually for 10 years) [11]	$23 million since 1992 [12]

Chuen, Cristin, Michael Jasinski and Tim Meyer, "The Ten Plus 10 over 10 Initiative: A promising start but little substance so far", Center for Non-Proliferation Studies, 12 August, 2002.

Transatlantic Gaps in CTR

As noted by several experts in the field, the primary gaps in CTR include but are not limited to the following areas:

- Many Russian and NIS civilian facilities that possess dangerous pathogen culture collections and dual-use production equipment have received little or no outside assistance;[22]
- Institutions need help to make long-term transitions from military related work to focusing on civilian applications. The most practical avenue for this new effort would be to channel increased contributions through the ISTC for use on biotechnology and life sciences programmes; [23]
- There is a need to develop a comprehensive strategy that integrates all CTR efforts and stakeholds and priorities key areas to be undertaken;
- In order to continue to reduce the risk posed by bio-weapons, dual-use technology and scientific flight, CTR programmes should be extended beyond Russia and into other nations of concern;
- Many danergous pathogens and culture collections world wide have not been

[20] Luongo, Kenneth N., and William E. Hoehn III, "Reform and Expansion of Cooperative Threat Reduction", Arms Control Association, Washington D.C., June, 2003. URL: http://www.armscontrol.org/act/2003_06/luongohoehn_june03.asp

[21] US and Kazakhstan sign Nunn-Lugar Agreement Amendment to Prevent Biological Weapons Proliferation, Wednesday 8, December 2004. URL: http://lugar.senate.gov/pressapp/record.cfm?id=229682

documented or secured; this should be undertaken as a function of threat reduction, perhaps in collaboration with WHO member states.

"Today the proliferation of weapons of mass destruction to states or non-state actors, know-how, technology and materials is a major threat that only international cooperation can prevent."

Roger Roffey, Swedish Ministry of Defence

Summary

The NDA's Bio-Terrorism Reporting Group meeting on Advanced Threat Reduction posited the need to enact a suite of counter measures in the fight against the use of Weapons of Mass Destruction, biological terrorism, and knowledge transfer of sensitive bio-technology research in nations of concern.

We shouldn't be stuck in the box debating the lack of sophistication terrorists have yet employed; the feasibility question or which pathogen they will use, be it in a material or weaponised form. Our focus instead would be better placed considering the stated intent of terrorists to do so and preventing and denying them access to all the means to conduct their terror campaigns. While tremendous strides have been made since the early initiatives set out by Senators Sam Nunn and Richard Lugar, it is now up to the international community to maintain and sustain these hard won successes.

Much debate has gone into whether or not terrorists or states pose the greatest threat in the use of disease as a weapon. These debates over whether or not terrorists are capable of successfully conducting a biological attack normally get bogged down in a number of areas related either to acquisition, technical areas (i.e. feasibility/dispersal/capacity) or areas related to kill ratios and casualty numbers as if this is the Geiger counter of successful biological terrorism. This may be of interest in ranking weapons of mass destruction but not necessarily in ranking a successful bio-terror campaign. Contemporary threat assessments, even more than two years ago, point to smaller groups as now being more likely to succeed in a bio-terrorism event utilizing a diversity of agents. Our greatest resource in countering this threat is to engage in cooperative threat reduction activities, coordinate and integrate our capabilities to ensure pathogen security, sustain redirection programmes and facilitate the conversion of former military programmes to competitive international markets. In regard to this last point it is then essential to implement good laboratory practices and rigorous standards which apply to these markets.

While terrorists have recently crossed a number of thresholds with conventional weapons, they may not need to be as successful with the number of civilian deaths in order to generate the same level of fear. Or they may be more successful than our current understanding permits. Cooperative threat reduction is a vital effort that is essential to reducing 21st century bio-terror threats. It needs to be updated, reformed, and expanded.[24]

"One school of thought believes Russia, as the largest source of stocks of biological, chemical and nuclear weapons should continue to be the main focus of attention. Other observers however believe there is now an opportunity to focus additionally on states within the nexus of terrorism and WMD."[25]

As the threat of terrorism is transnational and the intent to acquire WMD has become a stated objective of terrorists, states which may pose a risk in terms of materials and facility security must be included in threat reduction architectures. The EU and G-8 have a tremendous contribution to make in this area but must expand appropriations and collaborative efforts to ensure sustainability. The Cooperative Threat Reduction model may offer a framework for counter complexities underlying bio-terrorism in other nations which pose a risk.

Remarks:

- At the international level there are no standards for biological security. It is imperative states begin to implement national and regional bio-security standards.
- There is a tendency to view bio-terrorism as a US problem. However some indicators suggest that terrorists may try to hit nations with no public health infrastructure and

[22-23] Roffey, Roger, "The legacy of former Soviet BW programmes and need for enhanced support for redirecting to civilian commercial and R&D activities", Presented at the Workshop on Building a Global Agenda for Bio-proliferation: Current Status and Future of Russian Biotechnology, Como, Italy, 17-18 November 2003. URL:http://www.sgpproject.org/press/Roffey%20on%20Russian%BW%20Nov03.pdf

[24] Luongo, Kenneth N., and William E. Hoehn III, "Reform and Expansion of Cooperative Threat Reduction", Arms Control Association, Washington D.C., June, 2003. URL: http://www.armscontrol.org/act/2003_06/luongohoehn_june03.asp

[25] Squassoni, Sharon, "Globalizing Cooperative Threat Reduction: a survey of options", CRS Report for Congress, Congressional Research Service, The Library of Congress, 15 April, 2004, URL: http://fpc.state.gov/documents/organization/32006.pdf

reduced response capability. We need to be considering threat reduction within an international context, securing pathogens, establishing bio-security and bio-safety standards and criminalizing the acquisition, development and production of biological weapons at the international level;

- Although we've seen collaborative efforts to track former Soviet bio-weaponeers other nations which ran offensive biological weapons programmes and the scientists with this knowledge should be considered within a wider CTR framework.

- In terms of rogue states the DPRK (North Korea) has received attention at least from the United States regarding CBRN risk but this seems to be mainly tied to their advanced missile technology and proliferation of this technology. Are we doing anything or should we be concerned about the DPRK and their human experiments with biological weapons? What role can the EU and G-8 play in reducing the threat of rogue states?

An overview of January 25 participants

RANSAC's Raphael Della Ratta and the Landau Network's Maurizio Martellini catch up during the coffee break

Derek Averre

Senior Research Fellow

Centre for Russian and East European Studies, University of Birmingham

Introduction

While it is linked to broader issues of biotechnology diffusion and control, this paper focuses on progress in bio threat reduction in Russia and the NIS and specifically on outstanding problems and possible solutions. It makes a number of recommendations regarding how bio threat reduction might be advanced in the future.

Russia's response to bio threat reduction initiatives

While Russia is overcoming its culture of non-transparency, more needs to be done by the Russian leadership to encourage openness and adopt a more transparent and flexible approach. The prevailing suspicious and unsupportive attitude to threat reduction of some Russian government officials, which extends to other parts of the political establishment including the State Duma, remains a major hurdle. At the policy level, this attitude threatens to have a negative impact on the Global Partnership.

At the implementation level, uncertainty about lines of government authority confuses both donors and recipient facilities as to what may be done in threat reduction programmes. Unlike Rosatom in the nuclear sphere, there is no focal point in the Russian government for joint bio threat reduction efforts.

Access to closed Russian biotechnology facilities is a real policy challenge to the nonproliferation partnership and has already proved an obstacle to the delivery of U.S. programmes. Efforts should be renewed, as part of a more concerted incentive-based strategy, to convince the Russian defence establishment that it is missing out on benefits that support for civilianising and commercialising BW-related research can bring, while taking into consideration their valid security concerns. The Russian defence ministry is unlikely to permit full access to closed facilities but this should not prevent the partnership from building on what has already been achieved. Transparency

issues in the biotechnology sphere are international challenges and should as far as possible be faced cooperatively.

Provisional recommendations

A number of suggestions to improve the situation were made at the Landau Network/ RANSAC conference in November 2003:

- G8 partners should continue to press for an implementation agreement with Russia, or at minimum a memorandum involving the relevant government agencies.
- The Russian government needs to be persuaded to overhaul the administrative capacity to absorb threat reduction programmes.
- Greater efforts should be made to engage the various agencies involved and understand their differing priorities.
- International organisations should organise high-level briefings and outreach programmes involving partner facilities, regional governments and Duma deputies with the aim of promoting legislative initiatives, including on a regional basis.
- The concept of foreign investment, rather than foreign assistance, should be promoted.
- Emphasis in policy statements should switch from BW disarmament to the need for joint efforts to promote biosafety/biosecurity, scientist redirection or 'reemployment' and development of the biotech sector and for partnership in international networks.

Economic diversification and sustainability in the biotech sector

Increasing importance in threat reduction strategies is being accorded to building infrastructure and capacities at NIS facilities in order to allow them to 'graduate' and become self-sustaining commercial enterprises. The hurdles are:

- Lack of access to some facilities.
- Inadequate government support.
- Poor infrastructure and communications.
- Lack of experience of putting together and managing market-oriented business plans.
- IPR and regulatory issues, especially when signing agreements with state facilities.
- Meeting international GMP/GLP standards.
- The Russian experience of privatisation, which has in some cases fostered negative attitudes to the market.

Threat reduction programmes are doing more to address the problems outlined above and conduct market-driven assessment of proposed R & D, and have scored successes in some biotechnology/ life sciences projects. A business culture is emerging in the NIS; however, Western businesses have in general been slow to respond. Commercialisation remains a complex and daunting task.

Issues to be addressed

Creating a strategic framework, with better coordination between donor countries and organisations and appropriate funding, would help to bring the NIS into international networks and to identify priority facilities and key technologies for development; a systematic review of best practices among donor organisations is urgently needed.

Continuing support from international programmes is likely to be needed by many facilities in the medium and long term; business plans should factor in this dependence and try to estimate its likely extent and duration. Flexible mechanisms and sources of finance should be investigated.

When assessing the commercial merits of a research project it should be understood that some technologies which may not be competitive on more sophisticated international markets may find a niche in local or less-developed markets; hi-tech science is not always commercially viable while lower-tech science may be sustained and provide employment. The NIS technology market is still relatively small.

Western firms, while interested in investment opportunities, may not want to encourage competition from the NIS and are likely to be extremely careful in targeting investment. Expectations of threat reduction programme sponsors and recipient facilities need to be realistic.

Rapid development of biotechnology markets mean that delays in implementing projects should be minimised – donors should ensure timely assessment of proposals and recipients must respond

quickly to demands of potential partners Commercialisation is not the only way, and may not be the best way, to transform the former Soviet BW complex: core competencies, in particular research, may be better applied at some institutes in public health, biodefence and other fields where international networks can make use of their expertise

However, the opportunities could be substantial: the biotechnology industry in Russia is undergoing reintegration and is projected to grow rapidly, especially in the food and agriculture sectors.

The future of bio threat reduction

The ISTC mission is evolving, and its organisational structure changing accordingly, from the redirection of former weapons scientists to the exploitation of sustainable and commercial research through international scientific partnerships. In order to further the Global Partnership's objectives it should aim to shape the nonproliferation environment strategically; for this it needs recognition at the higher levels of the Russian government. The STCU has fewer problems with recognition and access in the other NIS, but different local cultures and institutional peculiarities in these countries need to be taken into account when devising threat reduction strategies.

Biosafety and biosecurity remain vital elements of threat reduction. They involve both an oversight system for physical protection of dangerous pathogens and dual-use technologies from theft, illicit sale or transfer and accidental release as well as the implementation of security regulations, safety training, the licensing of facilities, standards of practice in the workplace and personnel vetting. Mandatory licensing in the NIS is a problem at the present time since many facilities and institutes doing valuable work would probably fail to meet international standards, and closing them down would add to the risk of 'brain drain'. Progress has been made at a number of facilities in ensuring physical protection, providing training and raising standards to GLP and GMP levels, but many others require sustained investment in terms both of financial and administrative resources from international organisations. Developing national frameworks in NIS countries, as well as improving the situation at individual facilities, to assess threats and risks and take advantage of the experience of Western partners is recommended.

Opinions differ over what impact threat reduction initiatives have had in checking the threat of 'brain drain'. A fundamental problem is that no full, precise inventory exists of the problem, and therefore an accurate assessment of the potential for 'brain drain' in the context of facility downsizing is impossible. This phenomenon should be seen both as the movement of scientists from biodefence institutes and as the transfer of intangible technology, which is very difficult to control. While security measures need urgent consideration, in particular to ensure the reliability of staff, ensuring the availability of attractive employment to specialists – not only scientists but also technicians and production workers - and educating the younger generation of biotechnologists in nonproliferation goals remains a vital task.

Building infrastructure by itself is insufficient to effect successful 'conversion': organisations need strategies for the efficient utilisation of human resources. Support should be given to scientists to undergo selection and training to make the transition from one type of research to another or to take on alternative roles, for example in management, technology transfer or product development. This is particularly important for younger scientists. Interface organisations with proven track records of successfully guiding basic and applied research to the marketplace should also be given support, as experience suggests that they are critical to the conversion process. The motivation of scientists is important; the experience gained in retraining UK biodefence specialists could be used in the task of redirecting Russian/NIS scientists. Differing cultures and histories must be taken into consideration when putting strategies in place and possible limitations recognised.

Public health preparedness for an outbreak of serious disease is a significant security issue in the NIS. Disease surveillance and healthcare planning are crucial elements in minimising the potential impact of bio-terrorism. This is one area where the NIS must be involved in global networks such as the WHO; to meet these challenges national systems must be established to assess threats, make emergency preparations, form preparedness and response programmes to plan/administer treatment, and share information with other nations. Threat reduction programmes can contribute to underpinning the scientific contribution to such activities.

Although research into dangerous pathogens is regulated by the Russian

Ministry of Public Health and there is good contact between officials and scientists, there is still a need to support training/education in biosecurity best practices to reinforce ethical norms and codes of conduct to combat misapplication by scientists. A bottom-up approach, engaging scientists themselves, is crucial in this respect: policy decisions arrived at via diplomatic negotiations should be supported by the scientific community. The NIS should be closely involved in what is an international challenge; the concept of threat reduction needs to be revised to support such programmes.

Conclusion

The role of bio threat reduction in combating proliferation and bioterrorism needs further consideration involving governments, scientists, the business community and policy analysts, networking international support. A strategic donor/recipient framework, including financial support, should be implemented. Greater efforts should be made to encourage high-level support in the NIS for the threat reduction partnership. A study of what 'reemployment' means and how to achieve it should be undertaken.

January 25 Participants hard at work

Raphael Della Ratta

Director of the Bio Threat Reduction Project
Russian American Nuclear Security Advisory Council (RANSAC)

Threat Reduction: A Decade of Progress

In the 13 years since threat reduction was introduced as a concept, it has proven itself a unique and effective nonproliferation tool, filling the gap between diplomacy, treaties, and negotiations on one side of the policy spectrum, and sanctions and preemptive military action on the other side of the spectrum. Since international threat reduction cooperation was launched more than a decade ago, important progress has been made to downsize and redirect to peaceful activities the former bio-weapons complex and its workforce. In particular:

The U.S. Department of Defense, through its Biological Weapons Proliferation Prevention Program, has worked through a variety of projects to reduce bio-threats, in four areas. The Cooperative Biological Research program currently funds projects at eight bio-institutes throughout the FSU. The Bio-safety/Bio-Security program has sponsored training courses for scientists, installed physical security systems in Russian, Kazakh, and Uzbek institutes. The Infrastructure Elimination program has removed equipment from three BW production buildings at the former anthrax production facility in Stepnogorsk, Kazakhstan, and developed a broader BW buildings destruction plan, and evacuated or destroyed live anthrax material on Vozrozhdeniye Island, in Uzbekistan. The newly established Threat Assessment/Disease Response program is designed to upgrade the diagnostic methods of Soviet-established disease monitoring facilities in the Kazakhstan, Uzbekistan, and Georgia to track outbreak of infectious diseases, remove pathogen libraries from existing sentinel stations for secure transport to central reference laboratories.

The U.S. Department of Energy, though the Initiatives for Proliferation Prevention program, has provided more than $30 million to re-employ biological experts in potentially commercial opportunities.

Two State Department-led initiatives have also been created to specifically focus on the

redirection of biological weapons expertise, the Bio-Industry Initiative (BII) and the Bio-Chem Redirect program. The BII program was established in 2002 with an appropriation of $30 million; it is seeking $3 million in additional funding in FY2005. To date it has provided market research assistance and Good Management/Laboratory Practices (GXP) training, established a commercial consortium of biotechnology production facilities, and established a separate Toxicology Testing initiative to improve the quality and pre-clinical services that can be provided to contract customers by Russian biotech institutes. The Bio-Chem Redirect program is a multi-agency effort, led by State, specifically focused on redirecting biological and chemical weapons scientists. Funds administered by State are provided to the Environmental Protection Agency, the Department of Health and Human Services and the U.S. Department of Agriculture. Key accomplishments of the Redirect Program include the establishment of environmental monitoring laboratories at the former anthrax production facility in Stepnogorsk, Kazakhstan, and in Kirov Russia.

International contributions to biological weapons threat reduction has been primarily channeled through the multilateral International Science and Technology Center has provided roughly $130 million in funding for more than 700 biotechnology/ life sciences projects, and this field has become in recent years the dominant technology sector supported by the program. Further, the U.S. government has provided approximately $30.8 million in support of the biotech sector, through the ISTC's Partners Program, through a variety of U.S. government entities.

Threat reduction has accomplished a great deal, stimulated international contributions to threat reduction, and spawned the Global Partnership. The creation of the Partnership itself was step in the right direction, but pledges need to be turned into actual funding, and funding into actual progress.

Threat Reduction in Crisis

As we speak the U.S. Cooperative Threat Reduction program is facing a crisis of survival, and if it falls, its end would have global implications. The CTR Umbrella Agreement governing all cooperative work by the DOD, as well as key components of the DOE and State Department programs, must be renewed or extended by mutual agreement by June 2006. If not, the bulk of U.S-Russian threat reduction cooperation will end. A number of issues impede the renewal of this agreement, which if left unresolved will end CTR as we know it. Not only would it undermine threat reduction as a concept, but it would also likely bring down the Global Partnership, allow lingering proliferation threats to persist, and force an abrupt end to efforts to expand threat reduction principles to new nations and regions of proliferation concern.

Therefore, an active, robust European role in threat reduction generally---and bio-threat reduction specifically---is more essential than ever, to be able to sustain this agenda in the event the United States' role in threat reduction diminishes. A failure to fully address the threat posed by excess biological expertise and insecure pathogen stockpiles would have devastating consequences.

In the area of excess weapons scientist redirection, the example of South Africa's biological weapons program illustrates the danger posed by inaction. Under "Project Coast," the biological weapons program of South Africa National Defense Force, Scientists pursued chemical and biological weapons, including 45 strains of anthrax; cholera; brucellosis; plague; and genetically modified agents; and developed an array of novel, highly-targeted dissemination techniques.

Although the program was renounced in 1993, it later became clear that not all pathogen samples and stockpiles were destroyed. Since 1993, former scientists report being approached by "recruiters" of foreign governments and extremist groups, and claim to have visited Libya, Iran, China, Syria, Egypt, Israel, North Korea. In particular, a series of articles published by the Washington Post in April 2003 stressed that "bacterial strains that supposedly were destroyed continue to turn up in private hands."

The Path Forward

First and foremost the Global Partnership must increase its focus on bio-threat reduction. While the EU, Canada, France and the UK have all identified bio-threat reduction as an emerging priority for the Partnership, and the redirection of excess scientists has been emphasized, there has been comparatively little funding directed to the area of scientist redirection in general, and bio-scientist redirection, in particular, to date. Part of this lack of focus is due to Russia's own efforts to focus Global

Partnership funding on CW destruction and submarine dismantlement. This must change; bio issues must be made a higher priority by all members of the Partnership.

Transparency at Russian facilities is essential for success. Access to Russian institutes primarily under the control of the Russian Ministry of Defense remains largely off-limits to western personnel, and opacity at these sites has a chilling effect on other aspects of bio-cooperation. It must be made clear to the Russian side that some level of transparency will be required to not only draw in western investors, either through direct access, using trusted third party agents, or similar confidence-building measures.

Encouraging development of internationally accepted biosafety and security practices at Russian institutes will be an essential conduit to drawing western investment, where possible. Creating a safety culture within Russia will have multiple benefits. However, it needs to be made clear to the Russian side that not every institute will be able to sustain itself commercially. Many facilities which cannot survive in a commercial marketplace may find a second life as dedicated research facilities or as components in a larger, global public health monitoring network. No matter what pathway to success a bio-institute pursues, be it commercial vaccine and drug development or as a sentinel station watching for outbreaks, all will have to quality facilities. EU entities are well-situated to assist Russian colleagues in the implementation of quality assurance standards and good lab practices.

Public health preparedness for an outbreak of serious disease---whether naturally-occurring or man-made---is a significant global security issue. Disease surveillance and health care planning will prove crucial elements in minimizing the impacts of a bio-terrorist incident.

Maintaining WMD Cooperative Threat Reduction Efforts: the European Union and Bio-CTR

Maurizio Martellini, Serectary General, Landau Network – Centro Volta
Kathryn McLaughlin, Research Fellow, Landau Network – Centro Volta

Despite G8 country pledges towards cooperative threat reduction (CTR) activities in Russia and the NIS, and increased attention given over to the non-proliferation of biological weapons in international and regional organisations such as the United Nations[1] and the European Union[2], dedicated Bio-CTR efforts remain practically non-existent. Bio-CTR is firmly on the agenda of the Group of Eight[3] but of a low priority, and efforts have barely moved beyond the establishment of recommendations at institutions such as the UN. This stasis represents a real threat to international security that as yet is receiving little satisfactory attention.

This paper argues that such CTR efforts should not be allowed to wane and proposes that the EU should take a leading role in Bio-CTR. The EU possesses unique capabilities that may perhaps allow it to more easily overcome the difficulties encountered by previous projects and to deal with the complex nature of Bio-CTR.

Bio-CTR suffers from a basic lack of focus on the BW issue and has yet to receive sustained and serious attention. Hitherto only the US has committed sustainable funding and devised extensive programmes, while the EU, Canada, France and the UK have all identified accounting for and dismantling former BW facilities or redirecting former BW scientists as a potential priority and are committing funding. Concrete projects are yet to emerge.

[26] UN High Level Panel Report, 4th December 2004. See also Statement by the Italian Delegation at the Meeting of States Parties to the Biological Weapons Convention, December 6th 2004.

[27] General Affairs conclusions of 15 April 2002; Basic Principles for an EU Security Strategy against Proliferation of WMD adopted in December 2003; Action Plan

[28] 2002 G8 Summit at Kananaskis, Canada

EU involvement in Bio-CTR

The European Union pledged €1 billion[29] at Kananaskis which was the fourth highest pledge behind the US, Russia and Germany. To date, however, the majority of funds donated have been used almost exclusively in the realm of nuclear safety and related nuclear issues. Grants in the chemical weapons area have been on a project-by-project basis. Little funding by comparison has been given to Bio-CTR projects although some member states have indicated their interest and are committing funding.

On the other hand, the EU has recently acknowledged the need to tackle to problem of biological weapons and bio-terrorism and identified the bio-threat as an emerging priority: the EU Strategy against proliferation of WMD and the Action Plan for its implementation emphasised the need for the expansion of threat reduction initiatives to maintain security against WMD, including pathogen and toxin security at facilities in Russia.

Suitability of EU as a vehicle for Bio-CTR efforts

The EU can be identified as a uniquely suitable and capable vehicle to push forward Bio-CTR, primarily in terms of its political situation, in situ CTR framework and its diverse technical expertise across a wide number of disciplines.

Political Advantages

Differing approaches to CTR, both between countries and between governments, strongly hinders the entire process which requires a clear strategic framework, improved coordination and clearer long-term aims. The EU is ideally placed to approach Bio-CTR with a strong strategic and coordinated method that should allow enable partners to establish larger integrated projects and networks of excellence. The EU could devise a method of coordinating bilateral arrangements between member states and third countries. Partners are more open to cooperation and true partnership as part of the EU than as individual states – a circumstance that is particularly important in threat reduction. Additionally, it could investigate the potential benefits of greater collaboration with the NIS in civilian biotechnology. The EU would likely meet greater success that its US counterpart in obtaining access to closed Russian facilities.

Institutional Framework and Experience

The EU is a prolific provider of economic and technical assistance to Russia having provided €2,281 billion between 1991 and 2000.[30] This demonstrates a good precedent of providing assistance to Russia and evidence of successful partnership programmes. The EU has been involved in the field of CTR since the 1980s[31] and has a well-established legal and institutional framework in place. The International Science and Technology Centre (ISTC), co-funded by the European Commission, is the main instrument for providing employment to former weapons scientists of the Soviet regime. Grants are awarded to projects demonstrating commercial promise or interesting contributions to civil science.[32] The normative setting within which CTR projects are devised is made up of the 1994 Partnership and Cooperation Agreement between the EU and Russia, the Common Strategy on Russia of June 1999 and the December 1999 Joint Action Establishing a European Union Cooperation Programme for Non-proliferation and Disarmament in the Russian Federation.[33]

Thus, with its established legal and institutional framework, the EU is already in the position necessary from which to begin sustained Bio-CTR projects and has a proven record of success in CTR in general.

Technical Expertise

The EU has a high level of CTR project expertise at its disposal over a number of varied fields. This diversity of experience and know-how would be extremely beneficial when applied to the complexity of biological-related disciplines likely to be involved in Bio-CTR efforts.

[29] Equivalent to US$1.21 billion (conversion as of 29/06/2004 – taken from Strengthening the Global Partnership website www.sgpproject.org/Donor%Factsheets/EU.htm - accessed 02/01/2005)

[30] Höhl, K., Müller, H., and Shaper, A., EU Cooperative threat reduction activities in Russia, Chaillot Papers No.61, June 2003, p16

[31] see 1986 Single European Act and the creation of working groups on nuclear, chemical and biological proliferation.

[32] Höhl, K., Müller, H., and Shaper, A., EU Cooperative threat reduction activities in Russia, Chaillot Papers No.61, June 2003, p16

[33] Höhl, Müller,& Shaper, p16

Recommendations

- Bio-CTR should be moved up the agenda of G8 CTR initiatives
- Clearer, long-term strategies with greater coordination is necessary
- Greater European involvement in Bio-CTR should be encouraged
- Biosafety and Biosecurity achievements should be consolidated
- Commercialisation of biotechnology should receive a high priority
- The role for Science Centres should be enhanced
- Sustainable strategies for civil deployment of former bio-weapons scientists must be devised
- Codes of Conduct regulating biotechnology research must be established

Conclusions

The traditional challenges plaguing CTR projects still remain and are not easily surmountable. An increased role by the EU in the Bio-CTR area may, however, achieve more success in dealing with these difficulties than individual, bilateral programmes. The EU has not prioritised Bio-CTR since its efforts began, although this seems to be changing in the future. Whether fast action can and will be taken seems doubtful, but the recent attention given to Bio-CTR is encouraging and should be consolidated

Session I Panelists included Diego Buriot, Michael Callahan, and Michael Powers

Michael Powers

Senior Fellow
Chemical and Biological Arms Control Institute (CBACI)

The Context

The September 11th terrorist attacks of 2001 and the subsequent anthrax mailings in October of the same year heightened global awareness of transnational terrorist organizations – particularly al-Qaida and affiliated networks and organization, their desire and ability to execute mass casualty attacks, and the ability of at least some individuals or organizations to use a "weapon of mass destruction" – in this case a biological weapon.

All indications are that the anthrax mailings were not connected to the September 11th plot or to the al-Qaida organization. The mailings themselves, while causing the tragic loss of five lives, did not produce mass casualties. Given its very high quality of the preparation, the agent disseminated in the envelopes were capable of producing mass casualties if released in larger quantities at different locations.

To date, the exact source of the mailings and the anthrax agent is unknown. No one has been formally charged in connection with the mailings. The one individual acknowledged publicly as a person of interest in the case is trying to sue the Federal Bureau of Investigation with ruining his personal and professional character. The FBI has acknowledged a probable connection between the individual responsible for sending the letters and the U.S. biodefense establishment because the individual either had access to prepared biological agent or had direct knowledge of the methods and procedures for its preparation.

Unlike the other major categories of unconventional weapons – namely chemical, radiological, or nuclear weapons – the major hurdle for terrorists and state-based programs is not obtaining the necessary pre-cursor materials, but obtaining the information, knowledge, and experience necessary to translate a disease-causing microorganism into a weapon of mass destruction. Richard Danzig of CSIS refers to a "thin line of ignorance" that is keeping biological weapons out of the hands of terrorist organizations. More recently, there has been considerable discussion

about how the nature of the life sciences "revolution" may contribute to the biological problem by providing information and experience to a growing set of individuals around the globe and by making possible new and improved forms of biological warfare. These discussions and the range of measures for securing this intellectual base in the life science are incredibly important to international efforts to combat biological weapons and bioterrorism.

At the same time, the biological weapons programs of the Soviet Union and its successor states are and will continue to be the most significant potential source of expertise and experience related directly to the development and production of biological weapons. Estimates of the number of individuals and facilities directly involved with various elements of the Soviet biological weapons programs vary – but reach as high as 50,000 – 60,000 scientists and technicians at as many as a hundred laboratories and other facilities. It also includes multiple reference laboratories possessing reference strains of a wide variety of microorganisms – some of which were part of biological weapons activities and others developed during legitimate medical and public health monitoring and research.
For this reason, efforts to secure BW intellectual and physical infrastructure in the Soviet successor states are not only a key element of global non-proliferation strategies, but must also be seen to be a vital and integral element of the homeland security and counter-terrorism efforts. From a personal perspective, where there have been concerns regarding the contribution of BW threat reduction programs to possible vertical proliferation, the contribution of these programs to stopping horizontal proliferation to states and non-state actors are too important to be trumped by such concerns. In other words, the international community must find ways to address lingering concerns regarding Russian compliance with non-proliferation commitments without threatening to hold back certification or reduce the funding available to threat reduction programs.

Overview of U.S. Efforts

Moreover, the international community must increase its work to secure the biological infrastructure present in these successor states. In the United States, this will require increased leadership and political commitment from both the President and leading members of Congress – including individuals like Senator Richard Lugar: chair of the Senate Foreign Relations Committee, a sponsor of the original CTR program, and champion of recent legislative action to expand the availability of CTR funding to countries outside the former Soviet Union. And, as the United States has increased its commitment to biological threat reduction programs in recent years, there are multiple opportunities for other countries – including European Union member states – to contribute to biological threat reduction efforts.

Efforts to secure the residual intellectual infrastructure produced during the Soviet era programs are a glass half-empty, glass half-full situation. Through various U.S. threat reduction programs and initiatives, considerable progress has been made to engage former BW personnel and provide them with opportunities to apply their expertise to legitimate academic or commercial activities, secure and in some cases redirect physical infrastructure formally part of BW activities, and dismantle particularly dangerous facilities and equipment. A great deal has been achieved through these programs over the past several years, but there is more progress yet to be made.

U.S. threat reduction efforts have focused on the three main thrust areas I mentioned previously: upgrading the security of pathogen collections and other sensitive facilities, engaging former BW program personnel in legitimate activities, and destruction and dismantlement of BW facilities and equipment. Mirroring the structure of U.S. threat reduction programs generally, biological threat reduction programs are spread out among multiple government departments – particularly the Department of State, the Department of Defense, and the Department of Energy.

The specific program activities and the associated funding levels for the three Department's BW threat reduction activities are as follows:

Department of Defense - Cooperative Threat Reduction Program

- **Biological Weapons Proliferation Prevention (BWPP)**:
  - FY99: ~$2 m
  - FY02: ~$17 m
  - FY03: $55 million ($416.7 million total CTR program)
  - FY04: $54.2 million ($450.8 m)
  - FY05 (Request): $55 million (409.2 m)

Department of State

- **International Science and Technology Centers (ISTC) and Bio Redirection:**
  - FY03: 52.0 million
  - FY04: 59.0 million (Request): $50.2 (Actual)

- FY05 (Request): 0.0 Program changed to the Nonproliferation of WMD Expertise.

- **Nonproliferation of WMD Expertise (Formerly ISTC):**
  - FY05: $50.5 million

- **Export Control and Related Border Security Assistance:**
  - FY03: $36 million
  - FY04: $40 million (Request): $35.8 million (Actual)
  - FY05 (Request): $38.0 million

- **Nonproliferation and Disarmament Fund**
  - FY03: $14.9 million
  - FY04: $35.0 million (Request): $29.8 million (Actual)
  - FY05 (Request): $34.5 million
  - Department of Energy

- **Initiatives for Proliferation Prevention**
  - FY03: $22.6 million (out of $39 million for Russian Transition Initiative)
  - FY04: $23.2 million ($41 million for RTI)

DoD's Biological Weapon Proliferation Prevention (BWPP) Program includes cooperative/collaborative research, biosecurity and safety upgrades, infrastructure elimination, and projects to develop improved BW detection and surveillance technologies and capabilities. Department of State activities under the Nonproliferation of WMD Expertise include the Moscow (ISTC) and Kiev (STCU) Science Centers, the Chem-Bio Redirection activities, and the Bio-Industry Initiative.

According figures provide by the ISTC's 2003 annual report, the Center allocated approximately $573 million (USD) in project funding in the period between 1994 and 2003 – with approximately $147 million of this going to 400 projects in area of biotechnology and the life sciences. According to some reports, ISTC projects had funding approximately 2,300 scientists and technicians formerly part of the Soviet BW system. Added to this, the Department of Energy's Initiatives for Proliferation Prevention works to engage individual weapons scientists and technicians through projects designed to be commercially viable. Over the past several years, approximately 20 percent of the IPP program's total project allocation has been dedicated to projects in the biotechnology life sciences sectors. With an initial funding allocation of $30 m (USD), the Department of State's Bio-Industry Initiative is working to translate former BW intellectual and physical infrastructure into viable commercial enterprises.

Combined with the efforts of Civilian Research and Development Foundation and the Nuclear Threat Initiative, the U.S. has been devoting approximately $100 to $120 million USD per year for the past several years to biological threat reduction in the former Soviet Union. While a direct comparison might not be valid for a host of reasons, it is interesting to note that the U.S. civilian biodefense spending jumped from $6.7 billion in FY02 to an estimated $11 billion in FY05.

Closing Observations

A hallmark of the biological weapons challenge is uncertainty. To paraphrase a popular figure in most of Europe, Donald Rumsfeld, there are plenty of "known unknowns" as well as "unknown unknowns" when it comes to knowing which states and which terrorist groups are working to obtain biological weapons, how far they have moved up the BW curve, and how and when they might use them. Uncertainty is a policymaker's worst nightmare.

Biological threat reduction is no exception to this rule of BW uncertainty. There is considerable uncertainty regarding the exact number of technicians, scientists, and facilities involved in the Soviet biological weapons programs – making it difficult to assess how expansive BW threat reduction activities ultimately need to be. Reporting on the non-BWTR supported activities of funded scientists and technicians is simply not available – meaning they could be doing work that contributes to vertical proliferation. Some of the facilities receiving funding through these threat reduction programs are at best translucent – if for no other reason than to protect proprietary interests. Transparency at Defense Ministry facilities remains practically non-existent. Finally, there is the challenge of proving a negative – it is difficult to accurately assess the effectiveness of these efforts in preventing individuals from sharing their expertise with other states, terrorist networks, or to entities within Russia or explain why individuals have not done so. At the same time, as many of us know, a recent survey of former weapons personnel suggests as many as twenty percent would be willing to lend their expertise to foreign entities for a period of time for continued weapons research, development, or production.

The key factor shaping the future of biological weapons threat reduction efforts is what policymakers do with this uncertainty. To date, the reaction has been cautious

skepticism. Policymakers recognize the proliferation threat posed by the residual expertise and infrastructure of the Soviet BW programs, but political concerns limit the amount of financial support available to secure this BW expertise and infrastructure. While significant progress has been made, more can and should be done. Increased funding alone will not maximize our threat reduction effort in the biological area, but there is a direct relationship between the amount of funding available to biological threat reduction and the number of individuals engaged, the number of secured facilities, the amount of infrastructure dismantled, and the number of successful commercial projects. Given the question how much is enough is difficult if not impossible to answer given the uncertainties.

One thing is certain: the international community can be doing more in the BW threat reduction that it is not doing today. A relatively small increase in funding (relative to other national security or homeland security projects) can strengthen barriers around the existing BW infrastructure in the Russian Federation and the other successor states. To date, the United States has lead BW threat reduction efforts for the last several years. Through the Global Partnership and other similar initiatives, biological threat reduction should become increasingly international in nature and funding support. Increased financial contributions from EU member states will be a welcome development. Such an increase may also provide the necessary political spark to increase contributions from other nations – including the United States.

European Commission

Advisor to the Deputy Director-General

Health & Consumer Protection Directorate-General

Brussels, 21 January 2004

DDG/JPP D(2005)

Notes

Subject:
New Defence Agenda Bioterrorism Reporting Group, "Next Generation Threat Reduction: Bioterrorism's challenges and solutions" – Seminar – 25 January 2005, Bibliothèque Solvay, Brussels

The European Commission's Jan-Peter Paul chats with Baxter's Toon Digneffe over coffee

1. What do we mean by "threat reduction"?

Securing and dismantling weapons (nuclear, chemical and biological) of mass destruction and their associated infrastructure in former Soviet Union states. In the future, threat reduction may be expanded to other countries like India, Pakistan, North Korea, Iran and Libya etc. One area of concern is biological weapons and their accessibility for terrorists.

2. What are the "mutual" goals of the EU, Russian Federation and NATO Member States in countering terrorism and the proliferation of biological weapons?

- information exchange
- administrative efficiency
- more efficient implementation and verification
- elimination of corruption
- export controls
- criminalisation for possession of banned substances or technologies (UNSCR1540)
- counter-terrorism measures

3. Should we increase our shared competences? Yes through:

- develop and maintain appropriate protection measures concerning the production, storage, and transportation of biological weapons, pathogens and toxins
- efficient border controls, law enforcement, international cooperation

in illicit trafficking of biological weapons, pathogens and toxins
- develop, review and maintain efficient export and transshipment controls
- minimize holdings of dangerous (types A and B) biological pathogens and toxins based on terrorist threat risk assessment

4. Should the EU engage further in Cooperative Threat Reduction in the area of laboratory and programme conversion?
Yes through:

- support of international non-proliferation and disarmament efforts (effective multilateralism)
- maintain assistance programmes
- secure future financing and its redistribution
- integration of planning, budgeting, implementation and project evaluation into a single system
- support of the Global Partnership Working Group of G8 (GPWG)
- fulfil to the 2002 G8 Kananakis commitments

5. How has the G8 enforced the goals of threat reduction?

G8 has proven to be very useful as a political platform in fostering and enhancing bilateral as well as multilateral cooperation in order to prevent the proliferation of weapons of mass destruction and related materials, technologies and expertise.

6. How can we best reduce the risk of weapon's scientists from assisting rogue states in biological weapons research and development?

Giving them alternative employment in their home countries e.g. by establishing (1) R&D centres and by (2) subcontracting R&D work to them and (3) companies (joint ventures) or (4) securing sufficient pension funds for older researchers.

Contact: Jan-Peter PAUL
Telephone: (32-2) 2995064

G-8 Consolidated Report of Global Partnership Projects

European Commission, External Relations Directorate General

Project Description	Project Status: Milestones, Implementation Comments	Funds Committed (06/02 - date) in 000's	Funds Expended (06/02 -date) in 000's
Nuclear submarine dismantlement and nuclear security in Northwest Russia	TACIS programme contribution to NDEP Support Fund managed by the EBRD: € 40M committed for period 2003-2006 - implementation not yet started - 50% contr	€ 40,000	€ 20,000
Fissile material disposition (in particular plutonium) Russia	EU Joint Action (under bilateral F-RF Agreement): € 6M committed for period 2000-2003 - impl started in 2002 - 60% contr	€ 6,000	€ 3,600
Fissile material safeguards Russia	TACIS programme: € 12M committed in period 1994-1997 - impl finished by 2002 € 3M committed in period 1998-2000 - impl started in 2002 - 100% contr € 5M committed in period 2001-2003 - impl started in 2002 - 30 % cont € 20M committed in period 2004-2006 - impl not yet started	€ 28,000	€ 4,600
Physical protection of nuclear installations Russia	EU Joint Action (under bilateral D-RF Agreement): € 8M to be committed in 2004 - impl not yet started	€ 8,000	
Nuclear safety of nuclear installations: Russia, Ukraine, Kazakhstan, Armenia	TACIS programme: € 709M committed in period 1992-1999 - impl finished by 2002 € 310M committed in period 2000-2003 - impl started in 2001 - 60 % contr € 314M committed in period 2004-2006 - impl not yet started	€ 574,000	€ 120,000
Chemical weapons destruction Russia	EU Joint Action: € 6M Gorny (D-RF) committed in 2000 - impl in 2002/2003 - 100 % contr € 2M Schuschye (UK-RF) committed in 2001 - impl in 2003/2004 - 100 % contr € 4M Kambarka (D-RF) committed in 2003 - impl not yet started	€ 12,000	€ 8,000
Chemical weapons facilities decont and reconversion Russia	TACIS programme: € 2M Env Monitoring Saratov - impl finished by 2002 € 4M Decont Dzerzinsk - impl finished by 2003 - 100 % contr € 2M Env Monitoring Novochebokarsk - impl started in 2003 - 50 % contr	€ 6,000	€ 5,000
Employment of formerweapons scientists FSU	TACIS programme contribution to the ISTC and STCU: € 173M committed in period 1994-2001 - impl finished by 2002 € 125M commited in perod 2002-2006 - impl started in 2002 -20 % contr	€ 125,000	€ 25,000
Border security and export control FSU	TACIS programme: € 3M Export Control Dual Use Russia - committed 2004 - not yet started € 62M Border Mngt - committed in period 2000-2003 - impl start 2004 - 10 % ctr € 13M Customs Admin - committed in period 1999-2002 - impl start 2003 - 20 %	€ 78,000	€ 9,000

COM DG RELEX M Deffrennes, Nov 2004

Bibliothèque Solvay on January 25th

Need for enhanced support for threat reduction in the biological area for redirecting production facilities

Roger Roffey, Director of Research, Swedish Ministry of Defence, Department of International and Security Affairs, Stockholm, Sweden

An excerpt from a presentation given at the Non-proliferation and Disarmament Cooperation Initiative (NDCI) Conference, London, United Kingdom, 4-5 March 2004

According to Russian officials the threat of bioterrorism is real and increasing. Some concrete measures to counter bioterrorism have been taken by Russia. International contacts have been initiated with the US in this area. Already in 1997 the Russian Ministry of Defence and the Ministry of Health are reported to have identified a dangerous lag in Russia's biological defence preparedness. This caused the Russian Government to launch a Pathogen Defence Program (Zashchita) for the period 1999-2005.[34] The overall objective of the program was to develop means to protect the population and the environment against natural and man-made hazardous pathogens including issues of bio-terrorism. Among the primary tasks of the program was the development and improvement of diagnostics, prophylaxes and treatments, as well as the modernization of production facilities to manufacture the finished products. The program was ambitious embracing the work of 15 scientific-research institutes and approximately many other organisations. The program was reorganized in late 2001 and at least some of the different activities of the program were assimilated with other biotech research activities.

[34] Government of the Russian Federation. Resolution No. 737 Concerning the focused federal programme for "The creation of methods and means of defending the population and environment against hazardous and extremely hazardous pathogens in natural and manmade emergency situations from 1999 to 2005", 2 July 99.

Conclusions

Today the proliferation of weapons of mass destruction to states or non-state actors, know-how, technology and materials is a major threat that only international cooperation can prevent. The collapse of the Soviet Union with its large WMD legacy and the rise of a more active and global terrorism are of major concern. Therefore international cooperation is essential. It is also important to positively engage the biotechnology industry in participating countries in this work. The leaders of the G8 countries took an important step in the right direction at the Kananaskis summit in Canada in June 2002 by adopting a G8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction. This placed the questions high up on the political agenda. One drawback, however, is that this initiative mainly concerns the nuclear and chemical sectors.

The transformation from a passive support recipient to an active partnership means that Russia should have a greater role in planning and execution of threat reduction activities. This also means that Russia must be convinced that the biological area is of concern and must be a priority. A new CTR partnership can develop and provide new opportunities for all involved. Strategies are needed for limiting and achieving the conversion of the biological infrastructure, develop list of priorities and ensure that the threat reduction activities can be sustained even after assistance programs are reduced and eventually terminated. Russia's and NIS's WMD infrastructure remains a prime target for those interested in illicitly acquiring weapons, material or know-how.

Many Russian and NIS civilian facilities that still possess dangerous pathogen culture collections and dual-use production equipment have received limited outside assistance. Institutions needs help to make long-term transitions from military related work to focusing on civilian applications. The most practical avenue for this new effort would be to channel increased contributions through the ISTC for use on biotechnology and life sciences programs. Commercial opportunities should increasingly be identified and exploited. Help is needed for example with realistic business plans, identify viable products, identify markets and provide training. There is a need for help with evaluating and see the commercial potentials in proposed projects and help in marketing products. A very positive step is that the US State Department has initiated a Bioindustry Initiative.[35] For specific R&D questions or topics centers of excellence could be established. In a time when the focus is on fight against bioterrorism, R&D programmes could be initiated to develop improved protection for civilian populations using know-how in the bioterrorism protection and the biotechnology sectors.

There is a need to get the Russian management at facilities more actively involved and working towards the same non-proliferation aims. One way could be to develop conversion projects with counter-terrorism objectives like measures to prevent and protect against bioterrorism. Part of this could be projects focusing on to develop rapid identification and medical counter-measures or support basic research on priority pathogens. The EU or member states could take initiatives to sponsor workshops and seminars where the biotechnology industry and bioterrorism protection communities could meet and discuss cooperation more in detail. A positive step in the right direction was taken in November 2003 when an international workshop "Building Global Partnership for Bioproliferation Prevention: Current Status and Future of Russian Biotechnology" was organized in Como, Italy.[36]

The EU could develop proposals for conversion that would focus more on long-term sustainability of the support activities. There is a need for more action and discussion on how to address the long-term issues.[37] [38] So far, the European funding has focused mostly on nuclear safety and destruction of chemical weapons with smaller amounts provided for other threat reduction efforts. The most promising avenue would be an expansion of funding for cooperative threat reduction under its Common Security and Foreign Policy (CSFP).

It is essential to find areas of mutual benefit where the vast knowledge base in Russia and the NIS (Newly Independent States) could be directed to specific areas that

[35] US State Department, Fact sheet, Bioindustry Initiative, Bureau of Nonproliferation, Washington, 16 September, 2003, at URL http://www.state.gov

[36] For final agenda, attendee list, and any participant presentations from the November 17-18 2003 conference, Building a Global Agenda for Bio-proliferation Prevention," see URL http://www.ransac.org

[36] Roffey R, W Unge, J Clevström and K S Westerdahl, 2003, Support to Threat Reduction of the Russian Biological Weapons Legacy – Conversion, Biodefence and the Role of Biopreparat, FOI Report 0841.

[36] Ouagrham S B and K M Vogel, Conversion at Stepnogorsk: What the future holds for former bioweapons facilities, Cornell University Peace Studies Programme, Occasional Papers 28, February 2003.

could also be commercialized in a number of years. The Russian government recently identified biotechnology as a target industry for the 21st century. This could provide a commercial platform for former biological facilities that could help to address the critical gaps in healthcare, and support the development of innovative medical techniques. A clear strategy is needed from western partners on how to reach the proliferation aims so that cooperation is well focused on the areas of technology or institutes of most concern.

One way forward could be to involve the Swedish and the rest of European biotechnology industry in an outreach activity together with Russian biotechnology industry to, from a commercial and partnership approach, look at the business opportunities. There is a need to create a forum for discussion of related issues that could be initiated by the EU or NGOs. It is in the interest of the biotechnology industry to become more engaged on issues of safety and security.

Recommendations for further action:

- The biological area should be put higher on the agenda for continued threat reduction support.
- The increased threat reduction support should be part of a long-term strategy involving financial and political commitment on both sides to improve confidence-building and commercial collaboration.
- Strategies are needed for limiting and achieving the conversion of the vast Russian biological infrastructure and identify prioritised activities. The support should be well focused on the areas of technology and institutes of most concern.
- The aim should be to elaborate conversion activities on a commercial basis for long-term viability and self-sustainability. This includes elucidation of areas of mutual benefit to the cooperating partners, identification of commercial opportunities and viable products, elaboration of realistic business plans, identification of markets and provision of training.
- Western and Russian/NIS biotechnology should be more actively engaged. Biological threat reduction has hitherto focused almost solely on redirecting scientists. An increased effort should be made to convert biological production facilities.
- An inventory of biological production facilities in Russia could be made to evaluate their potential for biotech commercial activities.
- The EU could also initiate cooperation with Russia within the field of bioterrorism protection and consequence mitigation. The EU could sponsor workshops and seminars where bioterrorism protection and biotechnology communities could discuss cooperation in more detail.

Frameworks for considering the bioweapons threat

Jean Pascal Zanders, Director, BioWeapons Prevention Project

Introduction

The debate on the threat posed by the deliberate use of biological agents is often carried out among specialists from different disciplines. The intense focus on the subject matter tends to isolate it from the broader societal background, in the process making the threat absolute. As a consequence, the discussed scenarios often reflect what is scientifically or technically feasible, not what is probable. Concepts like 'risk' and 'threat' become confounded. Furthermore, the liberal use of the term 'weapons of mass destruction' not only focuses attention to the aftermath of an incident, it also suggests consequences virtually beyond human management.

Fear is the key. Lost is the notion that humans confront infectious disease daily. According to estimates by the World Health Organization, some 13 million people die from infectious disease alone each year. The figure represents one quarter of all fatalities worldwide. In other words, every two hours more people die than in the combined terrorist attacks on the Twin Towers in New York and the Pentagon on 11 September 2001. This comparison does not belittle the

significance or the suffering of 9/11; it gives perspective to the challenges humankind faces every day—some manmade; some natural in origin. The seism of 26 December 2004 and the subsequent tsunami wiped out a quarter of a million lives in a matter of hours. International response was swift; with billions of dollars flowing in to rebuild the affected areas around the Indian Ocean. As we are writing this commentary, infectious disease specialists are worrying aloud whether the recurring outbreaks of avian flu in Southeast Asia and the indications that the virus may have mutated to cause human-to-human transmission is not the harbinger of another Spanish flu pandemic. In 1918 the Spanish flu killed more people worldwide that combat operations on all fronts during World War I. Yet, pitiful is the money that is currently forthcoming to assist local chicken farmers change their breeding practices and build new, more sanitary infrastructure.

The framing of the security issues resembles the reaction to dynamite and a candle. A burning candle releases more energy than the detonation of a stick of dynamite. However, the explosion is compressed in time and therefore more intense, and people will react immediately to its consequences. Yet, a small fire can have profound consequences, as the great fire of London in 1666 reminds us. In summary, framing of the problem determines our perception of the threat posed by deliberate disease, and ultimately determines the policies to deal with it. This note lists some elements that consciously or unconsciously affect the nature of the debate, and may blind us to certain policy options or consequences.

A cold war mind set?

During the cold war both superpowers actively considered biological warfare. Their concentrated on a number of agents that from a military perspective offered a sufficient compromise between a number of characteristics, including infectiveness, controllability, ease of production, stability and resistance to environmental stress after release. These considerations led to the weaponization of certain pathogens, such as anthrax and smallpox. Simulations and experiments during the 1950s and 1960s suggested the potential for large numbers of casualties over large areas. However, considering the complexities involved in the research, development, production and dissemination of such agents, it still remains to be explained why they should be the prime choice for terrorists.

The 'WMD' characterization

The characterization of deliberate disease as an act involving the release of a weapon of mass destruction feeds back into the cold war mind set. In one of the first resolutions adopted by a United Nations body, biological weapons were classified together with chemical and nuclear weapons as WMD. While the incidence of natural disease supports the idea of large number of casualties, in the policy debates the notion tends to narrow the focus of consideration.

First, the pathogens of primary concern are the ones developed for military use during the cold war. Since it is generally accepted that their development and production are complex—the Japanese cult Aum Shinrikyo, for instance, never mange to develop a viable agent - it follows that the threat scenarios leading to mass casualties must involve a state sponsor of terrorism. Based on available empirical data, such linkage is tenuous at best, and may produce misguided policy decisions, such as the invasion of Iraq.

Second, agents whose deliberate release may produce few or no human casualties fall outside the purview. In 1984, for example, the Rajneesh cult experimented with salmonella in an effort to influence local election by incapacitating sufficient residents of a small place in Oregon, USA. Huge economic damage to a society may also be caused by the resort to animal or plant pathogens. The damage not only concerns the economic sectors directly affected by the attack (farmers; food industry, transport), but may also be much more far-reaching and lasting (tourism, loss of international markets). The types of agents that might be considered for such attacks would pose limited personal risk to the perpetrator, can easily be cultivated by individuals with basic expertise in biology and their dissemination does not require advanced technology.

Third, the notion 'weapon of mass destruction' conveys a serious threat and creates a sense of fear. In a climate of fear, hoaxes can become just as effective as the actual release of agents, especially if the goal is to terrorize or create economic disruption. Each hoax needs to be investigated, and facilities and businesses must be evacuated and temporarily shut down, costing large amounts of money. A hoax does not involve an actual biological agent, so in a climate of fear the perpetrator easily achieves his goals at almost no expense and without personal risk.

Deliberate disease versus natural outbreaks

Natural diseases have challenged human survival for millennia. They have wiped out entire civilizations or, as in the case of the Roman Empire, weakened it beyond viability. Deliberate disease is therefore considered beyond the pale; and demands strong reaction. However, it may be worth the while to take a step back and consider to what extent the effects on a society from deliberate disease and natural outbreaks differ from each other. Essentially, in both types of incidents the disease needs to be contained and the victims treated. However, at the current stage of preparedness some of the primary actors involved may differ considerably and create several dilemmas.

First, in the case of an unusual outbreak law enforcement agencies or even the military may become involved in the incident. Law enforcement officials have primary interest in collecting criminal evidence and seek to secure the area before such evidence is destroyed by first responders, thus compounding efforts to treat and evacuate the victims. Military personnel may be involved in the incident because of their specialized skills or equipment, but the characterization of the attack as an act of war or a threat to national security may have serious repercussions for the consequence management activities (as was the case during a suspicious plague outbreak in India in the mid-1990s).

Second, any incident involving a pathogen determined to be a high threat agent (anthrax, smallpox, plague, etc.) is framed as a national security matter. Yet, certain incidents involve little more than benign negligence (e.g., forgetting to report some vials with an agent of concern) or scientific arrogance (e.g., taking disease samples in the hand luggage on a plane). Resulting indictments for the possession or manipulation of WMD lift them far beyond the level of professional sanctions and may lead many scientists to abandon legitimate research on naturally occurring diseases (like plague is in many parts of the world.)

Third, investment in the overall health infrastructure may be reduced (e.g., as part of government budget cuts in health care), but on the other hand, scarce resources may be made available to protect or defend the population against very specific threat agents such as smallpox or anthrax, although the likelihood of terrorist incidents involving these pathogens is extremely remote. As a consequence of the 'WMD' mind set, the overall vulnerability of a society to emerging and reemerging diseases is thus heightened.

Fourth, the focus on certain types of agent contributes to the proliferation of high-containment laboratories and installations, with many more scientists and technicians acquiring the skills and expertise to safely manipulate those agents. While their research will produce new insights into those specific diseases leading to improved vaccinations or medication, the risk of mishaps—as indeed several have occurred in the USA over the past year or so—increases. In addition, as most of the incidents with a toxin or chemical agent involve acts of revenge against an individual or company, the potential of disgruntled disaffected member of the staff resorting to a pathogen increases too. As far as current assumptions go, the mail-delivered anthrax spores in the wake of the 9/11 attacks were produced by an expert from a US military biodefence facility. At the same time, support of research into naturally occurring diseases that actually kill tens, hundreds or thousands of people each year (West Nile virus, SARS, HIV/AIDS, Avian flu) pales in comparison to the upsurge in the funding of biodefence programmes.

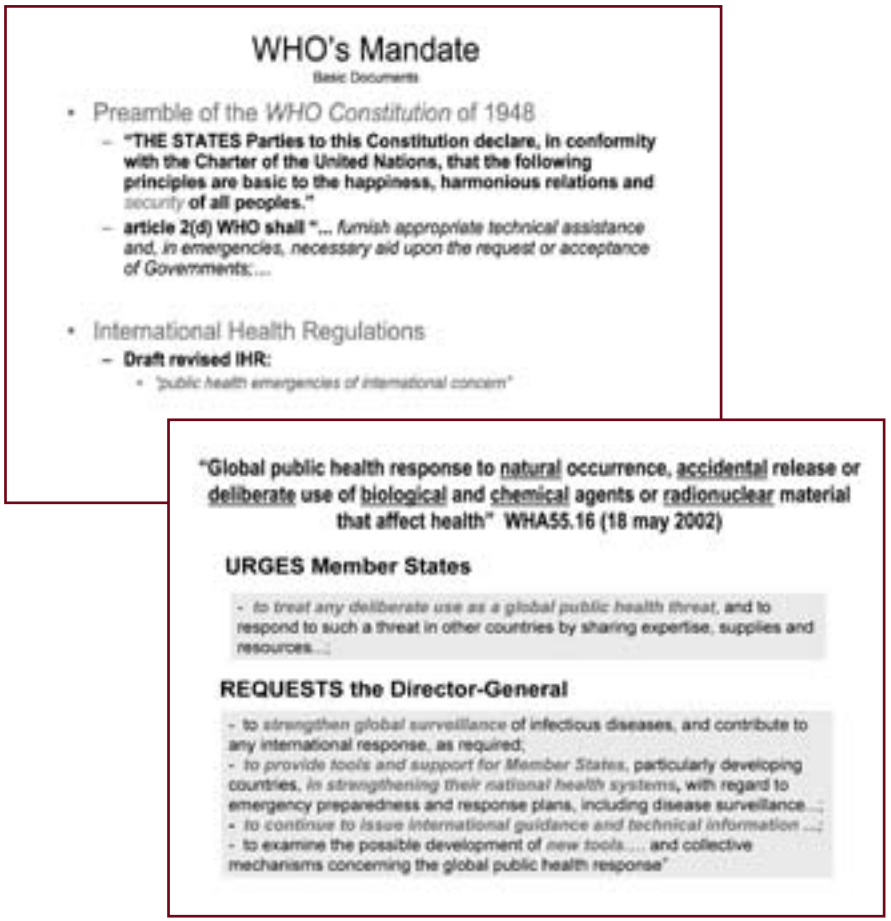
In summary, it is absolutely necessary to calibrate the imperatives of preparedness, consequence management, criminal investigation and national security. The question, however, is whether the framing of health security in terms of terrorism or military threats actually contributes to the safety of societies across the world in the most adequate way. Viewing deliberate disease as a special case of the global challenge against infectious disease might actually suggest cost-effective policy measures that support national capabilities of disease surveillance, prevention and management. While the stick of dynamite may bring down the house, the flame of the candle may burn down a whole town.

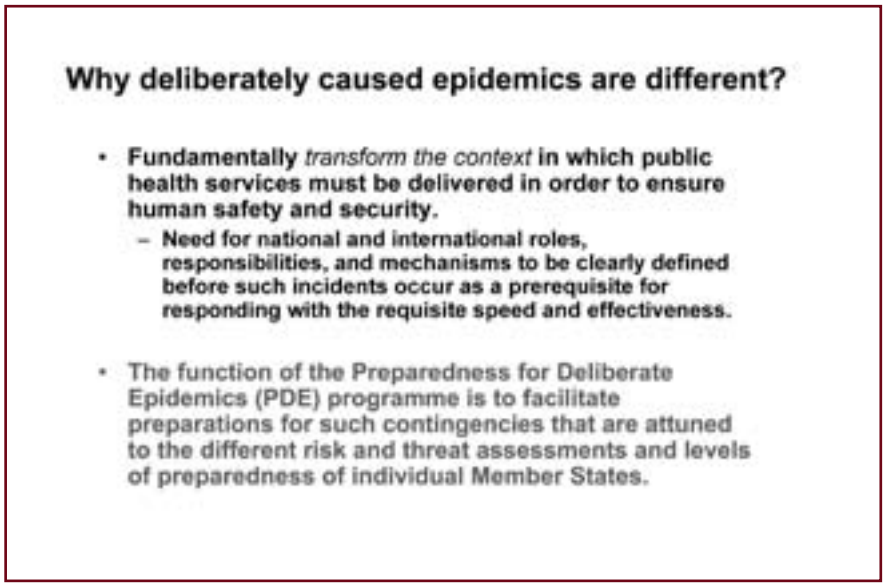
RANSAC's Raphael Della Ratta and NDA's Jessica Henderson listen to CIMIT's Michael Callahan's impressions of Session I

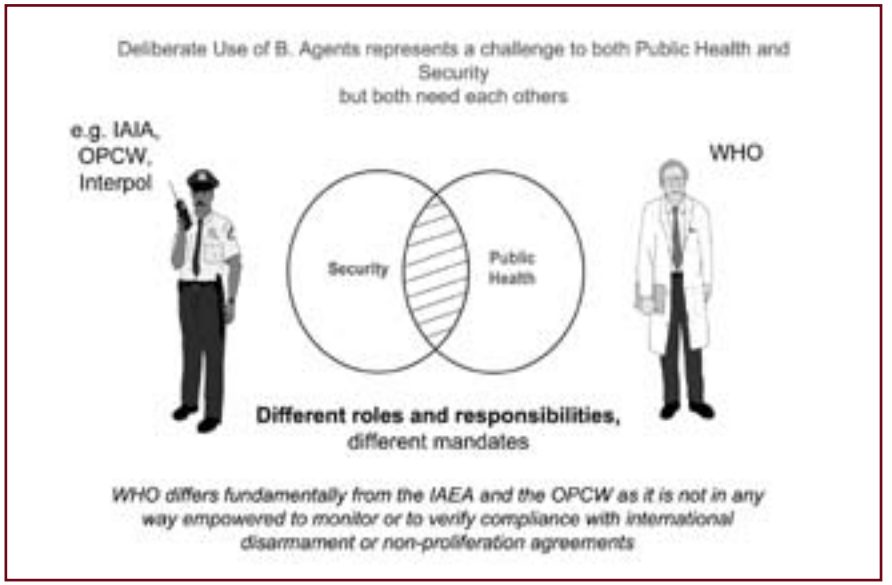
Diego Buriot

Special Advisor to the Assistant Director-General, Communicable Diseases
World Health Organisation

The following slides are part of an introductory presentation given by Dr. Buriot at the January 25 meeting.







SARS: what we have learned

- **In the world today an infectious disease in one country is a threat to all: infectious diseases do not respect international borders**
- **Information and travel guidance can contain the international spread of an infectious disease**
- **Experts in laboratory, epidemiology and patient care can work together for the public health good despite heavy pressure to publish academically**
- **Emerging infectious disease outbreaks often have an unnecessary negative economic impact on tourism, travel and trade**
- **Infectious disease outbreaks reveal weaknesses in public health infrastructure**
- **Emerging infections can be contained with high level government commitment and international collaboration if necessary**
- *Because it is a naturally-occurring disease*, did not test the coordination and interaction between health authorities (such as WHO) and security authorities (such as the UN)

Guidelines for Assessing National Health Preparedness Programmes for the Deliberate Use of Biological and Chemical Agents

Field assessment programme

Thailand, September 2003, with the Organisation for the Prohibition of Chemical Weapons (OPCW), the Asian Disaster Preparedness Centre (ADPC). In addition of MoH, 18 agencies participated.

Jordan, March/April 2004, with the technical contribution of various Jordanian ministries (health, defence, interior, industry, etc.), Jordanian Red Crescent Society, AusAID, Health Canada, OPCW, UNICEF, as well as different technical programmes from WHO HQ and EMRO. More than 55 institutions/agencies participated.

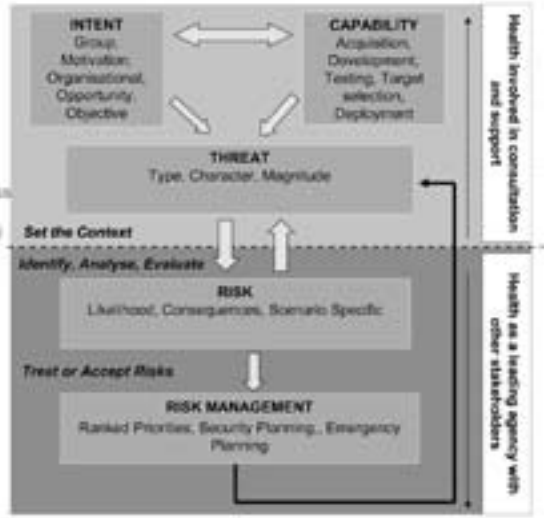
Canada, November-December 2004 (with participation of POCW and IAEA).

The Philippines, February 2005 (confirmed)

Moldova, 2005 (agreed, dated to be confirmed)

One African country, 2005 (under discussion)

Guidelines for Assessing National Health Preparedness Programmes for the Deliberate Use of Biological and Chemical Agents



WHO's network on CB deliberate use

The need for a global partnership

- More than 100 CBW experts **from all WHO regions which have contributed to the 2nd edition of the** *Public health response to biological and chemical weapons: WHO guidance*
- Informal network of CBW disarmament experts and diplomats
- "CBW" Working Group (in-house HQ and Regional Offices);
- "CBW" Scientific Advisory Group: **Being established;**
- **Biosafety Advisory Group (BAG);**
- Disease specific laboratory and expert networks **(anthrax, smallpox);**
- **Global Network of Poisons Centres;**
- **Global Network of chemical incident and emergency experts;**
- **Inter-Organization Programme for the Sound Management of Chemicals (IOMC);**
- **Others, e.g. UN, OPCW, IAEA, INTERPOL, ICGEB, UNICRI, NATO, etc.**
- Others.....

About the New Defence Agenda (NDA)

At the suggestion of NATO's Jamie Shea, Deputy Assistant Secretary General for External Relations, Public Diplomacy Division, Forum Europe established the New Defence Agenda in early 2002 to provide a common meeting ground for defence and security specialists from NATO and the EU that would meet on a regular basis.

Now the only Brussels-based platform for debate devoted solely to defence and security issues, NDA's International Conferences, Press Dinners and Monthly Roundtables bring top EU and NATO officials together with senior figures from governments, defence industries, the military, academia and press. The NDA also serves as a networking centre of defence-related think tanks and experts around Europe.

The aim of the NDA is not to replicate more academic research-based projects but to give greater prominence to the complex questions of how the EU and NATO policies can complement one another, and to stimulate reaction within the international press.

One of our prime objectives is to raise the profile of defence and security issues among the Brussels-based international press. To encourage more in-depth coverage of these topics, the NDA holds regular, informal dinners for journalists.

The NDA's Advisory Board is made of some 20 prominent defence experts drawn from a cross-section of government, politics and industry.

NDA Spring Events

17 January Monthly Roundtable
Is the transatlantic defence marketplace becoming a reality?

25 January Bioterrorism Reporting Group
Next Generation threat Reduction: Bioterrorism's Challenges and Solutions

3 February Conference
'Towards an EU Strategy for Collective Security'

14 February Monthly Roundtable
Defence Aspects of the NATO and EU Enlargements

14 March Monthly Roundtable
What policies will create Effective peacekeeping?

18 April Monthly Roundtable
Will the EU get tough on opening-up national defence procurements?

25 April NDA Bioterrorism Reporting Group
Can the EU and US work together?

24 May Conference
'Reinventing NATO: Does NATO Reflect the changing nature of transatlantic security?'

20 June Monthly Roundtable
Strategic Priorities for Protecting Europe's Infrastructure against Terrorism

Transatlantic cooperation in the fight against terrorism

Brussels, April 25, 2005 *12:00 - 20:00*

A day of events co-organised by **New Defence Agenda**, ***Friends of Europe***, **Center for Transatlantic Relations at SAIS, Johns Hopkins University** and **the Chemical and Biological Arms Control Institute**

In collaboration with **Delegation of the European Commission to Washington**, **US Mission to the EU** and **TPN** (Transatlantic Policy Network)

And the support of **Acambis** and **Agilent Technologies**

12:00 – 16:30 ■ Sandwiches served at coffee break 14:00 ■ Venue TBC

Countering Bioterrorism: How can Europe and the United States work together?

Fourth meeting of the NDA Bioterrorism Reporting Group

Session 1: Can we develop a transatlantic response to bioterrorism?

The recent Atlantic Storm simulation exercise showed the United States and EU Member States are not prepared for a bioterrorism attack. With US and EU biodefence programmes varying markedly, can the atlantic alliance develop suitable defences together? Are differences in EU and US programmes based purely on threat perception, or are other critical factors involved? What are the similarities and differences between European and American programmes and do gaps in scope and scale, priorities and strategy weaken transatlantic defence cooperation? As past preparedness programmes were developed around state-run bio programmes, will the potential increase of sub-state actors affect our attempts to control biological weapons development and use? If the EU should strengthen its homeland security infrastructure, does that mean developing something similar to the US Department of Homeland Security's National Reponse Plan?

Session 2: What future for bio-defence industry and technologies?

As the EU develops its policies to prevent bio-terrorism and strengthen public health security, what role will technology play in the identification and detection of pathogens and agents? What is the future of the European bio-technology sector and its specific bioterror applications? In which defence technology areas should the EU and US be consolidating technology acquisition and are advances in the life sciences affecting the ability of bio-defence companies to counter bio-terrorism? Are there sufficient opportunities for collaboration, sharing of information, the exchange of lessons learned and best practices between the EU and the United States on issues of civilian bio-defence? How should the US and EU industries work together to avoid duplicating research?

17:30 – 20:00 ■ Cocktail begins at 17:00 ■ Bibliothèque Solvay

Are Europe and America fighting the same "war against terror"?

Fourth of *Friends of Europe*'s Atlantic Rendez-Vous satellite debates

With: **Gijs de Vries**
Coordinator for the fight against terrorism, Council of European Union

Differences between the U.S. and EU countries over anti-terrorism measures have since 9/11 created tensions where none existed before. From surveillance technologies to on-the-ground intelligence gathering, Europeans believe they have much more to contribute than U.S. public opinion gives them credit for. Could the 'war on terrorism' be re-defined in ways that would strengthen not weaken transatlantic cooperation?

Reinventing NATO

Does NATO reflect the changing nature of transatlantic security?

An international conference organized by the New Defence Agenda
Palais d'Egmont, May 24, 2005*

Keynote Address by Jaap de Hoop Scheffer, Secretary General, NATO (confirmed)

Session 1: Should NATO be reinvented, reinvigorated or just revamped?

The question marks over NATO's future date right back to the 1989 fall of the Berlin Wall, yet the alliance's credibility with the public has not waned very much, either in its long-time member countries or in the former communist states that have flocked to join. How deep should any future reforms of NATO penetrate? Does NATO suffer from real shortcomings, or are its problems more of image and perception? With a growing role in confronting international terrorism, how far will NATO's reach stretch? Can it play a significant role in Middle Eastern or Central Asian security?

Session 2: NATO's role in transatlantic defence industry cooperation

NATO has been a driver for transformation forces for good number of European armies. What is it contribution to transatlantic defence industries cooperation and to the development of new capabilities? With NATO's new 'out of area' activities, in Afghanistan, and to some extent in Iraq, apparently pointing to a new direction for the alliance, what are the chief characteristics of new generation equipment needed? What implication does this have on the American and European defence transformations, network enabled defence and industrial alliances? Is NATO transforming the European armies rapidly enough?

Session 3: What does NATO do for Europe that the EU still can't do for itself?

If NATO didn't exist, would the alliance's European members need to invent it? In light of today's post-Cold War security threats, what are the Command & Control functions that NATO provides, and to what extent are these functions being replicated within the European Union's newly created ESDP? Will NATO's chief raison d'être for some years to come be the slowness of EU decision-making, and the political difficulties of creating the EU institutional structures needed to give teeth to the Common Foreign and Security Policy (CFSP)? Do NATO governments, including the new Bush Administration, need to place fresh emphasis on the alliance's value as a forum for re-building consensus on security and defence issues?

The New Defence Agenda would like to thank its partners and members for their support in making the NDA a success

Turkish MoD

Romanian MoD

Russian Mission to the EU

Interested in joining the NDA? Please contact **Linda Karvinen**

Tel:+32 (0)2 737 9148 Fax: +32 (0)2 736 32 16 E-mail: linda.karvinen@newdefenceagenda.org

FOLLOWING THE INTEREST GENERATED IN PAST NDA EVENTS AND THE ENCOURAGEMENT OF THEIR PARTICIPANTS, THE NDA DECIDED TO CREATE A VENUE FOR MORE FOCUSED DISCUSSIONS ON THE AREA OF BIOTERRORISM. THE BIOTERRORISM REPORTING GROUP WILL ALLOW THE DISCUSSIONS NOT ONLY TO BE TAILORED TO THE EVOLVING DEVELOPMENTS IN THE BIOLOGICAL FIELD BUT MOST OF ALL, THE RESULTING REPORT WILL ACT AS A CATALYST FOR THE POLITICAL WORLD.

There is no question of the need for policies directly focused against the use of biological agents as weapons. The use of disease as a weapon of mass destruction (WMD) is considered a low probability, high consequence event. However, if such an event were to occur, the consequences would be so severe that preparatory action must be undertaken to prevent it. Although biological weapons are often grouped together as agents of mass destruction, biological weapons vary significantly from chemical and nuclear munitions. Biological weapons and materials have the capacity to silently infect thousands of people, destroy agriculture and infect animal populations.

Of all the classes of WMDs, biological weapons remain the most vulnerable to diversion while also being the most difficult to detect. Unlike the Chemical Weapons Convention and the nuclear Non-Proliferation Treaty, which have full verification regimes, the Biological and Toxin Weapons Convention does not. This leaves the development and potential use of bio-agents entirely unchecked. It is therefore imperative governments begin to address the serious threat biological terrorism poses to the EU and the international community.

NEW DEFENCE AGENDA
FORUM EUROPE
Bibliothèque Solvay
137 rue Belliard
B-1040, Brussels, Belgium

TEL: +32 (0)2 737 91 48
Fax: +32 (0)2 736 32 16
info@newdefenceagenda.org
www.newdefenceagenda.org