

# One View of the Role of the NAS in National Security and International Relations

Richard L. Garwin  
IBM Fellow Emeritus  
IBM Thomas J. Watson Research Center  
P.O. Box 218, Yorktown Heights, NY 10598

[www.fas.org/RLG/](http://www.fas.org/RLG/)

Email: RLG2@us.ibm.com

Prepared for the National Security and International Relations Panel  
Sackler Colloquium, *The NAS at 150*, Washington, DC 20418

October 16-18, 2013

This session brings to mind the small group of blind people describing an elephant, but in our case it is a very large and very old elephant, and we do have some vision.

The NAS (by “NAS” I mean collectively the NAS, NAE, IOM) are honorific membership groups that somehow do useful work by virtue of an organization that has evolved and, I believe, improved with time. When I first began to work with the NAS/NRC more than 50 years ago, I found a lot to criticize, both in inefficient procedure and, particularly, in less than desired integrity in the reports. Reports were too often influenced by the perception of what the government client wanted and even by the involvement of the client with a preliminary draft. That changed under the presidency of Phil Handler and with the creation of the Report Review Committee—RRC. For example, a September 2012 Report from the NRC, “Making Sense of Missile Defense” illustrates both a striking degree of independence from the sponsor, and some technological innovation.

I have been openly critical of that Report as far too optimistic about the prospects of countering decoys in the mid-course intercept on which the Report relies, and because it summarily dismissed boost-phase intercept even in the case of the tiny country of North Korea. But the report does show the extent to which the Academy can provide both independence and technical innovation.

Although I have been involved in writing and formally reviewing many reports, which are the chief product of The National Academies, I will concentrate on two relatively recent innovations—the Committee on International Security and Arms Control created in 1981 with the support of NAS Presidents Phil Handler and then Frank Press, specifically to meet semiannually with Soviet counterparts. Some CISAC members were members of the NAS, NAE, or IOM, but others were engineers and scientists not members of The National Academies or were retired military officers, or occasionally both, as in the case of General Lew Allen, former Chief of Staff of the U.S. Air Force. Credit is due also to the initiative of David Hamburg, President of the Carnegie Corporation and an IOM member since 1971, for his early support of CISAC and his keen interest in its activities and success.

Bilateral meetings with Soviet scientists, engineers, and military officers, all of whom were employed by the government of the USSR, led to greatly increased understanding of the attitudes of the two sides, and options for reducing the peril of nuclear war. Here is a roster of the two groups at an important time, after Mikhail S. Gorbachev became General Secretary of the communist party of the USSR in March 1985. At a meeting in Washington, DC, April 1-3, 1986 the members of the delegation were:

<u>U.S. DELEGATION</u>		<u>SOVIET DELEGATION</u>
W.K.H. Panofsky (Chairman)	Spurgeon M. Keeny (Staff Director)	R.Z. Sagdeev (Chairman)
Lew Allen	Joshua Lederberg	J. Alferov
Solomon J. Buchsbaum	Michael May	A.N. Gromyko
Paul M. Doty	Richard A. Muller	A. Kokoshin
Herman Feshbach	John D. Steinbruner	A. Vasiliev
Alexander H. Flax	Charles H. Townes	V. Ustinov
Richard L. Garwin	Jerome B. Wiesner	Y.K. Shiyan (Staff)
Alexander George	Walter A. Rosenblith	
David A. Hamburg	Victor Rabinowitch	
	Lynn F. Rusten (Staff)	

As usual, the home team was much larger than the visiting side. Gorbachev, as was the case with President Eisenhower on his election in 1952, sought independent expertise in matters of military technology. Feeling that he could not rely on the military, Gorbachev created an informal national security kitchen cabinet of Evgeny P. Velikhov, Roald Z. Sagdeev, Evgeny M. Primakov, and Georgi A. Arbatov, all of whom had been involved with the CISAC process for

several years by that time. Frank von Hippel has recently published an account of his interaction with Gorbachev's "informal advisors."<sup>1</sup>

Particularly notable is the early discussion of directed energy weapons in space, before President Reagan's thunderclap of a speech March 23, 1983, initiating the program his White House liked to call "Star Wars" that went formally by the name "Strategic Defense Initiative"—SDI.

That announcement came as a shock-- a week after a meeting March 16-19, 1983, in this building at which focus was the technology of beam weapons in space, but with no hint of the presidential announcement. The Soviet side became active in publishing an analysis based, as was common then, on U.S. publications. The analysis concluded that space-based antimissile systems are too technically complex, expensive, and easily defeated by countermeasures to be worthwhile. This was portrayed by many in the United States as insincere and disingenuous propaganda<sup>2</sup>. In my opinion it was anything but. Indeed, the conclusions stand the test of time well.

---

<sup>1</sup> "Gorbachev's unofficial arms control advisors," by F. von Hippel, *Physics Today*, Sept. 2013.

[http://www.physicstoday.org/resource/1/phtoad/v66/i9/p41\\_s1?bypassSSO=1](http://www.physicstoday.org/resource/1/phtoad/v66/i9/p41_s1?bypassSSO=1)

<sup>2</sup> See also, "Sagdeev in (Arms) Control," by R.L. Garwin, February 7, 2011, [http://www.fas.org/rlg/Sagdeev%20in%20\(Arms\)%20Control.pdf](http://www.fas.org/rlg/Sagdeev%20in%20(Arms)%20Control.pdf)

\_10/17/2013

0\_17\_2013\_NSIR.doc Richard.L. Garwin  
*One View of the Role of The National Academies  
in National Security and International Relations*

In the CISAC-Russian Academy of Sciences (CISAC-RAS) bilateral, we discussed substantively and frankly the prospects of nuclear war, command and control systems, monitoring and verification of disarmament and of existing stocks of nuclear weapons and delivery vehicles, the Comprehensive test Ban Treaty, and the like. Here is what Velikhov, long-time head of the Soviet counterpart has to say about CISAC,<sup>3</sup>

*“Under the new U.S. administration of Ronald Reagan, it became virtually the only bridge of communication on issues of arms control between the U.S.S.R. and the U.S.A. (...) After the death of Inozemtsev I headed the commission on the Soviet side. From the U.S. it included such influential scholars as Marvin Goldberger (chairman), Paul Doty, Wolfgang Panofsky of Stanford, Dick Garwin from IBM, who designed the first U.S. hydrogen bomb some time ago, and several other scientists from the military-industrial complex. We agreed on priorities and chose the most acute problems threatening the mutual security of our countries: the cessation of nuclear testing, the threat of anti-satellite weapons, the deployment of weapons in outer space, and the ending of production of weapons-grade nuclear materials.”*

For the record, here is a partial list of CISAC publications, some of them at times when arms control was much out of favor with the U.S. administration of the time.

---

<sup>3</sup> “Strawberries from Chernobyl: My Seventy-Five Years in the Heart of a Turbulent Russia,” by Evgeny P. Velikhov, June 12, 2012 (see p. 177).

- India-United States Cooperation on Global Security: Summary of a Workshop on Technical Aspects of Civilian Nuclear Materials Security, 2013\*
- The Comprehensive Nuclear Test Ban Treaty: Technical Issues for the United States, 2012\*
- Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories: Summary of a Workshop, 2012\*
- Global Security Engagement: A New Method for Cooperative Threat Reduction, 2009\*
- Future of the Nuclear Security Environment in 2015: Proceedings of A Russian-U.S. Workshop, 2009\*
- Internationalization of the Nuclear Fuel Cycle: Goals, Strategies, and Challenges, 2009
- English-Chinese Chinese-English Nuclear Security Glossary, 2008
- Monitoring Nuclear Weapons and Nuclear Explosive Materials: An Assessment of Methods and Capabilities, 2005
- Strengthening U.S. - Russian Cooperation on Nuclear Nonproliferation: Recommendations for Action, 2005\*
- The Spent-Fuel Standard for Disposition of Excess Weapon Plutonium: Application to Current DOE Options, 2000\*
- The Future of U.S. Nuclear Weapons Policy, 1997
- Controlling Dangerous Pathogens: A Blueprint for U.S.-Russian Cooperation, A Report to the Cooperative Threat Reduction Program of the U.S. Department of Defense, 1997\*
- Management and Disposition of Excess Weapons Plutonium, 1994  
(Executive summaries and Russian translations of the Executive Summary are also available from CISAC)
- The Future of the U.S.-Soviet Nuclear Relationship, 1991
- Challenges for the 1990s for Arms Control and International Security, 1989
- Reykjavik and Beyond: Deep Reductions in Strategic Nuclear Arsenals and the Future Direction of Arms Control, 1988
- Crisis Management in the Nuclear Age, 1987
- Nuclear Arms Control: Background and Issues, 1985

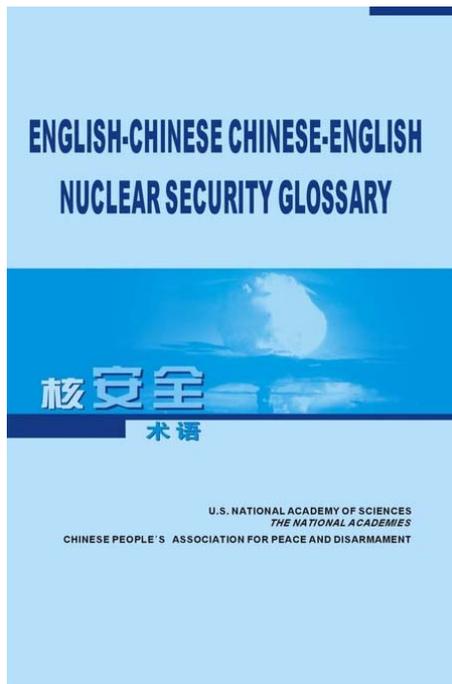
\*Carried out by committees or panels under CISAC's auspices.

The Russia dialogue today continues to address ballistic missile defense, warhead monitoring and verification, and CTBT, based on current understandings and scientific and technological developments, because these activities remain irritants in U.S.-Russian relations and potential opportunities for cooperation.

The CISAC meetings were extended in 1988 to bilateral sessions with the Chinese Academy of Engineering Physics (CAEP) which is the nuclear weapon organization in China, and in particular the activity in China was organized by the Institute for Applied Physics and Computational Mathematics (IAPCM), the theoretical design branch of the Chinese nuclear weapon effort.

Succeeding Zhu Guangya and Song Jiashu, sometime IAPCM Director Hu Side chaired (and still chairs) the Chinese counterpart group-- the Chinese Scientists Group on Arms Control (CSGAC). The CISAC-China bilaterals began under CISAC chair W.K.H. (Pief) Panofsky and continued under John Holdren and now Raymond Jeanloz, through periods of good relations and bad. Important achievements of these interactions, which take place without publicity and with no open reports are a deep understanding of attitudes on the two sides, and, in particular, the Chinese government's signing the CTBT.

One major achievement between the two groups was the English-Chinese Chinese-English Nuclear Security Glossary, shown here and available on the web at [http://www.nap.edu/catalog.php?record\\_id=12186](http://www.nap.edu/catalog.php?record_id=12186). This effort led to the Chinese Government proposing to do a similar glossary effort among the P5-- the permanent five members of the U.N. Security Council-- and the Chinese chair of the academy glossary effort led the Chinese delegation to the P5 meeting.



Similarly, CSGAC and CISAC convened the first meetings between Chinese and U.S. laboratory experts on nuclear forensics. After two meetings convened this way, the governments were able to establish regular meetings of these

experts without us. This is a model that CISAC hopes to replicate in its other dialogues.

CISAC bilaterals have also been extended to discussions with India, although not to the depth or to the involvement of a counterpart government as has been the case with the Soviet Union/Russia and China. They are very active of late, and recently convened an unprecedented joint Indian-U.S. workshop on science and technology for nuclear materials security, which included scientists from the weapons establishments of both countries.

## **THE NATIONAL ACADEMIES AND COUNTERTERRORISM.**

Following the Al Qaeda attacks on the United States of 09/11/2001, The National Academies organized themselves to provide a response<sup>4</sup>. Here is the cover image and a citation,

This report was, in my judgment, a remarkably rapid and reasonable analysis of the situation. Also along the lines of countering terrorism, CISAC held a workshop in Goa, India, in January 2004 organized with the Indian National Institute of Advanced

---

<sup>4</sup> "Making the Nation Safer: The Role of Science and Technology in Countering Terrorism,"4. [http://books.nap.edu/openbook.php?record\\_id=10415](http://books.nap.edu/openbook.php?record_id=10415)

Science (NIAS). India, of course, has a lot of experience with terrorism, natural disasters, and the like. I can't say that the Workshop had great or immediate consequences, and its report was long delayed, but it was probably a useful thing to do.

CISAC's Indian colleagues at NIAS indicated a desire to reprise this topic following the terrorist attacks on Mumbai, so another joint workshop on S&T to counter terrorism will be held in India in February, 2014, 10 years after the first one. The political ground is more fertile today with government-to-government dialogues between India and the United States on both strategic and homeland security issues underway, so we hope that the impact will be greater now.

## **THE NAS STUDY PROCESS.**

As for organization and choice of study topics, the NRC and CISAC are limited by availability of funds for travel and lodging of the volunteers, and for staff salaries. While there are many important and actionable topics to work on, it is a struggle to find ones for which there is support from the U.S. government or from private foundations, or occasionally from endowment, that will allow the necessary independence and freedom of expression.

The Academy study process has become more efficient with the ubiquitous employment of computers for report generation, and I believe that the impact of the reports is much enhanced by the National Academies Press policy, decades in coming, of making available almost all NAS/NRC reports immediately, free for PDF download.

The efficiency of report generation is increased by the availability of teleconferencing, including remote access to presentations, although probably too little use is made of that flexibility.

On the other hand, the preparation of classified reports is much impeded by the mandatory classification review, even when the report itself is unclassified, if the committee has had access to classified material. This is compounded when several sponsoring departments are involved, and when there must be clearance also from the intelligence community. Unfortunately, security review is too often taken as an opportunity by one element or another to delay the publication of the report or to limit the content of the unclassified version and to delay the availability of the report even in its classified format.

Despite this frank accounting of my view of the activities of The National Academies in national security and international relations, I believe that it is very positive and worth the major effort by the many volunteers and staff.