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Alexandria, VA 22310-3398**



**Summary of the Proceedings of the
Defense Nuclear Agency's Fourth Annual
International Conference on Controlling Arms
Philadelphia, PA
19—22 June 1995**

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DNA 4th ANNUAL INTERNATIONAL CONFERENCE ON CONTROLLING ARMS
Wyndham Franklin Plaza Hotel, Philadelphia, Pennsylvania
19 - 22 June 1995
AGENDA

MONDAY, 19 June

1500-2100 Registration/Check-in
1800-2100 Opening Reception

TUESDAY, 20 June

0800 Exhibits Open/Morning Snack

0900-1000 Welcome
Ms. Catherine J. Montie, Deputy Assistant Director for Arms Control and Test Limitations, Defense Nuclear Agency

 Keynote Address
Rear Admiral Donald A. Weiss, USN, Director for Operations, Defense Nuclear Agency

1000-1030 Break

1030-1200 **Plenary Session: Lessons Learned in Controlling Arms**
Chair: *Ambassador S. Read Hanmer (Kaman Sciences Corporation)*

 Colonel Paul Nelson (U.S. On-Site Inspection Agency)
 Colonel Dr. Wilhelm-Nikolai Germann (German Federal Armed Forces Verification Center)
 Mr. Necil Nedimoglu (Verification Coordinating Committee, NATO)

1200 Demonstration of Corral Monitoring System

1200-1330 Lunch

1330-1700 **Panel 1: Cooperative Threat Reduction**
Chair: *Mr. Ronald Bartek (Consultant)*

 Ms. Rose Gottemoeller (International Institute for Strategic Studies, London):
 The Policy Perspective
 CDR Paul D. Petersen, USN (U.S. On-Site Inspection Agency): The Importance
 of CTR in Shaping New Developments in Arms Control
 Mr. Curt A. Nilsen (Sandia National Laboratories): Straight Line: A Nuclear
 Storage Material Information Management System

Dr. V. P. Cherednichenko (National Institute for Strategic Studies, Kiev):
Defense Conversion in Ukraine: Problems and Possible Approaches
Panel 2: Regional Security Issues
Chair: *Dr. Daniel Gouré (Center for Strategic and International Studies)*

Colonel (GS) Götz Sperling (German Federal Armed Forces Verification Center):
Open Skies: Germany's Contribution to Enhance Openness and
Transparency
Dr. Fraser Cameron (European Commission): The Stability Pact
Mr. Darrell C. Sheehan (TASC): CSBMs in the Kashmir Region
Ms. Kaoru Kikuyama (Japan Atomic Industrial Forum): Developing Asia's
Security Framework

1500-1530 Break

1730 Exhibits Close

1800-2100 Reception
Dinner at the Franklin Institute
Speaker: *The Honorable Harold P. Smith, Jr., Assistant to the Secretary
of Defense (Atomic Energy)*

WEDNESDAY, 21 June

0800 Exhibits Open/Morning Snack

0830-1200 **Panel 3: Preventing and Responding to Proliferation Threats**
Chair: *Dr. Keith Payne (National Institute for Public Policy)*

Ambassador David J. Smith (Global Horizons, Inc.): A Comprehensive U.S.
Counterproliferation Policy
Dr. Shai Feldman (Jaffe Center for Strategic Studies, Tel Aviv): Responding to
Proliferation Threats in the Middle East
Dr. Andrei Shoumikhin (Center for Conflict Resolution, Moscow): Russian
Views of Missile Proliferation
Ms. Lisa Bronson (Negotiations and Implementation, OSD): Preventing and
Countering Nuclear Proliferation
Dr. George Look (Counterproliferation Policy, OSD): Technology Gaps in
Support of Proliferation Prevention and Response

**Panel 4: Different Countries' Approaches to Controlling Non-Nuclear
Weapons of Mass Destruction**
Chair: *Admiral Sir James Eberle (UK-Japan 2000 Group)*

Session 1 Dr. Gerd Wagner (Federal Republic of Germany)
Dr. Alexander Pisarev (Russian Federation)

Admiral Sir James Eberle (United Kingdom)

Session 2 Air Vice Marshal Samir K. Sen (India)
Mr. Brendon Hammer (Australia)
Ms. Mami Mizutori (Japan)

1000-1030 Break

1200-1330 Lunch

1330-1700 **Panel 5: Trends in Dismantlement and Disarmament**
Chair: *Rear Admiral (Ret) Thomas R. Fox (Pacific Northwest Laboratory)*

Dr. V. S. Shechovtsov (National Institute for Strategic Studies, Dnepropetrovsk):
Disarmament Problems and Potential Change in Priority for Defense
Industrial Reconstruction in Ukraine

Dr. Igor Khripunov (University of Georgia): Russia's CW Demilitarization: Post-Soviet Prospects and Challenges

Dr. Murat Laumulin (Kazakhstani Institute for Strategic Studies): Kazakhstani
Nonproliferation Policy and U.S.-Kazakhstani Relations

Ms. D. A. Rutherford (Los Alamos Natl. Lab.): Importance of Safeguards and
Security for Surplus Fissile Materials Control and Disposition Project

Dr. Helen Purkitt (Professor, USNA): The Politics of Denuclearization: The
Case of South Africa

Panel 6: New Directions in Controlling Arms in a Multipolar World
Chair: *Dr. Jo Husbands (National Academy of Sciences)*

Mr. Brad Roberts (Center for Strategic and International Studies): Trends in Post-Cold War Arms Control

Mr. Stephen Black (UNSCOM): Providing National Intelligence Information to
International Organizations: Lessons and Precedents from UNSCOM

Mr. Richard A. Bitzinger (Defense Budget Project): The Internationalization of
the Defense Industry: The Impact of Nongovernmental International
Arms Collaboration on Efforts to Control the Arms Trade

Colonel F. Ronald Cleminson (Canadian Department of Foreign and International
Trade, Ottawa): Nonproliferation, Arms Control and Disarmament in the
Post-1995 Era: The Verification Challenge and Response

Dr. Victor I. Mizin (Russian Ministry of Foreign Affairs, Moscow): Is There Life
in Disarmament and Arms Control after the Death of the Cold War?

1500-1530 Break

1730 Exhibits Close

THURSDAY, 22 June

0800 Exhibits Open/Morning Snack

0830-1000 Plenary Session: Nuclear Arms Control: Where Is It Going and Where Should It Go?

Chair: *Dr. Donald M. Kerr (Science Applications International Corporation)*

Dr. Victor A. Utgoff (Institute for Defense Analyses)

Colonel-General Evgeniy Maslin (Main Directorate of the General Staff, Russian Ministry of Defense)

Dr. Dov S. Zakheim (System Planning Corporation)

1000-1030 Break/Exhibits Close

1030-1140 Panel Summaries

Moderator: *Professor James Brown (Southern Methodist University)*

Mr. Ronald Bartek: *Cooperative Threat Reduction*

Mr. Brad Roberts: *Regional Security Issues*

Dr. Keith Payne: *Preventing and Responding to Proliferation Threats*

Admiral Sir James Eberle: *Different Countries' Approaches to Controlling Non-Nuclear Weapons of Mass Destruction*

Rear Admiral (Ret) Thomas R. Fox: *Trends in Dismantlement and Disarmament*

Dr. Jo Husbands: *New Directions in Controlling Arms*

1140-1200 Closing Remarks

Mr. Michael K. Evenson, Assistant Director for Arms Control and Test Limitations, Defense Nuclear Agency

SUMMARY

This report summarizes the proceedings of the Defense Nuclear Agency's (DNA) Fourth Annual International Conference on Controlling Arms, held in Philadelphia, Pennsylvania, 19-22 June 1995. The overall intent of the annual conference is to provide a forum for members of the policy, technological, and operational communities to gain insight into each others' problems and progress and to conduct substantive discussions of mutual interest and concerns.

The DNA/OPAC Mission

DNA is charged with managing, coordinating, and funding research, development, test, and evaluation programs in arms control verification technology, cooperative threat reduction, and proliferation prevention and response. Verification technology and the execution of the Cooperative Threat Reduction (CTR) program are the responsibility of DNA's Assistant Directorate for Arms Control and Test Limitations (OPAC). The proliferation prevention and response mission is conducted throughout the Agency.

DNA/OPAC's traditional mission has been research into and development of technologies for use in on-site and aerial monitoring of arms control treaties and their implementation. OPAC has active programs to develop technologies for strategic, conventional, Open Skies, chemical, and biological arms control applications. At the conference, three panel sessions (on different countries' approaches to controlling

non-nuclear weapons of mass destruction, new directions in controlling arms in a multipolar world, and trends in dismantlement and disarmament) addressed this mission area.

OPAC's second mission area is the CTR program, which is conducted under the auspices of the Nunn-Lugar legislation. Formerly known as Safety, Security and Dismantlement, this program is executed by DNA. The program objective is to assist the Russian Federation, Ukraine, Belarus, and Kazakhstan in the safe and secure storage, transport, destruction, and disposal of weapons of mass destruction and associated materials and delivery systems; in preventing proliferation; and in transforming their weapons production complex into peaceful institutions. The CTR program is distinctive in that it directly improves U.S. and global security by helping to dismantle weapon systems and weapon production capabilities of a past adversary and by preventing the weapons, materials, and knowledge from falling into the hands of potential adversaries. Panel Session 1 was devoted to CTR.

The third mission is preventing and responding to proliferation. Panel Session 3 was devoted specifically to this mission, although several other panels contributed to the understanding and objectives involved in stemming the spread of weapons of mass destruction. This panel's speakers represented a wide array of expertise and mostly took a broad perspective on the overall problem of proliferation.

Conference Goals

The general goal for the 1995 Philadelphia conference was to apply lessons learned from the past to the future of controlling arms. However, there is a tendency to acknowledge the past and forge ahead into the future without any regard for the lessons that should have been learned. "Lessons learned" refers to more than an assessment of the success or failure of particular arms control efforts on a grand scale. The conference succeeded in making all the participants more aware of both the commonalities and differences in each others' endeavors to define, understand, and confront the problems of controlling arms. Despite the national and individual differences, a uniting factor for all the participants was the determination to make their respective countries and the world safer and more secure.

Specifically, the 1995 conference set out to discuss the following questions regarding the control of arms:

What Is the Future of Controlling Arms?

The future of arms control includes a wide variety of issues, including fissile material stockpiles, technology transfer, material control and accountability, and policy. In order to deal with future proliferation, the controlling of technological dissemination and diffusion becomes a major factor.

However, the future of arms control cannot be determined without first examining the early post-Cold War trends. Arms control agreements have moved toward multilateral objectives. The future will include the emergence of

new regions of concern. A general theme running through the panels was that arms control agreements must remain flexible, and parties to the agreements must sustain resolute implementation and not become complacent.

What Is the Future of Dismantlement and Disarmament?

Although the concept of disarmament is not new, the prevailing notion of it during the Cold War was more a convention of rhetoric than a reflection of reality. Today, nations are eliminating entire classes of weapons, such as tactical nuclear and chemical weapons, and are looking hopefully, yet realistically, at the prospect of widening and deepening this trend.

Dismantlement is a primary means by which the United States expects to achieve its security goals, and a major area of endeavor for DNA. Two variations on the theme of dismantlement were expressed repeatedly in the conference program.

First is the CTR program, in which the United States is assisting the new independent states of the former Soviet Union initially in the dismantlement of their nuclear and chemical weapons, including associated delivery systems, and in transforming the industries that once produced these weapons into productive, commercially viable, and peaceful enterprises. CTR is not only a real-world program, but is also a model for dismantlement efforts in other regions and for other types of arms.

The second form involves the various ways different regions are deal-

ing with dismantlement and related security issues. This was reflected in a discussion of South African nuclear weapons rollback. South Africa had developed six World War II-type nuclear bombs and then decided to dismantle the entire program, for various reasons, and become a signatory to the Nonproliferation Treaty (NPT). As the United States and other countries move toward urging others to follow the South African example, they need to establish procedures and guidelines for future denuclearization.

How Do We Prevent Proliferation?

Proliferation of weapons of mass destruction is a complex and multidimensional problem with both military and diplomatic consequences. While the disintegration of the Soviet bloc has led to relaxation of the forty-year-old East-West controls embodied in the former allied Coordinating Committee for Multilateral Export Controls (COCOM), dual-use technologies with military applications are becoming increasingly available throughout world markets.

The issues raised were the need for a counterproliferation policy, ballistic missile defense, and regional controls on technologies, commodities, and deployments. Overall, the United States has a good grasp on the global, cooperative strategies needed for stemming proliferation in the post-Cold-War world. However, the United States also needs to be ready to carry out unilateral action in addition to multilateral measures to curb proliferation.

Conference Results

As in previous years, the conference cultivated a broadly defined approach to controlling arms -- as opposed to traditional arms control. It also highlighted many of the challenges facing this broader approach.

This conference, like its predecessors, is only a step along the path toward understanding the opportunities for controlling arms to enhance global security. Other steps must be taken, and DNA hopes that this conference, and this summary of its proceedings, will contribute to the understanding and dialogue required for identifying and taking these steps.

The rest of this report is organized according to the conference plenary and panel sessions. The ideas and views expressed in each section are those of the participants of that section.

CONFERENCE PROCEEDINGS

PLENARY SESSION 1:

LESSONS LEARNED IN CONTROLLING ARMS

Chair:

Ambassador S. Read Hanmer
Kaman Sciences Corporation

Colonel Paul Nelson
U.S. On-Site Inspection Agency

Colonel Wilhelm-Nikolai Germann
German Federal Armed Forces

Mr. Necil Nedimoglu
Verification Coordinating Committee, NATO

Rapporteurs:

Mr. Charles L. Thornton
Mr. Skip Holman
Center for Verification Research

Arms control agreements are only possible when the initial elements which fostered the confrontation are no longer factors. Such agreements can be reached when conditions between the parties to the proposed agreements have improved to the point that formal agreements are not actually necessary. However, as Manfred Woerner stated when describing the paradox presented by the collapse of the Soviet Union, while there may be less of a threat, there also may be less peace. Others have made similar comments in favor of establishing formal arms control agreements: Secretary of Defense Perry has stated that arms control is defense on the cheap, while ACDA Director Holum has suggested that such agreements are simply defense by other means.

Negotiating Arms Control Agreements

Experience has demonstrated that arms control initiatives can (1) reduce arms inventories and, thus, increase stability; (2) increase transparency, thus reducing the possibility of misunderstandings and mistakes; and (3) establish international norms which may induce potential proliferators to discontinue acquisition programs and give parties to the agreements arguing rights on related issues. In addition, negotiations need to take into account both the comprehensiveness of the final agreement and the degree to which the agreement is implementable. All sides must guard against complacency and a false sense of security and should understand that no agreement will provide complete assurance.

Moreover, arms control is expensive in a number of ways. Countries and their leaders must invest a great deal of political capital in agreements. The weapons themselves and the elimination process produce additional costs. Also, monitoring and verification operations are usually elaborate and expensive. Finally, the export control regimes associated with arms control agreements may entail lost opportunity and proprietary costs.

There is often a tendency among negotiators to focus primarily on the concept of the agreement and not enough on its implementation. The most important lesson may be that simply reaching an agreement is not enough. States and their leaders must be willing to follow through with the provisions of the agreement. They must be willing to expend the political capital to act on any violations of the agreement and make difficult decisions concerning compliance issues. As President Reagan stated, "Trust but verify."

A Practitioner's Perspective

As in many disciplines, lessons are often learned through experience. A great deal of practical experience has been gained by the On-Site Inspection Agency (OSIA), the U.S. agency responsible for carrying out inspection and escort requirements under the verification provisions of U.S. international arms control treaties and confidence-building agreements. Lessons learned have been gathered and applied across treaty applications.

The Intermediate-Range Nuclear Forces (INF) Treaty introduced new dimensions to treaty verification. After seven years of INF inspections, the United States is currently concluding the final baseline

inspections in Ukraine. Three types of inspections were laid out in the INF Treaty: (1) on-site, (2) escorts, and (3) portal monitoring. On-site inspections include counting treaty-limited items, witnessing their destruction, and verifying the absence of those destroyed items. Continuous monitoring of sensitive activities has improved confidence by ensuring that both sides are abiding by international obligations.

OSIA encountered an initial problem under INF: how to prepare inexperienced personnel for conducting on-site inspections. The agency used several solutions. First, recruit good people. Second, train personnel on the treaty, on its provisions and procedures, and on the equipment to be used. Finally, practice by conducting mock inspections. This INF model was copied and improved for the subsequent START Treaty, even to include treaty partners on mock inspections.

Fortunately, the process and relationships with treaty partners have changed. The United States and states of the former Soviet Union (FSU) now conduct affairs in a much more cooperative atmosphere. This cooperation has led to greater efficiency. Also, the infrastructure at OSIA has changed. The number of personnel has increased, and the agency covers broader geographical and treaty areas. In addition, responsibilities of the treaty parties have increased now that the agreements have become multilateral with the breakup of the Soviet Union. Whereas the treaties had been negotiated between two partners, they are now being implemented among five. OSIA, for example, increased its staff from approximately 80 in 1988 to 800 in 1995. This includes personnel stationed in Washington headquarters, operations centers in Germany and Japan, entry points in the United States

and temporarily deployed teams throughout the FSU.

OSIA and its charter, therefore, have become an essential part of the arms control process. The on-site process has been found to be effective, not only in treaty implementation but also in increasing military-to-military contacts. These increased contacts have purpose in fostering the joint mission. Important lessons include maintaining a well-defined objective and remaining focused, continually maturing the process so that both sides recognize the mutual benefits, and further building on existing operational concepts. In such a situation, the phrase "Trust but verify" might better be stated, "Trust *and* verify."

A German Perspective

The Federal Republic of Germany has gained considerable experience in implementing conventional arms control over the past four years. The Federal Armed Forces Verification Center (FAFVC) is the German governmental institution responsible for all verification tasks. Current arms control regime responsibilities include the Conventional Armed Forces in Europe (CFE) Treaty, the CFE Ia Agreement, the Vienna Document, the INF Treaty, the Chemical Weapons Convention (CWC), and the Treaty on Open Skies. Unlike within other European governments, all tasks related to these agreements are handled in Germany by this single agency, thus promoting cooperation across treaty lines, access to lessons-learned, and a comprehensive approach to implementation.

From the German point of view, several basic elements are important to understanding arms control in the new world environment: The concept of "checks and bal-

ances" must remain central to any arms control regime. Although it may be impractical to eliminate all weapons, stable balances of forces must be maintained. However, there is no formula for determining such levels, necessitating a dynamic process. Also, while the numerical reductions are important, building cooperative instead of confrontational efforts will have more beneficial consequences.

Despite the cooperative spirit, arms control agreements must require established means of mutual verification to ensure compliance. Reducing the possibility of cheating leads to confidence, fostering further cooperation. The regimes established under the aforementioned agreements form a comprehensive set of regulations. Although there exists an unprecedented environment conducive to maintaining cooperative security efforts, can the regimes withstand some difficult tests?

Germany, for example, had to accept the extra burden of East German Army forces, resulting in the second highest mandated force reductions after Russia. However, its obligations were met on 23 May 1995, six months ahead of the CFE Treaty deadline. Only about half of the pre-Treaty forces remain. Although dismantling is costly, many tons of remnant metals have been recycled in the private sector.

More than 1,000 CFE inspections have taken place, with German team members taking part in about half of them. Since no major deficiencies were discovered, Germany is optimistic about the prospects for success. Similar results are expected from provisions of the Vienna Document. Germany has exercised all options offered by this agreement, conducting over 100 inspections in the past four years. Some of the

information gained under such inspections includes military structures, current readiness, economic developments, internal social situations, and the development of potential crisis management tools.

However, it is the future, not the past, that casts doubt on the arms control environment. Events such as the war in Chechnya and the Belarus suspension of reductions demonstrate the need to solidify previous successes. Other problems include the situation in Azerbaijan and Armenia, Russian political divisions, the possible growth of NATO, and issues surrounding the CFE flank ceilings. These ceilings, especially, continue to hinder cooperative efforts. But, it remains in Russia's best interest to comply with these agreements and maintain this vital European security system.

The Vienna Document also continues to evolve. Although a set of enforcement instruments is required, they must be effectively used to establish credibility. States often need to be reminded that full compliance, not a piecemeal approach, is essential. Many elements play a role in security and stability nowadays: legal, economic, social, ecological, and military. Unfortunately, the military option is increasingly exercised. Cooperative efforts to control military power, thus, are more important than ever.

The lessons learned by the FAFVC indicate that a united Europe must be built on confidence, supported by treaties and agreements. Rules must be further refined and developed, and states must be willing to fulfill obligations.

An International Perspective

Coordinating and implementing arms control regimes in an international forum present their own set of issues and challenges. As difficult as it is to determine and define arms control policy at a national level, arriving at a common position among the many members of an organization such as NATO is that much more difficult. A great deal of experience in this type of effort has been gained from the cooperative efforts toward conventional arms control in Europe.

Any NATO decision is by charter an expression of the collective will. An example of this is a 1990 Council document which set out NATO's objectives regarding implementing conventional arms control. It states that implementation and verification are national interests, and that cooperation makes sense. The CFE Treaty, the Vienna Document, and the Open Skies Treaty demonstrate that while sovereign nations, not NATO, are parties to them, extensive coordination in international fora eliminated much of the potential for embarrassing mutual impediments.

This pragmatic approach led to coordinated inspection teams, common understanding and interpretation of treaty provisions, and shared data bases among the allies. The Verification Coordinating Committee (VCC) was established in 1990 to support these activities. It is unique within NATO as it is neither political nor military, but reflects the integrated nature of verification. With respect to the CFE Treaty, the VCC apportions inspection quotas, coordinates declared site inspections, assesses compliance, and guides database development.

In addition to the technical aspects of implementation, the CFE Treaty added a new feature to the arms control arena. In its preamble, the treaty calls on the participants to replace military confrontation with new types of security relationships based on peaceful cooperation. The treaty does not, however, define how to achieve this. As an effort initiated to train inspectors, trial inspections developed into multinational events. These events, in turn, enhanced the cooperative nature of treaty verification once the agreement was signed. The programs of joint training and joint inspections have expanded the climate of trust and transparency.

The following are examples of the success of the cooperative programs:

- During the baseline inspection period in 1992, the allies conducted 238 of 253 central and eastern European inspections. In each case, the VCC limited duplication and disruption of national interests. Since the results of inspections were shared, each NATO country benefited.
- In the subsequent 1,000 inspections, the multinational nature of the teams provided additional opportunities for each member country to participate.
- The pooling of national efforts provided monitoring for the reduction of over 27,000 treaty limited items.
- Since April 1993, over 150 joint inspection teams and over 90 joint monitoring teams have been established. Integration has posed few problems.
- More than 100 inspectors from treaty partner countries have attended courses in Germany and Belgium.

As in a national setting, political will is necessary to achieve results. The advan-

tages of coordination and cooperation far outweigh individual efforts. The openness and transparency which exists today is tribute to this cooperative venture.

Conclusion

Arms control agreements must remain flexible, but they must also pay attention to detail and have well-defined rules which are strictly followed. The process is dynamic and demands constant attention. Parties to agreements must remain resolute in implementation and not become complacent.

Arms control, while useful to national security, should not be a solution to a crisis. Instead, such initiatives ought to be used to cement improved relations between parties. Although it is expensive, for many reasons, arms control is here to stay.

Times change. Many established agreements, such as the CFE and ABM Treaties, have been overtaken by geopolitical events and/or technologies. Should future arms control agreements be of indefinite duration, or would they be more effective if they expired or otherwise remained more flexible?

CONFERENCE PROCEEDINGS

PANEL SESSION 1:

COOPERATIVE THREAT REDUCTION

Chair:

Mr. Ronald Bartek
Mehl & Associates, Inc.

Ms. Rose Gottemoeller
Institute for Strategic Studies, London

Mr. V.P. Cherednichenko
International Institute National
Strategic Studies, Kiev

Mr. Paul D. Petersen
On-Site Inspection Agency

Mr. Curt A. Nilsen
Sandia National Laboratories

Rapporteurs:

Mr. Anthony Demaso
Mr. Hunter F. Lutinski
Center for Verification Research

The Cooperative Threat Reduction (CTR) Program panel addressed its subject amidst severe Congressional pressure to curtail the program and to eliminate several of its component parts. An overview of the recent Congressional actions served as a preface to the panel's presentations and discussions.

CTR and Congress

The first point raised was that, despite the severity of proposed cuts to CTR, the actions of the House National Security Committee did not represent a final legislative resolution. Recent Congressional proposals have addressed CTR in two ways. First, they have

sought to cut CTR's budget authorization from fiscal year 1996's \$371 million to \$200 million. Second, the House has proposed altering the authority of CTR in several ways. For example, it has been proposed that the Defense Enterprise Fund (DEF) be repealed. The Fund has been criticized by House Republicans on several levels. They have asserted that a viable DEF would be a difficult, if not impossible, undertaking. The cost of "real" defense conversion would be prohibitive, soaring into the hundreds of millions of dollars. Also, if the DEF is to be continued, House Republicans hold that it is to be the province of agencies other than the Department of Defense. The Energy and Commerce Departments

have been proposed as more appropriate administrators of DEF. The promotion of state-sponsored conversion projects pays insufficient attention to privatization and prolongs state control of key industrial sectors within Russia and the other new independent states (NIS).

Also under assault in the House is Russia's "good faith." Charges have been leveled against DEF and Russia suggesting that, for the most part, only dormant military production facilities have been converted to civilian use. At the same time, Russia retains a well funded modernization program for its nuclear arsenal. These same accusations have been levied against Russia regarding its participation in CTR writ large. House Republicans assert that Russia has not shown a commitment to its bilateral agreement with the United States for the elimination of chemical weapons and has not ratified the Chemical Weapons Convention (CWC). Russia has not agreed to destroy its most useful weapons first and has not cooperated satisfactorily in the design and construction of a fissile material storage facility. Further, proceedings in the House have included suggestions that such a facility is an unnecessary expense given the extant facilities and deep bunkers already present in Russia. The House has proposed requiring certification of Russian compliance with agreements rather than statements of "commitment" to the reduction and elimination of weapons of mass destruction (WMD).

In addition to the fiscal and programmatic cuts proposed in the House, there are also policy concerns. There has been an association of CTR assistance to Russia with a prohibition against joint

peacekeeping efforts. This is part of a larger objection in the House to U.S. involvement with United Nations peacekeeping operations. Though the House proposes to cut CTR funds within the Defense Department's budget, it does not cut CTR programs administered by the Departments of State, Commerce, and Energy (including the International Science and Technology Centers, Export Control, and Material Control and Accounting). The Republican majority seeks to attach disparate amendments to CTR in both the House and the Senate. The Senate is expected to reduce CTR funding rather than slash and eliminate it. It will most probably apply the "savings" to continuing and resurrecting pet programs.

CTR's Past and Future

Even in the face of growing hostility toward the CTR Program, the panelists emphasized the program's importance. By January 1994, the stage was well set for denuclearization in the NIS. Russia had repudiated its arms-racing past by way of the START I and II frameworks, and there was a growing consensus on the prospects for a START III in the future. The key question for the Bush and Clinton Administrations was: Would the other new independent states share the views of Russia and the United States on strategic arms reductions? There was a fear that the dissolution of the Soviet Union would result in the creation of three new nuclear states, two with over 1000 warheads each. The Bush and Clinton Administrations' approaches to this problem took the familiar form of "carrots" and "sticks." The incentives were clearly definable: the promise of assistance, the symbolic value of

"making the world a safer place," and the prestige of being a young country at the forefront of a globally significant effort. The disincentives were equally clear: denial of larger U.S. cooperation with the NIS and the restriction of trade and investment in their fledgling economies. CTR served as a coherent and available tool for the executive branch.

In the case of Ukraine, the panel noted the value of CTR as an incentive. The initial assistance amount of \$175 million was doubled when Ukraine signed the Trilateral Agreement and acceded to the Nuclear Nonproliferation Treaty (NPT) as a non-nuclear weapons state. The same strategy was applied to Kazakhstan. CTR's flexibility allowed for it to be tailored to the needs of the recipient states. For example, Belarus (the site of road-mobile SS-25s) did not have a sizable nuclear plant infrastructure. The primary needs were environmental remediation, housing, and retraining of demobilized Strategic Rocket Forces (SRF) officers. Indeed, without CTR assistance, SRF officers could have posed serious obstacles for the reduction of forces and the denuclearization of Belarus, Ukraine, and Kazakhstan. CTR thus targeted the needs of the recipient countries, balancing those needs within the framework of threat reduction. The extension of the NPT and the validation of START reduction objectives were significantly influenced by CTR.

CTR has problems, however, which go beyond the changing climate of the legislative branch. Within the executive branch, CTR has become Balkanized. The short-sighted objectives of individual agencies and project partici-

pants have diluted the coherence which CTR once possessed. Also, it is no longer a tool given high-level focus by the Administration. Greater involvement by the Administration is needed if CTR is to remain an effective tool in the long-term U.S./NIS relationship.

The keys to CTR success are a high-level commitment by the President, the Vice President, and the Cabinet; policy direction from the White House (not ad hoc decision-making); and coherence in the tools used to affect that policy. The White House must orchestrate a vigorous public support campaign for CTR while showing substantive progress on biological and chemical weapons elimination in Russia. More attention must also be paid to parallel efforts, such as the lab-to-lab programs, which complement and gird the CTR Program.

CTR and Innovation

The original objectives of the Nunn-Lugar legislation which gave life to the CTR Program exhibited great vision in light of the turmoil and uncertainty of the collapsing Soviet Union. Unfortunately for CTR, good news is rarely covered as "news." Those managing CTR have done a poor job publicizing the innovative and unprecedented aspects of the program. At the policy level, the CTR Program has been the key tool for implementing agreements concerning nuclear, chemical, and biological weapons. It has been the implementing mechanism for the Lisbon Protocol, which would reduce the number of nuclear weapons states in the world by three. As stated above, CTR was a contributing factor - and reward - for the Trilateral Agreement concerning Ukraine

which, in turn, affected the Nuclear Non-Proliferation Treaty (NPT) Conference.

CTR assists in the elimination of strategic offensive weapons, facilitating START compliance. Its effect is being felt in other areas of U.S.-NIS relations as well. In the tradition of NATO's Partnership for Peace, CTR has fundamentally changed the relationships between the U.S. military and those of the NIS from that of adversaries to that of partners, from confrontation to trust and cooperation. CTR led to the O'Leary/Mikhailov agreement on the inspection of plutonium pits removed from nuclear warheads.

CTR's innovation is also shown by the fact that it is probably the first arms control-related effort which focused on the economic ramifications of demilitarization from the start. CTR's efforts have targeted barriers to economic integration and facilitated the further opening of a market of over 300 million people to benefit American businesses.

The economic benefit to the NIS recipients of CTR assistance has not been as positive. For the three denuclearizing states, there is a tension between having to develop a domestic military infrastructure to replace the former Soviet system, and the need to convert military industries to civilian. This tension is further exacerbated by the reality that military production for export presents a more near-term source of capital than does long-term defense conversion. Given the economic hardships within the NIS, the fracturing of the defense-industrial complex, the lack of integrated, closed-loop networks of

internal resources and production capabilities, CTR defense conversion objectives with its limited resources (compared to the challenge) face an uncertain future.

CTR is being constructed around agreements on issues of mutual interest and concern. These agreements, however, are not exclusively between governments. Though Presidential Initiatives and mutually agreed upon protocols have the weight of traditional treaty-focused structures, for CTR they simply set the stage for further initiatives between agencies and, as mentioned before, even between laboratories. Such near-to-hand agreements, made between the responsible centers for the subjects being addressed, allow for shorter implementation timelines. For contrast to the years (and even decades) before major treaties enter into force, many of CTR's efforts are up and running as soon as opportunities present themselves - usually the result of personal contact between former adversaries who now share many of the same problems. Shorter program implementation timelines and durations are easier to agree upon, sell, buy, and evaluate.

Unlike treaties, CTR projects are bilateral but not reciprocal. This can be both problematic and beneficial. It is problematic when "compliance" is raised as a measure of a program's worth. However, this approach does not always apply, especially when the United States does not wish to grant the same access to facilities and information that NIS recipients do. This bilateral, but not reciprocal, approach also allows for progress where circumstances and needs are widely divergent. Requiring reciprocity

in compliance for programs of vastly divergent types and objectives can be a bureaucratic impediment to making substantive achievements in threat reduction.

However, compliance is still important. There is a need to continue to pursue aggressively the technologies needed to implement CTR programs (such as integrated verification/ monitoring technologies) fully while meeting the time-honored challenge of balancing intrusive measures of verification with the political acceptability of such measures. Compliance concerns must be put in perspective by viewing the overarching threat to be addressed and should only put a stop to projects when it seriously compromises the objectives of CTR assistance.

Most importantly, CTR has evolved into a multilevel trust-building mechanism. No mandate can promote trust. Rather, the process of meeting, learning, understanding, and ultimately trusting takes place at the level of individuals. Whether it is from contractor to firm or agency, business to military, or agency to agency, CTR seeks to reduce uncertainty, thereby reducing the threat. This type of threat reduction, in the long run, will have a greater impact on strategic stability than will any agreement on force reductions. Critics of the CTR Program often fail to grasp this synergy which makes CTR so unique.

Conclusions

CTR was initially a modest, "off-the-shelf" program. In considering CTR's future, there are five major areas on which to focus. (1) Prioritize the program's "onward goals." Offensive weapons elimination and the control and accounting of their materials and component parts must become a new national policy layer, on par with traditional strategic priorities. (2) CTR must take a more comprehensive approach to its programs where social welfare issues pose both functional and political obstacles to threat reduction. (3) CTR must be realistic about the amounts of money required to perform tasks and must focus on those which are achievable, to paraphrase the Nunn-Lugar legislation, on a priority basis. (4) When assessing project feasibility and achievability, CTR must involve the White House in a top-down effort to promote, implement, and sustain a project after the agreement has been signed - especially in Congress. (5) CTR must begin to involve the NIS recipients of CTR assistance in supporting and sustaining the program.

Additionally, the United States is not alone in its threat reduction mission. With Europe and Japan involved both financially and technically in CTR, there should be a greater effort to incorporate and solidify a coalition to support NIS denuclearization and its conversion to a market democracy.

CONFERENCE PROCEEDINGS

PANEL SESSION 2:

REGIONAL SECURITY ISSUES

Chair:

Dr. Daniel Gouré

Center for Strategic and International Studies

Dr. Fraser Cameron
European Commission

Mr. Darrell C. Sheehan
TASC

Colonel Gotz Sperling
German Federal Armed Forces
Verification Center

Ms. Kaoru Kikuyama
Japan Atomic Industrial Forum

Dr. A. M. Zherebin
GosNIAS, Moscow

Rapporteurs:

Mr. Chris Karandyszowski

Mr. Skip Holman

Center for Verification Research

A more complex and less predictable world than before has emerged out of the Cold War. The old approach to controlling arms based on bilateral agreements does not translate well into the increasing need for multilateral negotiations. Put simply, one can no longer use a cookie-cutter approach to controlling arms. This offers a unique challenge to arms controllers. Future arms control solutions must account for the interplay and degrees of importance of variables such as politics, geography, religion, language, history, and technol-

ogy when analyzing the many issues, problems, and conditions.

Today's geopolitical world is marked by a heavy, if not primary, emphasis on regionalism. This is in marked contrast to the Cold War environment, which subordinated regional issues to the bipolar superpower relationship. The old arms control regime was defined by Yalta, SALT I and II, and other fora of that type. Today, however, the very definition of a nation-state is in question. How does one construct an arms control regime with the variations within regions

and across regions? One regime will not be responsive enough to address the key issues that today revolve around regional power balances, economics, ethnicity, and nationalism. Arms control, in summary, has become a more difficult and more complex proposition.

European Union (EU) Stability Pact

The European Union's Stability Pact is an exercise in preventive diplomacy, focusing on promoting good-neighborly relations and encouraging countries to consolidate frontiers and resolve the problem of national minorities. The initiative was launched by French Prime Minister Edouard Balladur in June 1993 and was intended to be the first Joint Action of the European Union's new Common Foreign and Security Policy (CSFP).

While individual European states had been involved in independent foreign policy, the EU to this point had not. It was the difficulties the Union faced in Yugoslavia which prompted France to promote the idea of a Stability Pact.

Expectations for the success of the initiative were not high. Nearly all of the nine countries toward which the Pact was directed harbored reservations, and in some cases resentment, at having been chosen as "principally concerned countries" in an initiative built upon the premise that disputes in their region over frontiers and minorities posed a threat to European peace and stability. A major concern was that France's intentions might lead to undermining the Organization for Security and Cooperation in Europe (OSCE) and that the French ini-

tiative was designed to keep the United States out of European security issues.

The Stability Pact used central and east European countries' desire to join the EU as a means to push them into settling their frontier disputes and resolving the issue of national minorities. Initially, most nations were hostile to the idea. Roundtable discussions were held to force countries to sit down and discuss the problems of the region. Minority issues were particularly sensitive. The EU dispelled these concerns through shuttle diplomacy.

Initially, a major question was whether or not Russia would participate. It required some coaxing to persuade Russia to participate in the Baltic roundtable, but it eventually did so. The United States was lukewarm in the beginning toward the Pact and made its participation contingent on Russia's involvement.

The Pact has been a vehicle for furthering the objective of increasing the extent to which the various European institutions reinforce one another.

In the view of the EU, the Pact is a success in that it managed to entice countries to sit down and talk about issues which had been taboo for decades. There are plans for extending this method to other regions, notably the Mediterranean, Balkans, and Caucasus; however, leverage of EU membership is lacking.

Overall, the Pact was considered successful because it:

- Reflected a common political will of the Union to see the initiative through to its conclusion.
- Was directed at countries over which the EU had political and economic leverage.
- Endeavored to cooperate with other European bodies rather than compete with them.

The long-term effects of the Pact are harder to judge. Much will depend on how the OSCE follows up on the initiative and monitors implementation. The EU's position is that the Pact shows its growing influence as an important actor on the international stage.

India/Pakistan Conflict

Since the partition in 1947, India and Pakistan have engaged in numerous border conflicts and two major wars. These conflicts have hinged on the Kashmir region, which is split between India, Pakistan, and China. The region between India and Pakistan is the most problematic, and a UN Military Observer Group (UNMOGIP) has been deployed on the border since 1948.

Proposed solutions were presented from various national, regional and international perspectives. For Pakistan, the first steps to be taken were dismantling training camps, ceasing air space violations, and stopping the flow of militants as well as weapons.

Recommended points for India with respect to Pakistan included ceasing covert operations, cross border shootings, pulling back strike units from the border, and opening water resources.

Furthermore, with respect to Kashmir, India should: control human rights abuses, conduct civil affairs, provide employment opportunities, and encourage private investment. A local Kashmiri government should gradually be given near complete autonomy for internal affairs while New Delhi remains responsible for external defense and foreign affairs.

Bilateral actions for both India and Pakistan include fighting the drug trade, building an oil pipeline from Iran to India, and easing visa restrictions.

On a wider scale, the UNMOGIP should increase force levels, obtain equal access, monitor elections and make its reports freely available. India restricts deployment of the UNMOGIP on its territory, and this must be resolved. U.S. interest in the area would be served through the expansion of the Nuclear Nonproliferation Treaty (NPT), building of geostrategic alliances, building of democracy, and promoting humanitarian ideals (given that one-sixth of the earth's population is involved). In addition, the United States could contribute by establishing diplomatic offices, providing verification technology, sharing intelligence, and holding joint military exercises.

Specific Confidence and Security Building Measures (CSBM) include border control, no-fly zones, restricted deployment zones, and limits on armored forces. By instituting mutual verification of the location of armored equipment through corraling, shared imagery, or advanced tag systems, both states would be less inclined to act bel-

ligerently. Once these aspects of transparency are achieved, India and Pakistan will have an adequate foundation to begin more high-profile regional negotiations, eventually leading to international arms control agreements.

Japanese Security

Given the way in which the nuclear age dawned in the summer of 1945, nuclear weapons are a particularly controversial, even painful, issue in Japan. Suspicions developed in the 1960s when a report prepared for the Japanese government on Japan's nuclear policy indicated that Japan had the ability to produce nuclear weapons.

The report, however, was taken out of context, as it actually had five main points. First, Japan was capable of producing a plutonium bomb. Second, Japanese nuclear weapons would pose a threat to China and instill suspicions of Japan's intention both in Washington and in Beijing; thus, Japan would risk isolation from the world community. Third, Japan is vulnerable to nuclear retaliation due to its small land mass and dense population. Fourth, the project would be very expensive to finance. And finally, Japanese public consent would be difficult to obtain. The report recommended that Japan reject the notion of gaining great power status through nuclear weapons, and focus instead on security through multiple means. Japan has accepted this recommendation and has focused on economic development, while continuing to rely on the U.S. nuclear umbrella.

Japan has also embarked on a nuclear energy generation policy and is a

signatory to the NPT. In addition, it has a strict and transparent policy of not stockpiling excess plutonium and publicizes the data concerning its plutonium stock. Japan's practice of reprocessing plutonium will remain a fundamental energy process.

The Cold War did not have the same effect on Asia as it did on Europe. The OSCE was formed in Europe to promote regional stability, while the Asian powers are actually on an aggressive armament program. The problem of the Koreas, the post-Deng Chinese environment, and the South China Sea dispute are a few examples of the tensions in the area. These problems have spurred a military build-up in the countries concerned. China's nuclear capabilities pose threats to regional and international security with its increasing number of delivery systems and nuclear warheads, of which no less than 300 remain outside nuclear arms control measures. The combination of these factors, together with a U.S. military withdrawal from the region, makes for a potentially unstable situation.

As such, an Asian security mechanism is needed. Some of the organizations already in existence may provide a basis for such a mechanism. The Association of South East Asian Nations (ASEAN) has represented the region in world political affairs. The ASEAN Regional Forum (ARF) is primarily a political organization and is not well suited to military issues. The Asia-Pacific Economic Forum has an economic and trade mandate, although it may help in the growth of regional cooperation in the political and economic fields. These fora could be useful in

facilitating communications and collaborations among countries. However, the fora would not be able to provide measures where individual national security is at stake.

In contrast to Europe, Asia has little experience in multilateral security issues. Asian security has been evolving around the bilateral alliances the United States has with South Korea and Japan, as well as the U.S. relationship with China. In particular, the U.S.-Japan security ties should serve as the core of an expanding regional security regime.

There are five benefits to establishing a regional security framework with the U.S.-Japan relationship at the core. First, it would mitigate the effects of U.S.-Japanese economic disputes on the region. Second, it would constrain member states from acting outside of international norms (similar to NATO). Third, the U.S. military presence would counterbalance the increasing military imbalances, particularly the Chinese build-up. Fourth, an active military structure would deter North Korea and a resurgent Russia. And finally, a U.S.-Japan security framework would reassure other Asian nations that Japan has no intention of becoming a military power.

In conclusion, while there are many intrinsic hurdles to an Asian multilateral security apparatus (culture, longstanding antipathies, economic disparities, ethnic suspicions, and political systems), there are no insurmountable obstacles. Economic requirements legitimize the political and economic institutions in Asia. The multilateral security institutions should manage to induce the

right balance of resources among the member countries with a greater emphasis on people's welfare. This type of arrangement would serve to reassure the world that Japan has no nuclear ambitions.

Open Skies in Germany

The Treaty on Open Skies, which was signed in Helsinki on 24 March 1992, affects a huge portion of the northern hemisphere. The treaty includes 27 signatory states at this time.

The Open Skies regime fosters confidence-building through openness and transparency among armed forces. The treaty is innovative in that it does not require participants to reduce the current amount of their holdings of military equipment and does not result in any restrictions on military activities.

Currently, entry into force awaits ratification by Russia, Belarus, and Ukraine. The parliaments of these states have initiated ratification proceedings, and the treaty should become effective by the end of 1995.

The Germans have provided a Tupolev TU-154M aircraft for Open Skies operations, emphasizing the importance they attach to the Open Skies regime as an independent instrument for deepening confidence-building. The TU-154M aircraft was being readied for a mission over the United States and Canada in June 1995. The information gathered by this sortie will be available to all treaty signatories, as will be the case for every Open Skies flight. In addition, Germany is making its aircraft available for leasing by any other treaty signatory.

The German Foreign Office is responsible for the treaty, while the Federal Armed Forces implements the treaty provisions. In addition, the Open Skies Consultative Committee (OSCC) in Vienna serves as the working group focal point for sensors and procedures. The committee places a heavy emphasis upon practical applicability of hardware and procedures.

There have been several test flights since 1993. A flight over Russia verified CFE Treaty obligations. For training and exercise purposes, an additional Ukrainian flight was made; however, this flight encountered functional difficulties and will be repeated in August 1995 with no flight restrictions. Flights over Poland and Turkey are also planned in the near future.

These aircraft can be used for environmental monitoring, but new procedures would have to be formulated. However, work on making the aircraft environmentally applicable should not delay ultimate ratification of the treaty.

There are some reservations on the prospects for ratification by Russia. Most of the signatories are very interested in conducting observation flights over Russia, causing concern in the Russian parliament. Russian lawmakers fear that the flight quota over Russia will be fully exploited, but the Western powers will be relatively unobserved. For instance, of the 12 quota flights over Germany, only 5 have been used to date. In short, given the Russian parliamentary elections in the fall of 1995 and the presidential elections next spring, if the treaty is not ratified in the summer, it

probably will not be ratified until the summer or fall of 1996.

Use of Open Skies Aircraft to Monitor Compliance with International Treaties and Agreements

The monitoring of compliance with international treaties and agreements is of prime importance to the world community, especially in the fields of arms control and disarmament and crisis management. The prospects for strategic and regional stability depend to a great extent on the objective, real-time assessment by the monitoring agencies. The Open Skies regime may be a unique mechanism for this type of monitoring once the treaty enters into force.

In test flights carried out in June through August of 1993 using a spatial resolution of 30cm, it was shown that three levels of identification can be achieved: Level I identifying class (tanks, airplanes, missile facilities, motor vehicles); Level II identifying family (fighter vs. bomber, tank vs. armored car); and Level III identifying type (F-14, F-16, Su-27, T-62, T-80). The likelihood of being able to classify a military weapon or piece of technical equipment with respect to class, family, and type depends on the wavelength used.

Scanner based technologies also show promise in Open Skies applications. Optomechanical scanners can record over a wider range of the electromagnetic spectrum from extremely short wavelengths to the wavelengths associated with thermal radiation. In addition, radar systems operating at microwave

wavelengths overcome problems caused by weather conditions. Spectral sensors permit remote monitoring of both the terrestrial surface and the atmosphere.

For onboard environmental monitoring, a remote sensing system should have the following features: it should cover as broad a portion of the spectrum as possible; enable images in multizonal (multispectral) mode; include high resolution radiometers at UV, optical, IR, and microwave lengths; and combine active sensing (radar, lidar) with passive techniques.

Environmental transparency will increase the measure of trust. In addition, economic costs of operating Open Skies aircraft could be reduced further by expanding their role to include removal of mines and other unexploded munitions. Expansion of Open Skies roles and the associated equipment to meet these roles is consistent with the provisions of the Treaty on Open Skies.

The main advantages of Open Skies aircraft in arms control, monitoring weapons nonproliferation, and monitoring treaty compliance are generally as follows:

- Observation aircraft ensure regional stability and security.
- Currently permissible equipment for installation on Open Skies aircraft allow for multi-functional airborne monitoring.
- The regime allows legal joint monitoring without right of unjustified refusal.
- Information generated by aircraft is available for international analysis.

To expand prospects for airborne observation, it appears sensible to have a joint effort with interested international organization in such areas as:

- expanding the functionality of airborne observations in arms control environmental science and natural resource usage;
- creating a database and models for evaluation of various situations and analysis of data; and
- developing additional observation measurement hardware to expand the capabilities for airborne monitoring.

It is necessary to focus the efforts of the Open Skies parties to ensure that the Open Skies Treaty enters into force. Finally, the decisions of the Open Skies Consultative Committee on the extension of the Treaty to cover environmental protection and to permit Open Skies aircraft to be equipped with additional sensors for environmental monitoring should be adopted.

CONFERENCE PROCEEDINGS

PANEL SESSION 3:

PREVENTING AND RESPONDING TO PROLIFERATION THREATS

Chair:

Dr. Keith Payne

National Institute for Public Policy

Ms. Lisa Bronson

Office of the Secretary of Defense
Negotiations and Implementation

Dr. Shai Feldman

Jaffe Center for Strategic Studies, Tel Aviv

Dr. George Look

Office of the Secretary of Defense
Counterproliferation Policy

Ambassador David J. Smith
Global Horizons, Inc.

Dr. Andrei Shoumikhin

Center for Conflict Resolution,
Moscow

Rapporteurs:

Mr. John Reeke

Mr. Becket Dickerson

Center for Verification Research

Proliferation of weapons and missiles is a complex and multi-dimensional problem with both military and diplomatic consequences. The presentations from this panel included a variety of approaches and responses to proliferation, and each recommended solutions that attacked the problem on all fronts. Each presentation also recognized the international nonproliferation effort as "problem management" rather than "problem solving." As the availability of technologies inevitably increases, international policies and pro-

grams against proliferation must evolve. Unfortunately, failures to prevent and respond to proliferation are quickly spotlighted, but the successes are only temporary and often go unnoticed.

The Need for a Comprehensive Counterproliferation Policy

The national security community of the United States tends to divide itself into two camps - one which advocates diplomacy and policy as the primary tools to counter proliferation, and the

other which contends that technology and defenses are the best means to deter or respond to conflict. Rather than champion just one approach, the United States should pursue a comprehensive counterproliferation policy which includes nonproliferation, offensive forces for deterrence and counterforce, and active defenses. Specifically, the United States should develop a ballistic missile defense system which, if mobile enough to be deployed in a timely fashion, could devalue nuclear, biological, and chemical (NBC) weapons and delivery systems.

The Gulf War raised the issue of ballistic missile defense to a new level. Even now, the Europeans are still focusing their attention on the proliferation of missiles, warheads, and components, and trying to determine their impact on existing alliances. One question immediately raised is "What is needed in the field of ballistic missile defense?" The best way of addressing that question is by first asking "Why is ballistic missile defense needed?" Analysis of the Gulf War sheds light on the answers.

In reviewing the lessons of the Gulf War, the United States recognized that if Saddam Hussein had achieved his goal of splitting the coalition (by firing ballistic missiles at Israel, hoping to influence Israeli retaliation), the war's course and complexion would have changed dramatically. The United States should extrapolate that lesson and consider the (hypothetical) implications of a credible ballistic missile threat against Europe during the Gulf War. How would such a threat have impacted the

Bush Administration efforts to form a coalition?

The coalition for Desert Storm was not a foregone conclusion. The Bush-Baker team labored in some cases, and finessed in others to form the multinational team. Given missiles capable of reaching southern Europe, Iraq could have held entire cities at risk - not just 100-200 hostages. Under these circumstances, threat of ballistic missile attacks could have jeopardized the formation of the Gulf War coalition, especially if the threat was posed before the targeted nation had committed support to the coalition.

In Desert Storm, the goals, enemies, and allies were fairly clearly defined, but the location and nature of the next military challenge may be more ambiguous. If the United States needs a coalition, and public opinion in candidate member states is divided because of ambiguous relations and goals, or by threat of ballistic missile attack, the United States would most certainly have a more difficult task. A split political arena would make national leaders more hesitant, if not resistant, to commit to a coalition.

Consider, for example, Italy and Turkey. At the outset of the Gulf war, Italy immediately authorized the United States to use existing bases. However, after this initial authorization, the commitments became deeper, and public support for the war waned. After a U.S. Naval force in the Mediterranean moved through the Suez canal to the Red Sea, the Italian leadership went to parliament

to get permission to deploy five Italian ships as replacements. During this time, Pope John Paul II publicly stated that "war would signal a decline of all humanity," and that "peace obtained with arms would lead to nothing but preparation for more violence." Additionally, the Italian Communist Party argued that the war was a U.S. problem and that Italy should press for a Euro-Arab solution decoupled from U.S. interests. In the face of Italian public opinion, the Pope, and the Italian Communist Party, a ballistic missile threat during that time could have prevented Italy's support.

Turkey, as the only real NATO front line state, had internal political battles to fight, and risked a great deal by supporting the United States. Turkey obtains one-third of its oil from Iraq and has a large Kurdish population. At the time, Turkish opinion polls indicated that the public was unwilling to go to war. Fully two-thirds of the Turkish population were opposed to military action in the Gulf War, and 80% were opposed the U.S. use of Turkish bases. The United States could not allow an attack on Turkey, but even a ballistic missile threat to Turkey during coalition establishment could have seriously undermined attempts to include Turkey.

Clearly the United States has global interests, but also has enemies who will seek the tools to fight those interests. Given the difficulty the United States had in defending against Iraqi SCUDS, we should expect future military challenges that use ballistic missiles. The contemporary security environment

is one of multipolar politics and threats, and the United States is not adequately prepared to defend against ballistic missiles. As such, the United States should pursue not just diplomacy in dealing with proliferation, but should also seek a comprehensive counterproliferation policy and develop ballistic missile defenses.

If ballistic missile defenses are neglected in such a policy, then the United States could eventually be held hostage with the threat of a ballistic missile attack on an ally. American reluctance to intervene could effectively decouple the United States from Europe, and the United States would be less able to pursue its overseas interests. Eventually, one country will obtain missiles that can deliver weapons against our allies. A continuing naval presence in the Mediterranean will not be sufficient to dissuade countries from obtaining more capable ballistic missiles.

If effective ballistic missile defenses, e.g. a two-tier defense of Europe, are deployed in a timely manner, the United States would retain a major geopolitical advantage. Moreover, the capability to defend entire regions (which is highly dependent on mobility) could force some aggressor nations to discontinue efforts to obtain NBC weapons because the utility of such weapons would be significantly decreased. A mobile, accurate ballistic missile defense would complement U.S. current efforts in both nonproliferation and offensive forces to create a comprehensive counterproliferation policy.

Nuclear Proliferation in the Middle East

Proliferation of nuclear weapons in the Middle East cannot be divorced from global counterproliferation efforts. However, the Middle East offers particularly difficult challenges and requires dedicated attention to formulating a response. There is no easy solution to the Middle East nuclear proliferation problems, and any solution will take time.

Globally, there has been some downscoping of nuclear programs, which demonstrates a certain measure of counterproliferation success. While these decelerations or suspensions contribute to the peace process, they are less valuable than rollbacks because decelerations allow other variables time to influence and potentially degrade international relations. To be successful, nuclear counterproliferation should attack problems on a wide spectrum of fronts with a variety of methods.

Attempts to prevent nuclear proliferation can be divided into two constituent efforts: (1) preventing regional states from smuggling nuclear material, and (2) preventing regional states from building a nuclear infrastructure. These two efforts operate under different timetables. Control of nuclear material as contraband is an event-prevention process, albeit it is virtually impossible to predict when material will be smuggled on the black market. In contrast, preventing the establishment of a nuclear infrastructure requires intelligence on current capabilities, and requires prevention of a sequence of events.

Specifically, the most serious issues facing nuclear proliferation in the Middle East are preventing reconstruction of the Iraqi program and addressing Iran's potential for developing a nuclear weapon. Each of these issues can be addressed independently.

Iraq's reconstruction of its own nuclear program will only require time. The human infrastructure is intact because the scientists and engineers are still in the country. The financial resources required to develop/redevelop a nuclear infrastructure are still available. Iraq will continue to have oil, and once trade sanctions have been lifted, Iraq can quickly regain its previous wealth. Most importantly, Iraqi motivation to develop nuclear weapons still exists. Saddam Hussein is still in power, while Bush, Thatcher, and other coalition leaders are no longer in office. Hussein built a remarkable nuclear program and provided both the West and the Arab world with a cultural and technological challenge. The destabilizing effects of a nuclear Iraq could be overwhelming.

Iran is also currently engaged in building a nuclear infrastructure and is motivated to continue. Iran has a German reactor and two Russian reactors, all of which will significantly abet Iran's development of a nuclear infrastructure, in both the human and technological dimensions. Iran's ongoing program presents a difficult intelligence problem because the Iranians claim the reactors are ostensibly for nuclear power and not for weapons. Their claims are doubted by many who question the need for nuclear power in a country where oil is readily available. For Iran, nuclear infrastructure

development will be a slow process and will not be as easy as it was for Iraq, which was able to work secretly.

Given this current situation, the best approach to counter nuclear proliferation should be balanced among bilateral, multilateral, and even unilateral agreements. Bilateral agreements can diminish the extent of a problem, and can lead to other agreements. The Sinai Agreements and the Camp David Accords between Israel and Egypt serve as examples of the progress that can be made with bilateral agreements.

Multilateral regional agreements are also quite valuable, as evidenced by the current talks among Israel and 13 Arab nations. In a Declaration of Principles, all countries have agreed to all aspects of the document except for the nuclear dimension. (Egypt is demanding Israel sign the Nuclear Non-Proliferation Treaty (NPT) and will not sign the Declaration of Principles between Israel and the Arab states until this concession is made.) Multilateral agreements are most easily negotiated when there is little or no press coverage, rather than with public interaction and opinion polls.

The operational aspects of this multilateral agreement call for a crisis communications center, with all messages processed through the computer hub at the Organization for Security and Cooperation in Europe (OSCE). Eventually, all activities will be centralized in Cairo. This center will allow participating countries to communicate via computer to coordinate search and rescue, to prenotify each other of military exercises, and to participate in the

Global Exchange of Military Information provision of the Vienna Document (1994).

Egypt wants Israel to sign the NPT and create a nuclear-free zone, while Israel believes a strong confidence-building regime must be instituted before the nuclear issue can be addressed. However, these talks have had amazing and remarkable success overall, and have helped to create a confidence-building infrastructure to address the nuclear issue. The most disappointing aspect of these talks has been that neither Iraq nor Iran is participating.

How can the Iranian and Iraqi nuclear issues be approached? As the primary proliferation threats in the region, how can they be engaged in the peace process? There are three tiers of verification that should be employed: bilateral, multilateral, and unilateral. The bilateral tier would have as its centerpiece on-site inspections by other nations or the International Atomic Energy Agency (IAEA).

The multilateral tier would attack both of the main nuclear proliferation problems: fissile material control and accountability, and nuclear infrastructure. Material controls are crucial but difficult to maintain, as are measures to prevent the development of a nuclear infrastructure. The nuclear suppliers' group has improved its ability to constrain material transfers, but it also has competing economic interests, and is simultaneously motivated to sell materials and technology, while restricting their trade.

Unilateral measures to prevent nuclear proliferation can be peaceful or forceful. Peaceful measures such as the Nunn-Lugar program can be very successful. Forceful or otherwise military actions can add a coercive dimension to preventive efforts, and have also been successful in the past. Other forceful actions can replace or eliminate regimes.

Deterrence can be effective for maintaining peace, but the prospects of Iraq and Iran acquiring new capabilities remain high. Any successful regime must address the intentions of these pariah states by either replacing their leadership or adjusting their motivation to obtain nuclear weapons.

Several conclusions can be made regarding nuclear proliferation in the Middle East:

1. There is no easy solution.
2. There is a clear need to sustain all nonproliferation efforts on all fronts. Criticism can be cumulative, and efforts to modify the behavior of Iran and Iraq will take a long period of time.
3. Nuclear nonproliferation cannot be maintained without active, cooperative participation of European allies, e.g. intelligence sharing.
4. The international community should continue to pursue arms control measures, especially at the regional level.
5. An effective deterrent must be maintained.

The Evolution of Russian Counterproliferation Policy

The counterproliferation policies of Russia are not as stable as U.S. policies because Russia's internal political infrastructure is still evolving, and Russia is struggling to maintain a consistent message in its external activities. Many Russians think this situation unfair because the United States holds an accepted position, while Russia has no consensus and is unable to coordinate a firm policy. Contradictions in Russian policies occur, undermining the strength of its positions. Recent studies indicate that Russian policy-makers will have significantly divergent positions, while U.S. policies remain consistent and solid. For Russia, the proliferation challenges inside its borders will influence proliferation globally. Russian failure to manage proliferation adequately will result in a serious and irreversible situation.

Additionally, as a consequence of the Soviet Union's demise, Russia's neighbors are changing domestically, and the relationships are also evolving. When foreign policy problems and crises occur, e.g., Iran and North Korea, heavy criticism falls on Russia. For Russia, these crises can be beneficial in spotlighting shortcomings domestically. Unstable neighbors, such as the spiraling arms race between India and Pakistan, give incentive to Russian leaders to coordinate a sound and consistent foreign policy.

The United States has a clear understanding of the threats to its national security, and U.S. political discussions

center on the strategies and tactics to meet those threats. In contrast, it is not possible for Russia to have a clear definition of national security threats, and Russia's perspective is much more transitory as well as diversified. Along its borders, Russia has politically unstable neighbors with missiles and weapons of mass destruction. Consequently, the political discussions among Russian policy-makers center on the levels of threat, and often fail to recommend consistent methods to address these threats. As internal forces each vie for influence within the new Russian Government, the dialogue must specifically assess and categorize the types of threat. Any analysis of an external threat must consider proximity, vulnerability, stability, weapons, and recent behavior.

Unfortunately, the internal Russian economy drives policy, and the political desires of government leaders become secondary and less important when their constituents have more immediate needs. It is difficult to focus attention on proliferation policy when people are hungry.

Overall, there is a strong evolutionary theme in Russian foreign policies. The direction of internal development is very important and will set the foundation for the future of the country. In a very real way, the outcomes of these internal political arguments will shape the future of Russian society. Russia's political culture and ethics are evolving. The infrastructure that arises from this process will define the balance of power between the military and the civilian government. From this infrastructure, Russia will formulate policies regarding

its external activities, power projection, and involvement in international agreements.

Educating and clarifying proliferation policy is extremely important to the Russians, as is educating others. Although Russia currently has contradictory influences trying to shape its proliferation policy, these influences are important as Russia considers its new and still evolving security environment. Russia's wider perspective on its internal problems improves the chances that Russian foreign policies will be predictable and benign.

Responses to Nuclear Proliferation

The United States desperately needs to rethink proliferation policy - not only the potential responses, but also the range of responses available to counter-proliferation policy-makers. Some policy-makers have suggested new supplier group regimes and/or new regional agreements, and others have suggested a global agreement similar to the Nuclear Non-Proliferation agreement. While supplier groups and regional agreements may be successful, a global proliferation agreement similar to the NPT will not be successful because we no longer have a global norm regarding proliferation, and the proliferation problem is significantly different from the nuclear problem.

With the NPT, the international community paid a high price in its ability to negotiate new regimes because in many ways, the model of "haves and have nots" does not apply to missile proliferation. Missile proliferation (whether chemical or nuclear missiles) is

a different type of problem than that addressed by the NPT, and the international community cannot use the same reasoning that was used with NPT.

Care must be taken not to fall into the trap of "misplaced correctness" (as defined by Alfred North Whitehead), where the tools of managing or responding to a problem become an end or reality in themselves. In the trap of misplaced correctness, the problem solver becomes removed from the reality of the problem, and addresses only those issues within the boundary of the tool. In other words, if all you have is a hammer, everything starts to look like a nail. Similarly, the tools with which we respond to proliferation should not become the problem, instead we should address the real problem of proliferation.

Counterproliferation policy makers should consider the range of possible responses in dealing with three of the major factors affecting proliferation: (1) the pursuit of a global norm, (2) competition between supplier regimes and arms control agreements, and (3) two new phenomenon in international affairs i.e., signatory countries' demonstrating a willingness to violate their international commitments and second tier suppliers being relatively unaffected by supplier regimes.

First, clearly the global norm (if it ever existed) is eroding. China and North Korea are the largest proliferators and are willing suppliers of technology to rogue states. To these and other countries, economic security has a higher priority than the peace process. The global norm is not sacrosanct when it competes

with national economic security, and, in general, economic security requirements have eroded this norm.

Second, there is significant tension building between supplier regimes and actual arms control treaties. The goals are often in competition with each other. Supplier regimes focus on prevention and try to deny rogue states access to technology and equipment. These regimes are discriminating in nature, and are usually comprised of a collection of more like-minded, smaller groups, e.g. the Australia Group. Supplier regimes like these have been successful, and are no longer sources of technology to rogue states.

On the other hand, arms control agreements tend to be quantitative, counting, inspecting, and potentially destroying objects of verification. The agreements tend to be egalitarian, and regime standards are set at the lowest common denominator. The Chemical Weapons Convention is an example of an arms control treaty that has provisions to manage or restrict the trade of weapon/agent chemical precursors.

The third major factor affecting proliferation policy consists of two phenomena. Several countries have demonstrated a willingness and ability to violate their international commitments. There are numerous examples of violations, but of equal concern is that many countries are designing programs to withstand inspections.

Additionally, second tier suppliers are not usually included in supplier group regimes, and are capable of pro-

viding technologies such as chemical agent precursors to rogue states. Nations considered to be rogue by first tier suppliers (such as Iran and Syria) are not discriminated against by second tier suppliers (such as China and North Korea).

In defending against proliferation, the international community must go back to first principles, and think through not only the potential responses, but also the relationship among responses. Policy-makers must ask what is the nature of the threat, how does a proposed solution solve the problem, what are the collateral effects, and what tools and other responses can also be used. Policy-makers need to re-examine and modify tools used to counter proliferation, and must resist choosing responses based on precedent.

The Defense Counterproliferation Initiative

The post-Cold War environment has significantly increased the proliferation threat. More than 25 countries may have or are developing nuclear, biological, or chemical weapons, and more than 12 countries have operational ballistic missiles or programs to develop them. Coupled with the rising tide of dual-use technologies, the potential and dangers of proliferation have increased.

During the Gulf War, Iraqi SCUDS proved difficult to locate and destroy. Additionally, Iraqi nuclear, biological, and chemical weapons programs were far more advanced and difficult to detect than the United States had expected. The lessons of the Gulf War

heavily influenced and redirected U.S. counterproliferation policy, which now focuses on both prevention and protection. The United States must be prepared to defend against weapons of mass destruction in future regional conflicts. This dual-edged approach applies unique capabilities to prevent proliferation, and with training and equipment prepares U.S. forces to deal effectively with the threat. Prevention and protection are mutually reinforcing, but prevention is the preeminent goal.

In preventing proliferation, the United States has supported the UN Special Commission on Iraq, the International Atomic Energy Agency, and the Missile Technology Control Regime and other effective export controls, and has conducted Chemical Weapons Convention inspector training programs. The protection edge of the Defense Counterproliferation Initiative has five major elements: policy, military planning, intelligence, acquisition, and international cooperation.

The basic counterproliferation policy has been established. Both President Clinton and Secretary Perry have directed the Services to prepare against a nuclear, biological, or chemical combat threat. Although appropriate modifications have been made in key DoD planning documents, policy refinements will be made as the work proceeds.

The military planning aspects of counterproliferation have also begun. Secretary Perry has endorsed recommendation of a study from the Joint Chiefs of Staff, and implementation has begun. Wargaming parameters have

been expanded further to include NBC effects on a conventional battlefield. Refinements in education and doctrine are expected to result from wargaming lessons learned.

Desert Storm demonstrated that a different type of intelligence is required if an adversary has NBC weapons. Knowledge of the types of agents, infrastructure, and details of the adversary's employment policy are major intelligence goals. With these goals in mind, U.S intelligence collection methods and objectives are being optimized to meet the prevention and protection requirements, and military resources are being shifted to better understand the strategic and operational personality of the proliferator.

Acquisition "areas of progress" are being given special priority. These are known shortcomings in defense technologies, and include biological/chemical agent detection and characterization, hard target characterization and defeat, paramilitary/terrorist NBC threats, detection and tracking shipments at sea, and personnel/equipment protection and decontamination.

Internationally, the United States has ongoing counterproliferation efforts with many countries. NATO has assessed many of the risks of proliferation, is analyzing the impact of those risks on NATO capabilities, and will next analyze and recommend improvements in policy, procedures, and infrastructure. The United States is also in the early stages of exploration of common concerns and possible cooperation with its Pacific allies, and is having preliminary

discussions with Russia on trying to understand the NBC threat. The results of these efforts will hopefully add some strategic stability to counterproliferation efforts.

Overall, the United States has a robust counterproliferation program underway, and recognizes that adjustments must be made as the policies and programs mature. The Defense Counterproliferation Initiative is an essential element in assuring that the United States can address the threats of proliferation.

CONFERENCE PROCEEDINGS

PANEL SESSION 4:

DIFFERENT COUNTRIES' APPROACHES TO CONTROLLING NON-NUCLEAR WEAPONS OF MASS DESTRUCTION

Chair:

Admiral Sir James Eberle
UK-Japan 2000 Group

Session 1:

Dr. Gerd Wagner
Embassy of the Federal Republic of
Germany

Dr. Alexander Pisarev
Embassy of the Russian
Federation

Admiral Sir James Eberle
UK-Japan 2000 Group (United Kingdom)

Session 2:

Air Vice Marshal (Ret) Samir K. Sen
Embassy of India

Dr. Brendon Hammer
Embassy of Australia

Ms. Mami Mizutori
Embassy of Japan

Rapporteur:

Mr. Anthony Demaso
Center for Verification Research

This panel on Different Countries' Approaches to Controlling Non-Nuclear Weapons of Mass Destruction was divided into two sessions: the first dealing with European views from Germany, Russia and the United Kingdom; the second with views from Australia,

India, and Japan. The panelists generally interpreted their charter widely - holding that the approach of governments to issues related to non-nuclear weapons of mass destruction (WMD) cannot easily be separated from an approach to arms control issues in general. The principal

comments, however, were directed toward chemical and biological weaponry.

There was considerable commonality in the approaches of five of the countries. The exception was India, which was described as "not part of the Alliance." India's role as a friendly non-aligned nation with a strong ideological base was asserted. Drawing attention to the particular dangers of chemical weapons, concern was expressed that the obtrusive nature of the planned regime for challenge inspections would be considered by some developing countries to be an excuse for the major powers to constrain the legitimate efforts of such countries to develop their own chemical and biotechnological industries. India also deems the Missile Technology Control Regime (MTCR) and the Nuclear Non-Proliferation Treaty (NPT) to be discriminatory.

Europe

Germany has taken a less active role in arms control since the removal of the short- and medium-range nuclear weapons from its soil. However, there is a legacy of past German involvement in arms control visible in its current efforts. First is the German commitment to multilateralism (particularly within the United Nations), as it is still a hesitant actor on the global scene. Because of its excellent record on arms control, however, Germany acts confidently and leads efforts in many areas, particularly non-nuclear arms control.

The second legacy of German involvement in arms control which has become embodied in German foreign

policy is its commitment to a comprehensive European Security System (including NATO, but also encompassing Eastern Europe and Russia). These two legacy areas, a commitment to multilateralism and to larger European security, converge in German assistance to the Russian Federation. Aid to Russian chemical weapons dismantlement must be seen in the context of overall German aid to the former Eastern bloc and a desire to promote a more integrated and secure Europe.

Regarding chemical weapons, Germany has focused on the quick ratification and entry-into-force of the Chemical Weapons Convention (CWC), fearing that the CWC may be unraveling under the pressure of competing industrial and economic interests. Germany has also taken part in the efforts of the Australia Group to control precursors to weapons of mass destruction.

In the case of German involvement with the United Nations Special Commission on Iraq (UNSCOM), the German role in arms control is also made clear. While Germany did not take an active role in the Persian Gulf War, it has been extremely active in the monitoring and verification of CW destruction in Iraq. Germany deems a comprehensive verification regime for biological weapons to be a much more difficult goal. It is, however, attainable.

Both Germany and the United Kingdom are playing a strong role in the work of the CWC. This commitment to multilateral arms control must, however, be related to the development of a regional European security system that

reflects the new realities of the European political and economic scene, an issue of particular concern to Russia.

Russia supports a broad range of arms control and nonproliferation approaches, including the MTCR and the NPT, and emphasizes their interrelationship. The importance of adequate verification measures in the CWC and in strengthening the Biological and Toxin Weapons Convention (BTWC) is also fully recognized by the Russian Government, which is committed to complete adherence to the stringent verification requirements of the CWC. The conditions also exist in Russia for the strengthening of the BTWC.

Problems of implementation remain. Russia views the expansion of challenge inspections as a major milestone in transparency. However, the spirit of the treaties must be stressed over their letter (as with the Russian position on the CFE flank limits). For instance, chemical weapons (CW) facilities already eliminated by defense conversion efforts should not be required to be destroyed a second time. Treaties must be applied with due regard for the uniformity in their interpretation by state parties, and with flexibility in consideration of economic interests.

Britain's view is that, in the 1980s, confidence building measures were viewed as part of arms control. Now, arms control is a mechanism of confidence building and conflict prevention. This is a result of the growing economic and security interdependence between countries, even between adversaries. Many things have been accomplished in arms control since the end of

the Cold War. Unfortunately, only bad news seems to travel fast. Members of the arms control community must focus on disseminating information to each other and to the public, both to contribute to confidence building efforts and to garner support for arms control.

The United Kingdom believes in several approaches to dealing with non-nuclear weapons of mass destruction. *Dialogue*: Communication both at the level of UNSCOM and with smaller countries is vital. Biotechnology makes even the smallest country potentially powerful and threatening. *Deterrence*: Deterrence continues to work; how else can Iraq's non-use of CW in the Gulf War be explained? *Export Regimes*: The United Kingdom fully endorses efforts such as those of the Australia Group. *Arms Control Regimes*: Particularly the CWC, where the concept of "managed access" was a major British contribution to the treaty. *Finance*: In short, "putting one's money where one's mouth is" is vital in these times of defense budget rollbacks. *Military Action*: As a measure of last resort, Britain does not rule out the use of force to counter the development and use of WMD. *Technology Transfers*: The United Kingdom has noted a "back pressure" on development when technology is restricted, especially since military technology is often no longer on the leading edge of technology in general. *Revisiting Past Concepts*: For example, asking the question: "Is there a role for weapon free zones in the future?"

Asia/Pacific

Traditionally, there has been a clear difference between Asia and

Europe in their approaches to security. Asia's history of security affairs has been dominated by bilateral relationships, not by multi-party alliances. This is beginning to change. However, the lessons of Europe, as to what works and what does not work, cannot always be directly transferred to Asia. For example, transparency is less acceptable culturally in Asia than in Europe.

India finds itself representative of neither the Atlantic Alliance nor an emerging Pacific structure. India represents the view from the Indian Ocean, which sets it apart from the other panel participants. India holds that chemical and biological weapons are as deadly as nuclear weapons. It is easier to access chemical/biological technical and knowledge precursors, and these weapons are easier to weaponize than nuclear weapons, are harder to detect, and even harder to inspect.

India objects to the United States not making a distinction in its arms control efforts between imported and indigenously produced weapons; there must be a distinction made between the two. India promotes dialogue as the best means to increase participation in and ratification of the CWC. The CWC needs to be addressed with imagination but must not be considered a foolproof regime. Diplomacy must be stressed in any verification regime, and data exchanges are becoming increasingly important.

Biotechnology is growing in India, so the response to a biological weapons arms control regime has been hostile there. Western countries cannot

continue to pursue both high-technology investment in India and seek to restrict its technological development through export controls.

Despite its low population and geographical isolation from the Cold War alliances, Australia has been at the forefront of arms control for years. The Australians' ability to separate themselves from global (and even regional) arms races has allowed them to consider arms control with a great deal of flexibility.

In Australia, a full awareness of the threat of chemical and biological (CW/BW) weapons was engendered by the use of chemical warfare in the Iran/Iraq War. After thoughtful assessment, Australia concluded that CW/BW were indeed a strategic threat to the country, as (1) most of its population is concentrated in cities and (2) proliferation destabilizes political and economic growth globally. If Australia were to become involved in a regional conflict, it would also face the possibility of CW/BW use. There is a very short warning time between the proliferation of such weapons and their being used in a conflict.

This analysis led to the formation of the Australia Group, to harmonize national export controls. The Australia Group receives wide support and now has 28 members, characterizing the Australians' strongly multilateral and global approach to WMD arms control. There is also strong Australian support for a high degree of intrusiveness, where necessary, in verification measures. As Australia rejects deterrence by an in-

digenous CW/BW capability, the costs of highly intrusive verification regimes are worth paying.

Japan is becoming increasingly more active in the disarmament field, and there is particular emphasis, not the least as a result of the sarin attacks by Aum Shin Rykio, on the need for countries to sign and ratify the CWC. This is a demanding but achievable task.

Japan signed the CWC in 1993 and immediately undertook the difficult task of translating the document. Japan then enacted a law prohibiting the production, retention, and transfer of CW capabilities. It also identified the Ministry of International Trade and Industry (MITI) as the administering agency for the CWC. MITI has developed training manuals and conducted seminars regarding the CWC and focuses especially on small and medium sized companies. On March 10, 1995, Japan submitted - and soon after ratified - the CWC. This was a significant ratification considering Japan's leadership in the chemical industry.

A Biological Weapons Convention will be more complicated than the CWC. Japan is seeking ways of addressing the dangers of biological weapons while protecting intellectual property rights in ways that are compatible with verification regimes. Japan also seeks to use foreign aid programs to encourage the development of bio-medicine in Asia and the developing world without contributing to possible BW proliferation.

Conclusions

Overall, the panel members showed a high degree of commonality in their approaches to arms control in general, and to the issues of non-nuclear weapons of mass destruction in particular. There was common ground among all the presentations regarding the probability and timing of U.S. ratification of the CWC, and, indeed, about the likely reality of its effectiveness.

Three points dominated the panel sessions and warrant particular emphasis: (1) The need for, and almost universal agreement for, proceeding to a successful implementation of an effective CWC and the strengthening of the BTWC; (2) an awareness of the tensions that exist between the need for uniformity - and attention to detail - and the need also for sensible flexibility in the implementation and verification of treaty provisions; and (3) an awareness of the dangers of "unequal" treaties, since for some lesser developed countries, non-proliferation regimes such as the MTCR and the CWC are seen as an "intended" restraint on technology transfer and on their justified need for and right to further technological development.

CONFERENCE PROCEEDINGS

PANEL SESSION 5:

TRENDS IN DISMANTLEMENT AND DISARMAMENT

Chair:

Rear Admiral (Ret) Thomas R. Fox
Pacific Northwest National Laboratory

Dr. V. S. Shechovtsov
National Institute for Studies, Ukraine

Dr. Igor Khripunov
University of Georgia

Dr. Murat Laumulin
Kazakstani Institute for Strategic Studies

Dr. Helen Purkitt
Professor, U. S. Naval
Academy

Ms. D. A. Rutherford
Los Alamos National Laboratory

Rapporteurs:

Mr. Chris Karandyszowski
Mr. Hunter Lutinski
Center for Verification Research

Although the concept of disarmament is not new, the prevailing notion of it during the Cold War was more a convention of rhetoric than a reflection of reality. Today, however, many countries are beginning to dismantle weapons of mass destruction - while others, of course, are building up their own forces - and are discovering that environmental protection, safety, and security often make dismantlement challenging with regard to cost, time, and technical capability.

Dismantlement and disarmament constitute a multifaceted subject, as illustrated by the diversity of the topics covered under this panel. All the variants of dismantlement and disarmament discussed here are of the voluntary type, although forced dismantlement, such as the case of United Nations activities in Iraq, comes with its own set of challenges and issues.

As the global trends toward dismantlement and disarmament hope-

fully continue, we will need to draw on and generalize from experiences and insights already accrued, such as those presented below.

Russia's Chemical Weapons (CW) Demilitarization: Post-Soviet Prospects and Challenges

There are four phases of the Soviet/Russian chemical weapons (CW) disposal history. The first of these spanned the period between World War I (WWI) and the early 1980s and consisted of ocean dumping and agent burial near storage facilities. The Soviet Union dumped CW at no less than 12 sites in the Sea of Japan, the Sea of Okhotsk, the Barents Sea and the Kara Sea. During this time, particularly after the end of WWI, there were no great environmental concerns associated with ocean dumping, and it was a common practice among Western powers for CW disposal as well.

The second phase in CW elimination began in the early 1980s and ended in 1989. The highlight of this period was the Chapayevsk project, which failed due to cost, industrial pollution, and strong local opposition due to the community's proximity to Chernobyl.

The third period ranged from 1989 to 1992 and was marked by the dissolution of the Soviet Union and the destruction of 43% of the stockpiles located at three storage sites: Kambarka, Gornyi, and Kovocheboksarsk. This program failed too because of the past experiences in these localities with CW production facilities and the growing political resistance prevalent among the

regional authorities after the disintegration of the USSR.

The fourth phase, from 1993 to the present, places an emphasis on building destruction facilities at the storage sites. A new interagency commission with an unprecedented mandate has been established in support of this plan, and it has been given a separate line item in the budget. These two changes should help ensure that chemical destruction has the required political backing and that its funds will remain dedicated. The first two sites, Gornyi and Kambarka, were chosen because of the ability of officials to garner local support and low start-up costs. It is hoped that these two sites will provide the necessary success story to approach other sites. Proposed follow-on sites include Shchuchie and Kizner. Less likely follow-on sites because of difficult local opposition are Pochep, Leonidovka and Maradykovsky.

Presently there are four major factors affecting the rate of CW destruction: the human factor; funding; destruction methodology; and foreign assistance. The human factor includes environmental concerns, employee safety, and overall health concerns, each of which must be addressed before CW destruction can move forward.

The second factor, funding, calls to light the enormity of the task at hand. Presently there is approximately \$22 million available for destruction activities. It is estimated that the total cost for destruction of Russia's chemical weapons is somewhere between \$5-8 billion, a cost that will require a substantial fiscal and programmatic

commitment on the part of the Russian government.

Directly related to the funding factor is foreign assistance. Presently, Germany, Sweden and the United States are assisting in terms of destruction plans, capital equipment, turnkey plants, instrumentation and monitoring equipment. Russia also hopes to get the support of the World Bank to provide assistance in the form of business oriented financial help for the towns in which destruction facilities are proposed.

The fourth factor is the destruction methodology. Russia has rejected the U.S. method of direct incineration and instead favors a combination of neutralization and incineration. Other destruction methods are also under consideration, including biodegradation and nuclear explosions.

In conclusion, the current Russian CW destruction program has been given new strength through the establishment of the President's Commission and the separate line item, although the latest choice of destroying the agent at the storage sites may not be final. The program, however, will not be able to be completed without foreign assistance because of the enormous cost.

Post-Cold War Reconstruction of Ukrainian Defense Infrastructure

The end of the Cold War has wrought many changes in international relations. The rise of democratic and irredentist movements spurred by the new multipolar system has given rise to regional conflicts. Ukraine's renunciation of strategic and tactical

nuclear weapons and accession to the NPT represent a significant step, particularly when taken in the context of Ukraine's present economic transformation, during which it will be hard for Ukraine to build the necessary military infrastructure to become self-sufficient. The new independent states will each face a series of fundamental decisions on military self-sufficiency. Ukraine presently sees three options for restructuring its military and military-industrial complex. These options include: formation of Ukrainian forces around the former Soviet and Russian military structure; total restructuring of Ukraine's military-industrial complex to permit wholly independent arms production; and a balanced approach of cooperation between Ukraine and Russia and between Ukraine and the United States/Western Powers.

Currently, Ukraine is following the first option and is basing its military structure around close cooperation with Russia. There are three immediate advantages to this approach, although it is not a preferred long-term solution. The primary motivation for this close level of cooperation is economic. Russia desires to maintain its arms exports and industrial base while Ukraine does not currently have the economic base necessary to extract itself from this relationship. This structure also takes advantage of the similarities and efficiencies inherent in a linkage between the two most powerful successors to the former Soviet Union. These similarities have the possibility of leading to investments in cooperative research and development efforts, and in production. However, relying on this structure is not without its attendant

difficulties. Primary among these is Ukrainian reliance on Russian supply, particularly in the often contentious political and economic environment that has arisen since the fall of the Soviet Union. Also, Ukrainian and Russian world views and military objectives will differ substantially and will lead to different equipment capabilities and requirements. This type of relationship is also not conducive to Ukrainian efforts to create a well balanced military-industrial base.

Restructuring the Ukrainian Arms industry to enable independent production, an option based on the French model, would greatly reduce Ukraine's dependence on Russian systems and manufacturing capabilities and would allow Ukraine to tailor its military forces and equipment specifically to its unique needs. This option would also force Ukraine to develop the necessary infrastructure and industrial base to supply military hardware, in particular high-tech items. The development of this capability would have benefits across Ukraine's economic spectrum. This option however, would take a number of years to implement and would require a substantial investment by the cash-strapped Ukrainian government.

The undesirability of maintaining such a large dependence on Russia and the cost of implementing a policy of self-sufficiency have guided Ukraine to seek a dual and balanced approach of engagement with Russia and the Western powers. Such an approach recognizes the technical dependence of Ukraine on Russian systems and at the same time reduces Ukraine's overall dependence on

Russia by seeking security guarantees from the West. Security guarantees would in turn permit reductions in Ukrainian armaments. Implementation of such an option is closely linked to initiatives such as the Partnership for Peace.

Under any of these options it is important that Ukraine be an active participant in promoting regional security initiatives. At the 1996 Netherlands Conference, Ukraine will put forth three proposals for enhancing regional security, including new arms reduction initiatives, security guarantees, and a new organizational structure for a common European Security System.

Kazakhstan and the Nuclear Legacy

After the disintegration of the Soviet Union and the formation of independent states, there arose four republics with nuclear weapons. Ukraine's nuclear policy has already been mentioned, and the focus will now shift to Kazakhstan, which has slowly shaped its nuclear policy to become a player in the international community.

Kazakhstani nuclear policy has undergone two distinct stages. The first, from 1989 to 1991, was characterized by strong anti-nuclear sentiment. There was a major struggle to stop nuclear testing and nuclear waste disposal in and around the Semipalatinsk test site. However, like Ukraine, Kazakhstan recognized the potential risks and benefits that accompany being a nuclear successor state.

The second stage, from 1991 to 1994, focused on maximizing the

benefits of this nuclear legacy, both economic and political, while addressing security concerns that would arise from giving up its nuclear capability.

Kazakstani signature of the Lisbon Protocol on 23 May 1992 was an important milestone under which Kazakstan pledged to accede to the NPT as a non-nuclear-weapons state. At the same time, Kazakstan sought security guarantees from Russia, the United States, China, Great Britain and France. Kazakstan was slow to begin denuclearization. In 1992, Nazarbaev stated that Kazakstan would retain nuclear weapons because Russia possesses them. The Western powers were concerned that Kazakstan may not become a non-nuclear-weapons state. Kazakstan also agreed to put its nuclear installations under International Atomic Energy Agency (IAEA) safeguards and was accepted as a full member of that organization in October 1993. Then, on 28 March 1994, Kazakstan signed an agreement with Russia stipulating that all nuclear weapons on Kazakstani territory were the property of Russia.

Throughout this process the promise and delivery of U.S. Cooperative Threat Reduction (CTR) assistance for the enhancement of Kazakstan's export control system, silo destruction assistance for the SS-18 silos, and the compensation for the sale of nuclear material (Project Sapphire) helped encourage Kazakstan.

Kazakstan should continue to search for a solution to the compensation problem for highly enriched uranium (HEU) from dismantled warheads. A possible solution is to insist on a more

active U.S. role in the dismantlement process and the continued use of the CTR program in dealing with the difficulties of the nuclear legacy.

The Politics of Denuclearization: The Case of South Africa

South Africa is the only African country ever to produce nuclear weapons, and it is also the only nation to have ever rolled back its indigenous nuclear weapons program. This rollback occurred despite nuclear ambitions that dated back to World War II (WWII). Prime Minister Jan Smuts first sought to take advantage of South Africa's extensive uranium deposits and human resources after WWII. South Africa also had access to early Western nuclear technology, due to Smuts, who as a General was a member of the British War Cabinet during World War I and played a big role in shaping the new League of Nations. Smuts met with many of the scientists on the Manhattan Project and was a close confidant of Winston Churchill. This gave South Africa a solid nuclear technology base.

Prime Minister P. W. Botha continued to lend aggressive support to weaponization and launcher programs because of perceived internal and external threats to the Afrikaaner regime. However, all information regarding strategic minerals (uranium and thorium) was declared secret. Even speeches related to the nuclear program were prohibited. Eventually the South Africans constructed a reported six WWII-type bombs. They also continued a long range launcher program disguised as development of a space launcher capability.

By 1989, the threats that made the nuclear weapons program a high priority for so many years began to fade. Among these was the internationally brokered settlement that linked Namibian independence with the withdrawal of Cuban troops from Angola, thus eliminating a major external threat to South Africa. The breakup of the Soviet Union and the end of the Cold War eliminated the other threat perceived by South Africans. F. W. de Klerk began to initiate a number of policy changes, including the dismantlement of the bombs and the termination of the launcher program.

In addition to the elimination of some major external threats, South Africa was also dealing with the problem of ensuring adequate sources of highly enriched uranium. In 1978, the United States broke the 1974 Enrichment Agreement and refused to enrich South Africa's uranium. F.W. de Klerk was also very interested in making South Africa a respected member of the international community. Judging that the costs outweighed the benefits of the nuclear weapons program, he proceeded to dismantle it.

By 1990, the six bombs had been dismantled and, in 1991, South Africa became a signatory to the Nuclear Nonproliferation Treaty (NPT) as a non-nuclear-weapons state. The bomb dismantling process was officially completed when the last HEU was returned to the Atomic Energy Corporation (AEC) in September 1991. There were reports that the de Klerk government attempted to sell the HEU to the United States in 1992, only to have the attempt foiled by the African National Congress

(ANC), which lobbied to expose the program. Recent attempts by the Clinton Administration to revive the U.S. purchase of the HEU stockpile were turned down.

It was not until March 1993 that de Klerk publicly acknowledged the existence of the program by announcing its termination, that all of the bombs were dismantled, and that the HEU was placed under IAEA safeguards. The government held back details about missile and launch vehicle research, including systems capable of carrying nuclear warheads.

South Africa's rollback shows the fragility of the nonproliferation regime in that the de Klerk government was able to dismantle and destroy nearly 12,000 documents related to the program before entering into negotiations with the IAEA to determine procedures to be used for on-site IAEA inspections. This highlights the need for established procedures and guidelines for future denuclearization. The world is facing a multitude of new proliferation threats before it has even learned how to manage the technology invented at the end of World War II.

Safeguards and Security for Surplus Fissile Material Control and Disposition

As the nuclear dismantlement process continues, more weapons grade plutonium and HEU are declared excess and placed in storage. As the quantity of excess materials and storage sites grows, it becomes critical to have real-time or near real-time accountability of these materials. A graded approach providing

for varying degrees of protection consistent with associated threat scenarios has been developed as a result of combining rules and regulations of the Department of Energy, the Nuclear Regulatory Commission and the International Atomic Energy Agency. This graded approach to fissile material safeguards and security has three basic elements: material control measures, accountability, and physical protection. These components are important considerations in planning, designing, and constructing nuclear facilities.

The effective nuclear material control regime developed under this approach includes graded access control to facilities (in proportion to quantity and attractiveness of the material), material surveillance, and containment to ensure that material movements occur along prescribed paths and to detect and assess unauthorized removal.

Likewise, the effective nuclear material accountability system includes a near real-time accounting system for the location and quantity of all nuclear material in the facility at any time and will be designed to detect abrupt or protracted thefts or diversions. In addition, it also has a strict regimen for material transfers and movement. Finally, this accounting system is supported by a detailed system of documentation and reporting.

The physical security aspect of this approach includes high security areas with at least four concentric barriers, where safeguards and security features increase as one moves inward: access control, various means of intrusion detection, entry/exit control,

and vaulted areas for storage of special nuclear materials.

While the combination of all these systems into a coordinated approach for nuclear material control, accountability and physical protection may seem elaborate, it is necessary to ensure that the public has high confidence that the material is well managed and will not enter the environment.

CONFERENCE PROCEEDINGS

PANEL SESSION 6:

NEW DIRECTIONS IN CONTROLLING ARMS IN A MULTIPOLAR WORLD

Chair:

Dr. Jo Husbands

National Academy of Sciences

Mr. Richard A. Bitzinger
Defense Budget Project

Mr. Stephen Black
United Nations Special Commission

Col. F. Ronald Cleminson
Department of Foreign and
International Trade, Canada

Dr. Victor I. Mizin
Ministry of Foreign Affairs,
Russian Federation

Mr. Brad Roberts
Center for Strategic and
International Studies

Rapporteurs:

Mr. John Reeke

Mr. Becket Dickerson
Center for Verification Research

The end of the Cold War called for review of the methods by which the international community controlled arms. Each successive year offers new lessons in what has become an ongoing review. In many ways, the Cold War agenda remains. Cold War agreements between the United States and Soviet Union still need to be verified, albeit the players have changed. Additionally, extensions of old agreements, new agreements, and new proposals abound in a time when the world is engaged in more treaties than ever before. The question we must answer is, "Are we more secure?"

For several reasons, many treaties are still under negotiation, and there are significant obstacles in implementing agreements which have already been negotiated. Have prevention of proliferation and concern for the environment slowed the arms control process?

Most of the major powers have recognized that for achieving security, arms control can be a viable alternative to acquisition of arms. The lesson is not globally recognized, however, and the goals of controlling arms are not clearly defined. The

multipolar world has left us with more dangers, an increased probability of conflict, and a contemporary security environment that must engage aggressors on a variety of fronts. Rather than define the goals of arms control, or the problems with the current process, the panelists in this session adhered to their charter of identifying new directions in controlling arms.

Post-Cold War Arms Control

The future of arms control cannot be predicted without first identifying its post-Cold War trends. While there is a certain satisfaction with the progress to date, arms control appears to have an uncertain future, albeit a future which greatly impacts the United States and the world. Present and future arms control activities can be categorized according to three areas: (1) continuing the established East/West agenda, i.e., CFE, INF, CTR, START II, and extending that agenda to include more participants; (2) pursuing a global/multilateral agenda, i.e., NPT extension, CWC, and the UN Register; and (3) pursuing a regional agenda in areas such as the Middle East and Southeast Asia. However, in pursuing the global and regional agendas, the United States must recognize that the current East/West European model for arms control and confidence building is limited and may not be flexible enough to serve global or regional issues.

As demands for global and regional agreements have increased, the U.S. arms control agenda has been diluted. There are emerging challenges for the United States in global/multilateral negotiations, and as a guarantor or honest broker for regional agreements; these challenges are best addressed by first identifying the current trends in pursuing the East/West agenda. For ex-

ample, Russia has had several problems implementing former Soviet commitments to CFE and START. Pressure from the West for Russia to meet its commitments, coupled with an evolving Russian internal power structure, could generate resentment of the West. Less severe but more likely, this trend could be a prelude to future Russian problems in implementing global or regional agreements. In any event, the current East/West agenda will probably continue as a legacy issue and remain a future arms control activity.

Secondly, post-Cold War arms control will address global issues and will require new negotiating skills and new approaches to managing problems. The United States is not particularly adept at multilateral negotiations, which require a disciplined approach to be effective. This discipline will be difficult to maintain, given U.S. ambivalence to global security issues. The primarily bilateral goals of Cold War arms control have been replaced by multilateral objectives. Aspiring powers view these agreements as opportunities to negotiate the balance of power in the future world. Much of this political content is prized by other nations but not noticed by the United States, and the multilateral aspects of these negotiations are somehow considered less important. Revising this ambivalent U.S. approach will be vital to the success of future global agreements.

The third major category of future arms control activity will be the regional challenges. There will be new regions to address in addition to the attention warranted by current regions of concern, such as the Middle East and Southeast Asia. The United States has had a particularly prominent role in these regions, and when focused

on their unique regional issues, has been reasonably successful in garnering peace. However, U.S. attention has been episodic, invoked by conflict or threat thereof. The wildcard in U.S. regional negotiations is how long and at what level will the United States remain engaged. This wildcard will become increasingly important as regional instability spreads.

Predicting U.S. response to these three future arms control activities raises both short-term and long-term problems. The short-term problem is the continued uncertainty of arms control in Washington. Domestic American politics has shifted focus, and although arms control has a place in governmental affairs, the role and function of arms control will come under continued scrutiny in the next few years. As a result, the arms control policy-making abilities of the government may diminish.

The long-term problem will potentially be the failure to recreate the political middle. During the Cold War, there were two arms control camps - one which championed arms control for its own sake and the other which held that arms control negatively affected U.S. (military and political) abilities. In contrast, the new arms control agenda does not evoke as much interest; consequently, not as much time, attention, or money is dedicated to the cause. Both the Clinton Administration and Congress have been unreceptive to new agreements, and are unwilling to spend money. Although the ideological extremes of arms control remain, the middle is lost, and interest in the debate has waned.

Future American arms control activities will be dependent upon the emphasis arms control receives in domestic politics,

and it is doubtful that the existing agenda will be translated into significant political or financial commitments. However, there are three major tenets around which a new American arms control agenda can coalesce: (1) arms control is now beyond a nuclear de-emphasis, and non-nuclear arms control (agreements on conventional, chemical, and biological weapons) is here to stay; (2) restricting the diffusion of sensitive technologies and controlling exports directly competes with the economic goals of other countries, many of whom have a booming trade of military hardware; and (3) there needs to be a rejuvenation of international norms because the current norms are under assault, and U.S. dominance is criticized.

Although there are several post-Cold War arms control activities, the future of arms control should not and cannot be taken for granted. Several problems must be solved for the United States to retain a major role, and the solutions to these problems will not be easy to find. However, if the United States can forge its new policies around a few major areas, arms control may continue as an important appliance of peace, and serve as a means to an end.

Russian Perspectives on Controlling Arms

Russian policy-makers believe that arms control and disarmament will continue to receive attention in the post-Cold War world. The former Soviet republics still subscribe to the principles and objectives of agreements like CFE and NPT which, when signed, commit signatories to take measures toward a more stable security environment. However, Russian politics are becoming more pragmatic, and treaty signatories should expect Russia to focus on the short-term matters of implementation and compli-

ance, vice long term goals. Nonetheless, Russia remains committed to the specific goals of its agreements, and will continue to pursue long-term international security.

Future reductions in weapon stockpiles will become important, but the United States and Russia are not ready for deeper cuts now. Eventually, further reductions can be made; but, until both nations are able to safely dismantle and store eliminated weapons, progress will be slow. This implementation problem is best overcome through joint programs such as the Cooperative Threat Reduction program which has been and will continue to be successful in helping Russia meet its treaty commitments. Together, Russia and the United States have moved past mutual assured destruction and are now rethinking the paradigms of strategic stability.

Conventional weapons remain a major concern to Russia. To many Russian policy-makers, the CFE Treaty is considered an important breakthrough in European security. However, Russia has encountered logistics problems implementing many of the treaty's provisions, and the eastward expansion of NATO has exacerbated the situation.

Coupled with the "downsizing" of Russia, NATO expansion also creates an unfair situation with chemical and biological weapons agreements. Since a limited number of destruction facilities are available, the potential for an environmental accident increases because of insufficient transportation resources and/or too much on-site inventory. NATO expansion eastward remains a subject of controversy in Russia, as each side seeks a mutually acceptable solution.

Although Russia has and anticipates further logistic problems implementing these treaties, it supports the verification measures contained within those treaties. However, many Russian policy-makers believe there is too much reliance on verification technology, which unnecessarily complicates the entire verification regime.

Neither Russia nor the United States is targeting the other side with nuclear weapons. This is an excellent first step, but needs to be followed with further steps to achieve nuclear disarmament. The Comprehensive Test Ban Treaty should be signed in the first half of 1996. With cooperation on verification and on-site inspection, both countries could greatly benefit. Additionally, the international community should seek agreements which include rogue states, to give them a positive role in creating international security. Purely negative incentives such as sanctions do not always work, e.g., Bosnia.

Overall, Russia seeks cooperation in controlling arms, and is ready to broaden the scope of current cooperation. One potential program would be anti-missile defenses. If Russia and the United States were to cooperatively develop theater missile defenses, significant security could be garnered all over the globe. Both nations would have to reach an agreement on the definitions of strategic and regional weapons; once that agreement was reached, the technical problems could be quickly resolved.

The type of problems presented by the post-Cold war world require different methods from those used previously and potentially a combination of different methods. Cooperation on verifying existing treaties, initiatives on new treaties, and joint

programs to counter potential proliferators are complementary facets of a coordinated Russian/U.S. effort toward disarmament.

Globalization of the Defense Industry

The end of the Cold War injected some uncertainty into the global defense industry, but pressure to develop and build next-generation weapon systems remains. Industry has responded to the downsizing with international joint ventures, mergers, and acquisitions. This internationalization of the industry entails a shift away from the traditional pattern meeting defense needs from in-country sources, in favor of a multinational approach to development, production, and marketing of arms.

In the last ten years, defense firms have tried to become involved in the internationalization of the industry. The resulting globalized arms production (reliance on sources outside a nation's industrial base) affects the nature of the global arms industry, and impacts both proliferation and national security. Technology is proliferated as more countries are involved in more diverse projects. National security can be threatened if corporate partners are forced to abide by the will of their governments, rather than the customer nation.

Until the early 1980s, licensed production was the primary "globalizing" influence. Licensed arrangements permit a country to assemble or manufacture a weapon system originally developed elsewhere. Since the 1980s, however, coproduction and codevelopment programs have emerged as increasingly popular forms of international arms collaboration. Coproduction refers to the joint manufacture of a weapon system originally developed in one

country (e.g., F-16 production in Europe). Codevelopment refers to governments or multinational teams working together to jointly develop and manufacture a weapon system (e.g., the Eurocopter and the Euro missile). These forms of cooperation are much more complex, and closely tie national security to economic security.

Within the industry, there was a production overcapacity and an inability to adjust to new economic climates. The end of the Cold War has even further contracted the defense market, and resulted in numerous joint ventures, mergers, acquisitions, and increased international subcontracting. The effect has been an industry that is more global, less ad hoc, and more integrated. The driving rationale behind globalization is not better components or technologically superior systems, but is primarily economic.

Globalizing serves many purposes. Benefits include: (1) economies of scale through larger production runs, (2) collaboration on R&D and sharing program costs and risks, (3) gaining access to new technologies, (4) penetrating new foreign markets, and (5) cost savings by moving production off-shore. As the rewards of coproduction and codevelopment are realized, the industry has experienced an increase in both the quantity and quality of these agreements. Such arrangements make good capitalistic sense in a shrinking market.

However, there are several downsides to globalization, precisely because the industrial interests are driven by economic needs and not by national security. These agreements share not only technologies but also manufacturing techniques. Both of these cause great concern to the governments and agencies that monitor prolifera-

tion. Oversight of international trade is divided and spread out over several departments, many of which have competing goals and are handicapped by insufficient time and expertise. Coupled with poor interagency cooperation, the export control aspects of international trade are often undervalued and inadequately addressed.

This globalization can help maintain a viable national industrial base; however, corporate loyalties may be less dedicated to national security interests. In an agreement with many corporations from many countries, contractors may be forced to make a decision that will either significantly impact national security or harm their own corporate economic health. No country or corporation wishes to be placed in this situation. Governments will be further challenged to protect critical technologies as globalization increases

The Verification Challenge and Response

With opportunities to adopt CFE, CCW, the Comprehensive Test Ban Treaty (CTBT), the Chemical Weapons Convention (CWC), Open Skies, and the Fissile Material Control Treaties, 1995 is the "watershed year" for the multilateral arms control process. These regimes capitalize on the monitoring experience accumulated to date and improve UN multilateral verification performance. Additionally, the UN verification role should be re-evaluated for potentially expanded application. Each of these treaties offers a different brand of international stability, and each should receive appropriate attention.

Each treaty requires a different approach to verification. For example, Open Skies provides overhead imagery and could

potentially be the most valuable agreement in its ability to contribute to other verification regimes. Unfortunately, negotiators have overcomplicated the treaty, thus jeopardizing its success. In contrast to Open Skies, the CTBT will not have active verification, but rather a passive verification regime which starts after detection; CTBT is notably different from existing regimes.

In order to improve verification performance, the international community must take lessons from all existing regimes. For instance, although the UN Special Commission on Iraq (UNSCOM) conducts on-site inspections which are not related to any specific agreement *per se*, they are identical to the types of inspections that should be conducted in an arms control inspection. An ideal verification regime would integrate the *ad hoc* processes of UNSCOM with the bureaucracy of IAEA.

The IAEA is bureaucracy at its best with 500 personnel (including 200 inspectors) and a \$65M annual budget. UNSCOM is "ad hocery" at its best with 125 personnel and a \$28M annual budget. The activities of these two agencies can be seen as parallel types of monitoring, both contributing to determination of the truth. Each serves as an example of how a verification agency can operate, especially with regard to the types of tools an inspection team can use.

There are many methods of verification and many different examples of inspection tools. Verification regimes must select a package of inspection methods to provide inspectors with the information required to monitor treaty compliance effectively. One of the most useful types of inspection information is overhead imagery. As the number and the interrelatedness of verification re-

gimes increase, overhead imagery will be increasingly important. Overhead images can be useful to any arms control effort in its potential ability to provide (1) site maps during on-site inspections, (2) broad area coverage, and (3) detection of change (such as new construction).

As new verification regimes are designed, overhead imagery should be considered a prime input to inspectors not only for its informational value, but also for its economic impact. Overhead images allow for fewer on-site inspections and inspectors, because they make the inspectors smarter prior to their arrival. Relatively high (and broad band) resolution imagery is available from commercial sources (e.g., LANDSAT) and can be a relatively inexpensive approach/tool to preparing inspection teams. The result is a more effective inspection at a lower cost. Additionally, as certain inspection sites are subjects of multiple treaties, overhead imagery offers a synergy that many tools do not. Any package that does not use overhead imagery will soon be obsolete before implementation.

As the number of agreements increases, the international community is recognizing the overlapping aspects of confidence-building measures, arms control verification, transparency regimes, and peacekeeping. These agreements have converging roles, albeit with both similarities and differences, and the UN provides a vehicle for future mission fusion, in both its organizational aspects and its operational abilities.

New monitoring regimes should customize their selection of verification tools and draw from previous on-site inspection reports, tags, seismic sensors, and overhead imagery. In many cases, the col-

lection objectives of many signatories can be met with prior coordination.

In 1995, there are opportunities to build upon the verification and monitoring experience accumulated up to now. This experience can both improve UN performance and expand its role in multilateral verification.

Intelligence Gathering in International Monitoring

International organizations performing inspection or monitoring functions (like UNSCOM) require background information from member states; however, there can be no assurance that all relevant data were provided, nor that the provided data are accurate. Nevertheless, there have been some recent successes in providing this type of information, and hopefully these instances have established precedents for future verification and monitoring activities.

Many nationally-conducted arms control verification missions are dependent upon the ability of the inspecting organization to develop information on the location of potential non-compliant activities. For many verification regimes, this intelligence is provided by prior inspections at that site or by supporting intelligence agencies. International organizations such as the UNSCOM often do not have the luxury of supporting intelligence organizations and, consequently, must rely on obtaining intelligence from member states. Many nations (or more specifically their intelligence communities) are reluctant to provide such information for fear of revealing sensitive national security information. In such cases, international verification is completely de-

pendent on diplomatic information, which is often inadequate.

There are many barriers to information flow from national intelligence collectors to international inspectors. On the national side, intelligence agencies seek to protect their sources and methods of information collection, and are additionally unwilling to compromise information that could harm their allies. On the international side, any information received from a national intelligence agency is often viewed as biased data, and subject to criticism and skepticism. Unfortunately for international organizations conducting an inspection, they are unable to assure that all relevant data are provided, nor that all provided data are accurate. However, there have been some recent examples of successful intelligence gathered for UNSCOM that neither compromises collection methods nor is subject to criticism.

First, the United States provided a high-altitude reconnaissance aircraft and support team to the Commission for its dedicated use. Second, verification of information contained within an Iraqi-provided document demonstrated the utility of multinational sources. Both of these examples offer lessons and precedents to successful future national-international intelligence sharing relationships.

In the first example, the United States provided a U-2R photo-reconnaissance aircraft and support team to UNSCOM. UNSCOM provided requests for site overflight (over 800 sites in 300 missions), and in response received prints, enlargements, etc. UNSCOM had in-house photo-interpretation which analyzed the information. Thus, the information collected

by one nation was subject to the checks and balances of an international analysis before conclusions were reached.

The Commission was not required to provide a rationale for tasking. This disconnected the United States from the lead that initialized the tasking, thus reducing the perception of unilateral control of the process. The use of in-house interpretation was equally valuable. Despite its reliance on an outside source, UNSCOM demonstrated an ability to analyze the information accurately. Without this ability, UNSCOM would have been completely dependent on externally-generated information. While the United States assumed the costs for the U-2 flights and support team, UNSCOM retained control over the process and the analyses.

In the second example, UNSCOM needed to investigate the accuracy of the Faisal Document (or letters of credit document) which identified specific Iraqi procurement activities. The Faisal Document was a handwritten listing, allegedly made secretly, of 900 letters of credit. Although the Iraqi leadership had directed that all records of procurement activities related to the illegal weapons program were to be destroyed, the accountant who managed the activities was concerned there would be no financial record, and thus no way of ensuring settlement of outstanding orders. The Faisal Document was purported to be his independent accounting of procurement activities.

Analysis of the Faisal Document was based on developing a mass balance of the weapon agents. The sum of weapon precursors minus the agents in inventory minus the agents used did not equal zero. Thus, UNSCOM assumed there were other agents

(or weapons) available in a hidden Iraqi inventory.

There were two major questions that needed to be answered: Were these accurate entries? Was the list complete? UNSCOM had to verify information that was provided in the document by tracing the transactions back to the supplier countries, and requesting confirmation or denial of specific transactions. While most of the transactions were found to be accurate, some of the information provided by supplier nations and corporations was incomplete.

Dozens of countries were asked to confirm or deny, and with the responses, UNSCOM had a documented understanding of the Iraqi weapons development program that far surpassed any held by one nation. Coordination of all this information was difficult and time consuming, but in the end demonstrated the value of international collection and compilation.

There are several lessons to retain from these two examples. First, there is value in using *ad hoc* multinational organizations and/or special operational cells to collect and analyze inspection data. Second, "in-house" analytical expertise is particularly valuable and should be developed. In-house analysis significantly contributed to the timeliness and "believability" of the conclusions reached by UNSCOM. Third, all externally-provided sensitive information should be jealously protected and rigorously utilized by UNSCOM.

CONFERENCE PROCEEDINGS

PLENARY SESSION 2:

NUCLEAR ARMS CONTROL: WHERE IS IT GOING AND WHERE SHOULD IT GO?

Chair:

Dr. Donald M. Kerr

Science Applications International Corporation

Dr. Victor Utgoff

Institute for Defense Analysis

Colonel-General Evgeniy Maslin

Nuclear Weapons Directorate,
Russian Ministry of Defense

Dr. Dov S. Zakheim

System Planning Corporation

Rapporteurs:

Mr. Charles Thornton

Mr. Becket Dickerson

The future of nuclear arms control entails many varied issues, including nuclear stockpiles, material control and accountability, missile technology, as well as their policy and technical ramifications. In addition, the enabling technologies (the knowledge and material used to develop nuclear weapons, guidance systems, and imaging systems, for example) have become vital. Control of the dissemination and diffusion of such technologies may become a significant problem in the future. The arms control community must begin to focus not only on controlling the weapons themselves, but also on all related technologies.

Future Scenarios of Nuclear Arms Control

As in the case with all prediction, the future of nuclear arms control is vague.

Nevertheless, it remains essential to continue implementing the current treaties and agreements such as START I and II and the denuclearization of several former Soviet republics. Since the United States and Russia have engaged in arms control initiatives for over 30 years, with the process accelerating after the end of the Cold War, any pause would be perceived as a breach of faith. For example, as a follow-on to previous treaties, a START III could be signed within two years, especially after the next U.S. presidential election. The process, therefore, is bound to continue.

In a long-term view, it is worthwhile to examine possible issues which could cause a stoppage in reductions. In one scenario, the parties to START III could agree to reduce forces to between 3,500 and 1,000 weapons. This could pose two

problems. First, the U.S. nuclear employment philosophy would have to change. The previous emphasis was on a warfighting force, but the United States would need to put more assets into a countervalue scheme. In turn, targeting civilian population centers may lead to political and ethical problems. Second, how would the United States restructure its force? The military would have to plan and design a new infrastructure, officer career path, and possibly a strategic dyad (as opposed to the current triad of land- and submarine-based missiles and bombers).

A second scenario might reduce forces to between 1,000 and 500 weapons. In such a situation, anti-theater ballistic missile (ATBM) systems become more important. The powers would have to reconcile the need for ATBM with respect to the ABM Treaty limits. Though the previous concept of mutual assured destruction (MAD) was thought to increase stability, this posture may not be effective against an Iran or Iraq. It will be important to address the issue of countering new nuclear powers while minimizing the effect of MAD on the declared powers.

In addition, the United States and Russia would have to consider whether they would really want to be on par with other nuclear powers such as France, the United Kingdom, and China. Measuring equality would likely pose a major impediment. A START III, then, would likely become a multilateral agreement and, thus, would be a significant departure from previous negotiations.

Third, a scenario with reductions in force levels to between 500 and 200 weapons greatly enhances the problem of potential proliferators. Several options for countering such a risk currently exist: (1)

develop and maintain a strong ATBM system; (2) maximize allied forces; and (3) maximally deter any potential proliferator. The United States, for option three, should retain at least as many weapons as any potential proliferator could build, at a superior quality, and at a high level of readiness.

For force levels reaching 200 to 100 weapons, three primary problem areas exist. First, the stability among nuclear powers, with such low numbers, becomes suspect; MAD may no longer be a viable concept. Second, this low level would not ensure a second strike capability. It would be increasingly difficult to estimate the quality of ABM systems, possibly reducing one's ability to retaliate. Third, the negotiating equation would require additional players; possible proliferators may not wish to participate.

Finally, a scenario entailing forces below 100 weapons down to zero must contain a flawless verification capability. Highly reliable detection technologies would have to be developed to ensure no state has hidden assets. The United States should additionally retain the will, ability, and technology base to manufacture weapons quickly.

In these scenarios, 500 seems to be the gray area. Different issues arise below 500, and at this point the process may run out of steam. In addition, the urgency to implement deep reductions felt at the end of the Cold War may fall off.

The Future of Global Nuclear Arms Control

The recent extension of the NPT makes the issue of arms control pertinent to

the post-Cold War era of multilateral relations. Compliance monitoring has been effective, but it is necessary to improve IAEA's monitoring regime while continuing to recognize national interests and the peaceful uses of nuclear energy.

Confidence in national security requires a defense strategy, which includes military, economic, and social elements. The possession of nuclear weapons, which make an aggressor consider the consequences of his actions, continues to be the only reliable means for ensuring deterrence. However, over 150 states feel that the possession of nuclear weapons would cause an increase in the possibility of nuclear war, as recognized in the preamble to the NPT.

In any case, there are three primary reasons to continue to possess nuclear weapons:

First, rapid elimination of nuclear forces is unrealistic for technical and economic reasons. Even if everyone agrees to reduce stockpiles to zero, nuclear weapons will continue to exist for another 50 years. Therefore, all sides need to agree on reliable mutual verification procedures.

Second, the creation of nuclear weapons is a sign of technological progress, not the result of evil thinking. The monitoring of science and technology activities, thus, is closely tied to nonproliferation. Further, the parties must decide on what activities monitoring regimes should involve.

Third, nuclear weapons have both positive and negative sides. The positives are discussed above, but the negatives are also clear. First is the possibility of radiation effects on those persons in

possession of weapons and materials. Second, the control of nuclear weapons, especially those on alert, is very important. This type of monitoring is a domestic function and not subject to international inspection. Also, studies have been conducted on environmental and human concerns in the areas where such weapons are stored. While the press may exaggerate the problem, state and local organizations should continue to monitor these situations.

The time has come for all nuclear states to participate in negotiations. Other states may also participate if the issues affect their interests. Monitoring regimes are of the highest importance. Testing is vital to developing nuclear weapons; without testing, low-quality weapons are produced. Even with the total elimination of nuclear weapons, monitoring must continue.

Russia, Nuclear Weapons, and the Nunn-Lugar Program

Russia is in full agreement with all of the signed treaties and is meeting all of its obligations to destroy tactical and strategic weapons under those treaties. All nuclear weapons that were based outside of Russia prior to the breakup of the Soviet Union are being returned to Russia. Kazakhstan has become non-nuclear, Belarus will soon be a non-nuclear state, and Ukraine is adhering to the established return schedule.

Last year, Russia destroyed several thousand nuclear weapons; even more than the United States destroyed. Russia will be able to continue meeting its obligations without assistance. It is much easier to destroy nuclear weapons than to create them. Without Nunn-Lugar or Cooperative Threat Reduction (CTR) assistance, however, the process would take longer and be less safe.

Thus, security of the weapons is greatly increased and the reduction process is accelerated as a result of the U.S. assistance.

All of the agreements signed with the United States on CTR are being fulfilled. In this new multipolar world, stability is less sure and states are more interdependent on security issues than before. The CTR Program's equipment purchases also provide employment for Americans. It is thus appropriate to call the program "cooperative." Although high-ranking U.S. Administration officials understand the need to continue the process, interested parties must continue to obtain Congressional support.

Several new aspects of the program are being accepted by Congress; some Senators have called them "human aspects." For example, the dangers of proliferation are apparent in North Korea and in Russia's planned reactor sale to Iran. However, the primary proliferators are people. For this reason, we have had meetings with the United States on nuclear terrorism. Those who may employ nuclear terrorism may include dissatisfied Russian specialists and other displaced nuclear industry employees who lost their jobs, social support, and housing. While there is currently no need for concern, the danger exists.

Through these programs, which do not involve large sums of dollars, Russia has reduced the number of nuclear-capable bases by over 250. Continued funding to the program is vital, since much of the planning for future projects has been completed, the program is well thought out, and it is accomplishable.

The Changing World Climate

In today's world, paradigms of the past linger: the bipolar conflict; debates at the national level; early efforts to limit strategic defenses; and nuclear states as an exclusive club. However, the current situation has different elements: a multipolar world; undeclared nuclear powers; on-going debates at supra- and sub-national levels; strategic and theater defenses under discussion; and the end of an exclusive nuclear club.

In a multipolar environment, the level of conflict takes on new meanings. For example, a Middle East conflict is not comparable to any previous superpower conflict. While the United States and USSR maintained buffer zones and supported and waged peripheral battles, the same is not possible among such regional powers as India, Pakistan, China, or Israel.

The supranational debates have taken on several issues. One significant example is the ABM Treaty. While Russia and the United States adhere to it, no other country is so obligated. Increasing defensive systems may not cause an arms race but could cause a defensive systems race. The contexts have changed.

The threat of terrorism from the subnational level has forced many governments to act, both internally and externally. Some governments, however, identify with the struggle of specific terrorist groups and may choose to assist them. As the old saying goes, "One man's terrorist is another man's freedom fighter." The introduction of weapons of mass destruction

into this arena significantly alters the equation.

The development and modification of delivery systems is also posing new challenges. China has refused to abide by the Missile Technology Control Regime, demonstrating that the values embodied by the pact are not universal. Risks are increasing of conventional uses of delivery systems by national and subnational groups. Safety and testing are also developing as important issues. The crux of the problem is how to maintain a safe and reliable nuclear force without testing.

Ultimately, the problem of nuclear proliferation challenges any arms control initiative. Related technologies, likewise, must be controlled. Previous efforts have focused on disincentives for proliferation. Incentives for not contributing to the proliferation problem, however, may be more practical and effective. These may include extension of ABM defenses and regional arms control plans.

In summary, we all must recognize the changed political context. There are many more players today than previously, and we should counsel modesty and caution in the arms control process.

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