New Horizons and New Strategies
In Arms Control

James Brown
editor

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NEW HORIZONS AND NEW STRATEGIES IN ARMS CONTROL

Dedicated to

Sidney Graybeal

MAY HIS MEMORY BE ETERNAL

In Memoria

On March 19, 1998, this nation lost a distinguished public servant, Sidney Graybeal. His service to this country spanned six decades as a World War II pilot, intelligence officer and arms control expert. In recent years, Sidney Graybeal served as a distinguished member of the Secretary of Defense's Defense Policy Board. His many accomplishments in this nation's service were praised and applauded by Presidents Ronald Reagan and Gerald Ford, and in 1980, President Jimmy Carter awarded Sidney Graybeal the nation's highest civilian honor, the Award for Distinguished Federal Service.

Sidney Graybeal will be dearly missed by his friends, colleagues, and the nation. His diplomatic skills had been honed during the height of the Cold War and his adroitness served him well during the negotiations of SALT I, which limited, for the first time, both offensive and defensive strategic weapons, and the Anti-Ballistic Missile Treaty. Known as a tough negotiator, Sidney Graybeal was also a warm, compassionate person with an endearing and quick sense of humor that endeared him to his friends and foes alike.

This volume is dedicated to Sidney Graybeal. The papers contained in this volume reflect, in a small way, the ongoing issues that confront the arms control community today. Sidney Graybeal knew these issues well. His craftsmanship in negotiating, and his desire to make this planet a safer place to live for future generations are his legacy. Sidney Graybeal was a trailblazer and his wisdom in the councils of government will be sorely missed.
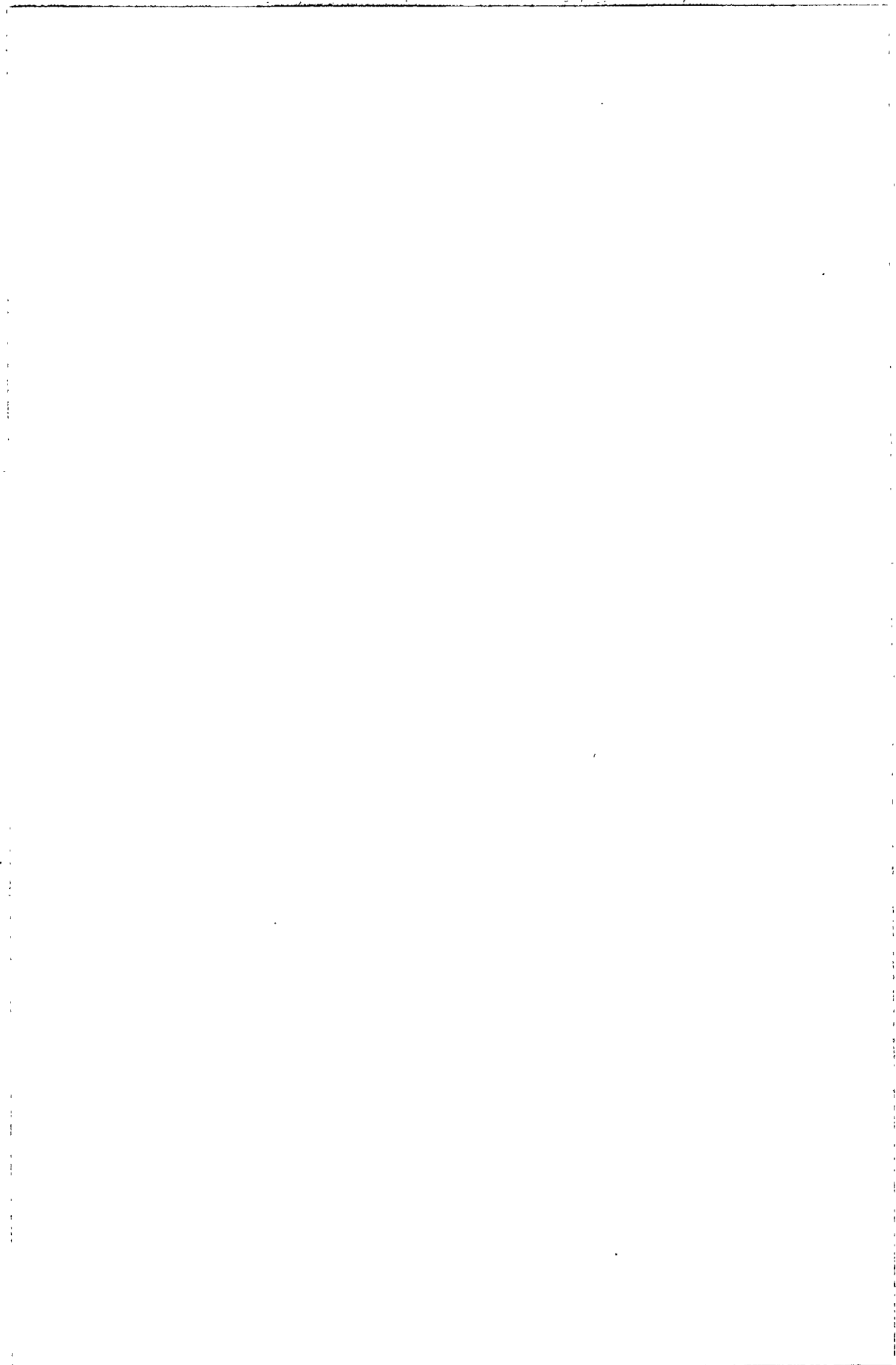
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List of Acronyms

ABC	Atomic, Biological and Chemical
ABM	Anti-Ballistic Missile Treaty
ACRS	Arms Control and Regional Security Working Group
ANC	African National Congress
APL	Anti-personnel Landmines
BTWC	Biological and Toxin Weapons Convention
BWC	Biological Weapons Convention
CD	Conference on Disarmament (Geneva)
CFE	Conventional Forces in Europe Treaty
CIS	Commonwealth of Independent States
CSBM	Confidence- and Security-building Measures
CSCE	Conference on Security and Cooperation Europe
CTBT	Comprehensive Test Ban Treaty
CWC	Chemical Weapons Convention
DOE	Department of Energy
DPRK	Democratic Peoples' Republic of Korea
EIF	Entry into Force
EU	European Union
FMCT	Fissile Material Cutoff Treaty
FRY	Federal Republic of Yugoslavia
FSU	Former Soviet Union
GDR	German Democratic Republic
GIA	Islamic Armed Group
GPS	Global Positioning Satellite
HEU	Highly Enriched Uranium
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missiles
INF	Intermediate-Range Nuclear Forces Treaty
IOM	Institute of Medicine
LTBT	Limited Test Ban Treaty
MIRV	Multiple Independently Targetable Reentry Vehicle
MOX	Mixed Oxide Fuel
MTCR	Missile Technology Control Regime

NAM	Non-Aligned Members
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological and Chemical
NFU	No-First-Use
NGO	Non-Governmental Organizations
NMD	Nuclear Missile Defense
NNA	Neutral and Non-Aligned States
NPT	Nuclear Non-Proliferation Treaty
NTM	National Technical Means
NTW	Navy Theater-Wide
NWFZ	Nuclear-Weapons-Free-Zone
NWS	Nuclear Weapons States
NNWS	Non-Nuclear Weapons States
OECD	Organization for Economic Cooperation and Development
OPCW	Organization for the Prohibition of Chemical Weapons
OSCE	Organization for Security and Cooperation, Europe
OSIA	On-Site Inspection Agency
POE	Point of Entry
PREPCOM	Preparatory Commission
R&D	Research and Development
SCC	Standing Consultative Committee
SDI	Strategic Defense Initiative
SLBM	Submarine Launched Ballistic Missiles
SLCM	Sea-launched Cruise Missile
START	Strategic Arms Reduction Treaty
TMD	Theater Missile Defense
TNW	Tactical Nuclear Weapons
TNWS	Third Nuclear Weapons' States
TSWG	Technical Support Working Group
TTBT	Threshold Test Ban Treaty
UNFC	United Nations First Committee
UNSCOM	United Nations Special Commission (Iraq)
WEU	Western European Union
WMD	Weapons of Mass Destruction
WTO	Warsaw Treaty Organization
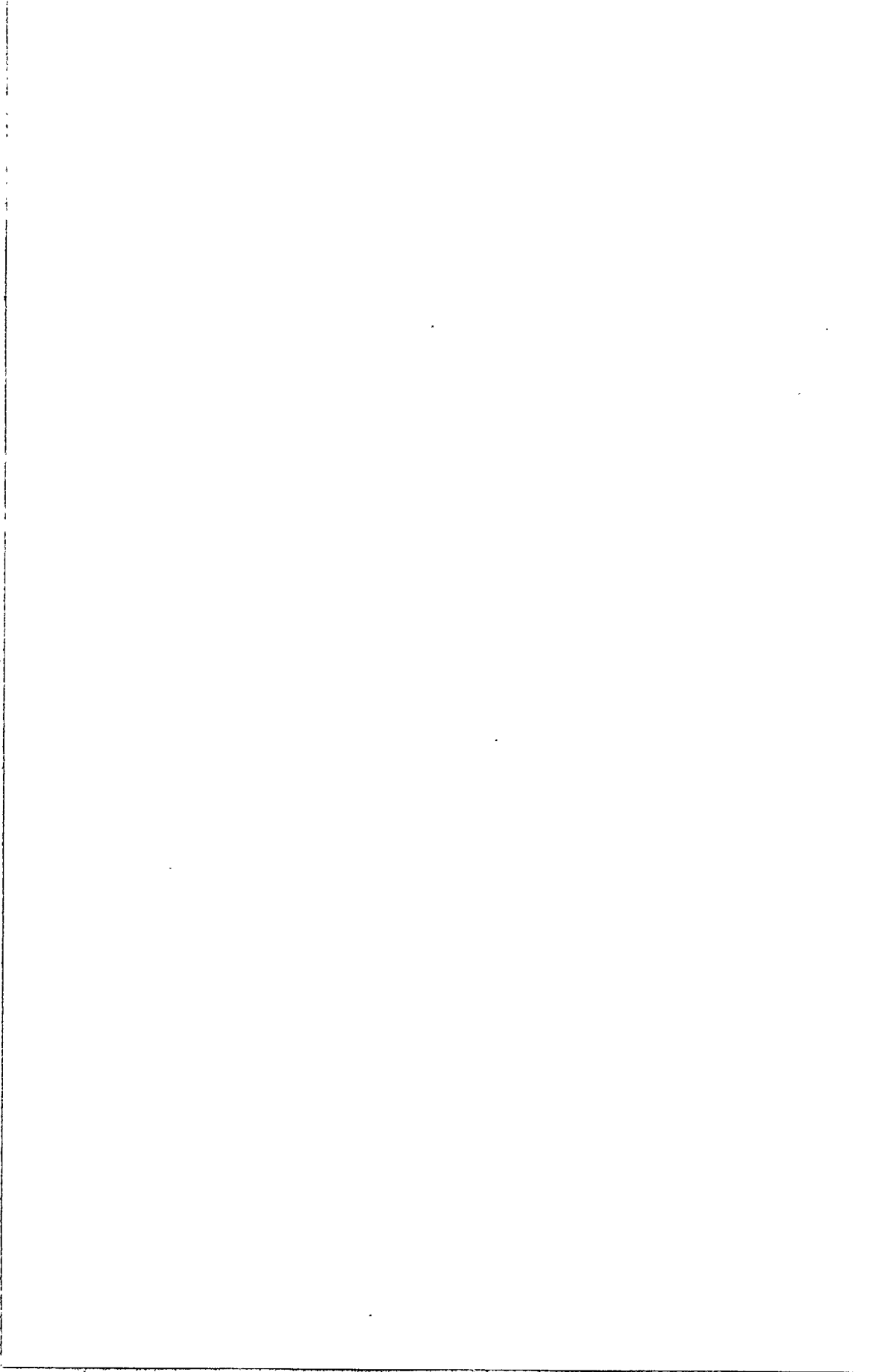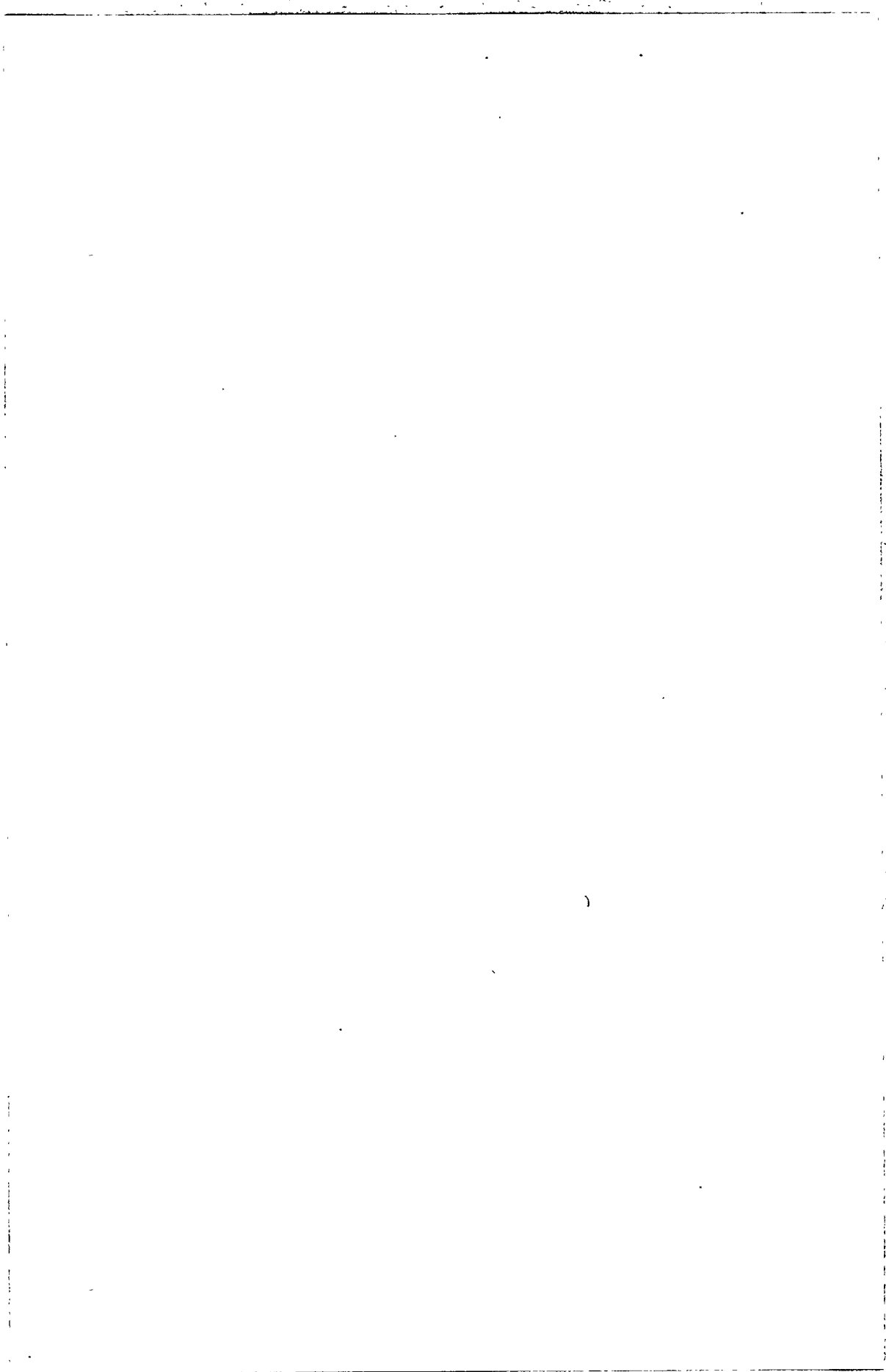
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* * *

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The views expressed in these papers are not intended and should not be considered to represent the official views, attitudes or policies of any agency of the United States Government or any other government.

The merits of this work belong to the authors. The editor is responsible for errors of fact and interpretation.

James Brown

Editor and
Conference Chair

Introduction

In the last ten years, since the break-up of the Soviet Union, remarkable progress in arms control and disarmament has occurred. The Nuclear Non-Proliferation Treaty (NPT), the completion of the Comprehensive Test Ban Treaty (CTBT), and the Chemical Weapons Treaty (CWC) are indicative of the great strides made in the non-proliferation arena. Simultaneously, the Intermediate Nuclear Forces Treaty (INF), the Conventional Forces Treaty in Europe (CFE), and the Strategic Arms Reduction Treaties (START), all associated with US-Soviet Union (now Russia) relations have assisted in redefining European relations and the security landscape. Finally, it now appears that progress is in the offing in developing enhanced compliance measures for the Biological and Toxin Weapons Convention (BTWC). In sum, all of these achievements have set the stage for the next round of arms control activities, which may lead to a much broader, and perhaps more diffused multilateral agenda.

In this new and somewhat unpredictable international setting, arms control and disarmament issues will require solutions that are both more creative and innovative than heretofore. Multilateral arrangements, and heightened compliance regimes, confidence-building measures, peacekeeping, and other regional security adaptations will be the methods and tools that will be used to combat the spread of weapons of mass destruction, terrorism, and regional instability. In addition, technology, which brings with it enhancement of knowledge and information, must be better understood in light of arms control and the context of this new national security environment. The papers that follow begin to address and explore these very complex issues which, no doubt, will be in the arms control and disarmament agenda of the next millennium.

The opening chapter of this volume, by Ambassador Ralph Earle, briefly sketches the key accomplishments of arms control during the

past four decades. In the Cold War era, arms control regimes laid down the foundation for today's ambitious and comprehensive arms control agenda. While multilateral negotiations have increased in importance, according to Ambassador Earle, bilateral negotiations continue to remain critical to the broad success of US arms control policies. Although there are daunting challenges to monitoring compliance, with ever more intrusive and complex arms control provisions, verification, according to Earle, is still a critical precondition to enhanced security. Arms control continues to be an essential and vibrant process that is difficult, challenging and often frustratingly slow, but a process that is important to enhancing US national security both now and in the future.

In Chapter Two, Ambassador John Holum discusses the challenges and opportunities for banning, containing, and eliminating weapons of mass destruction, and argues that the US Government's arms control agenda for 1998 is ambitious and far reaching. Implementing START I, the ratification of START II, and preparing for START III are at the heart of US-Russia relations. Furthermore, strengthening the Biological and Toxin Weapons Convention and the ratification of the Comprehensive Test Ban Treaty (CTBT) are top priority items for President Clinton's Administration. In the case of the latter treaty, Mr. Holum argues that banning nuclear testing in place pours cement on any possibility of a renewed arms race, and without testing, nuclear weapons states will not be able confidently to develop advanced new nuclear weapons types nor is there a certainty that a new weapon will function as designed, as intended, or at all. Furthermore, the CTBT, according to Holum, is a non-proliferation treaty because it throws another major obstacle in the way of anyone who aspires to nuclear arms. Additionally, the author argues that the CTBT can be effectively verified, and that the reliability of the current nuclear stockpile can be sustained at the necessary level of confidence without testing.

Finally, Ambassador Holum urges the US Senate to ratify the Treaty in order to close an explosive nuclear chapter in the human experience and to build a safer planet for mankind.

In Chapter Three, Brigadier General John Reppert makes a very strong argument for the importance of on-site inspection as an element of arms control, that on-site inspections can never be considered in isolation, and, as a result, two higher benefits accrue in this process. First, it greatly increases the confidence of participating states that all parties are adhering to agreements, and second, it provides the interaction of nations of the participating states in a way that increases confidence in intentions, as well as in understanding of capabilities. There is no doubt that on-site inspections provide soldiers and strategic planners a more diverse range of options for national decision makers than has been offered in the past. This will result, according to General Reppert, in conditions favorable to peace both in terms of reduced capabilities for all parties and clearer understandings of intentions.

The final paper of this first section is by Ambassador Vigleik Eide, which centers on the arms control process in Bosnia and Herzegovina. Because of the Dayton Accords, it is Ambassador Eide's contention that arms control and confidence-building measures can provide important contributions to the overall efforts to build peace, stability and cooperation after the end of a horrendous conflict. Such was the case in Bosnia and Herzegovina. In addition, arms control efforts can be conducted alongside political and economic normalization and rebuilding that is taking place. During this whole nation building process, the parties to the Dayton Accords demonstrated a growing confidence and willingness to cooperate which, in turn, gave birth to more moderate and modernizing elements emerging from among them. This is crucial, according to Eide, if peace, stability and future cooperation is to succeed in Bosnia and Herzegovina and in any other such conflicts.

Part II includes four chapters on the topic of the future of nuclear weapons. Chapter Five, by Joseph Cirincioni, discusses the history, contents, and politics of the Comprehensive Test Ban Treaty. More importantly, Cirincioni spends a considerable amount of time in analyzing the prospects of the CTBT being ratified in the US Senate. It is his view that President Clinton has been able to muster significant military, scientific, and public support to win Senate approval of this Treaty. However, Cirincioni points out, there is an obstacle to the ratification process, which involves the approval by the Russian Duma of START II, and this action is by no means assured. Without the Duma's ratification, it will be politically impossible for the US Senate to consider the CTBT for ratification. If US approval takes place, critical impetus to the whole international ratification process of the CTBT will prevail. It is Mr. Cirincioni's view that the momentum seems difficult to resist at this point, for as then Ambassador to the United Nations Madeleine Albright noted, (it is) "a treaty sought by ordinary people everywhere. And today that universal wish (can) not be denied."

Harold Feiveson's Chapter Six discusses several scenarios and arguments against de-alerting the strategic arsenals of the United States and Russia. It is Feiveson's argument that notwithstanding the objections raised by both Washington and Moscow to de-alerting, it is an anachronistic state of affairs for both countries to keep thousands of nuclear warheads in their arsenals, at the ready, to be launched in minutes of a command to do so.

This piece is followed by Professor Nacht's Chapter Seven that examines, in some detail, the future of strategic arms control. It is a very long, complex and tortuous future, but it is, according to the author, an essential feature of the international strategic landscape. Nacht notes that US-Russia strategy is multifaceted with the overall aim of bringing Moscow into the family of nations as a democracy with a market economy. Only when Russia moves down this road a

bit further, will it really cease to be a threat to the United States and the West. Clearly, Nacht suggests, strategic nuclear arms control is no longer at the center stage of the bilateral relationship as it once was during the Cold War era. START and other relative activities, however, remain a necessary, although no longer sufficient, condition to maintain a positive bilateral relationship.

The final paper of Part II is by Camille Grand who examines the role of France as a nuclear weapon state. Professor Grand reviews, historically, France's arms control policy and the steps taken by French governments over the past few years in the arms control arena. While France favors most efforts leading to a downsizing of their nuclear arsenals and a minimum deterrence posture, there is, however, a strong reluctance on the part of Paris toward deep reductions and radical measures such as no-first-use. Grand argues that, to France, nuclear weapons are still perceived as unchallenged war prevention tools. In the final analysis, Grand contends that the nuclear weapons' states should agree on both practical and symbolic measures to de-emphasize the role of nuclear weapons, and to scale back their individual arsenals to levels of minimum or existential deterrence.

In Part Three of this volume, which consists of four presentations, the focus is on the future of multilateral arms control. Ambassador Stephen Ledogar, in Chapter Nine, confines his arguments to broad based arms control and disarmament efforts which might take place in the Conference on Disarmament (CD) or in an *ad hoc* substitute multilateral disarmament treaty negotiating forum in which the rule of consensus prevails. Ambassador Ledogar strongly argues that the CD is neither resting between jobs, nor is it suffering from terminal decline; it is simply out of work -- the kind of work on which there is agreement to embark. According to the author, the core of the CD's paralysis is clearly the issue of multilateral nuclear disarmament. Ledogar notes that the motives of the Nuclear Weapon States (NWS) are misunderstood and the notion that preachments by the Non-

Nuclear Weapon States is a naive way for them to go about securing a supervisory role. In the end, according to Ledogar, proponents of nuclear disarmament should think about the value of understanding and dealing with the NWS, thus progress could gradually be made. On the other hand, if the Non-Nuclear Weapon States put all the responsibility on the NWS and offer nothing themselves, there will not be much future for multilateral arms control.

A companion piece by Ambassador Sha Zukang proffers several reasons as to why the CD has been less than effective since the conclusion of the Comprehensive Test Ban Treaty in August 1996. The most important, according to Ambassador Sha, is the fact that even though the Cold War has ended, a few of the major military powers still persist in their Cold War mentality by restraining, through multilateral arms control treaties, other countries' military capabilities, while, on the other hand, sparing no effort in using their economic and technological prowess to develop advanced weapons for their protection. Sha points out that arms control agreements come about as a result of a relaxed international environment, and thereby give impetus to its further relaxation. The author, in the end, provides a prescription for a viable multilateral arms control agenda, which enhances the international environment. This can be accomplished if all countries abide by the principles of equality and the peaceful resolution of disputes thus resulting in global strategic stability and security for all nations.

In Chapter Eleven, Professor Alexie Arbatov notes that, in the foreseeable future, bilateral arms control (US-Russia) will not yield to multilateral efforts, but, rather, both bilateral and multilateral arms control will become much deeper intertwined with each other and with regional conflict-management and peacekeeping efforts. Such an evolution, according to Arbatov, will require a much better intellectual grasp of such interactions among the great powers, as well as a deeper understanding of each others' interests and priorities. In the end,

bilateral and multilateral arms control, and regional peacekeeping efforts, are the signs of the future, and these, according to Arbatov, will largely determine the nature of the next phase of international security politics leading into the next millennium.

Chapter Twelve, by Ambassador Nabil Fahmy, focuses on the multilateral arms control process in the Middle East, which began some six years ago, as a result of the Madrid Peace Conference. Fahmy points out that the Arms Control and Regional Security (ACRS) Working Group's name was not coincidental or haphazardly selected. It came about because both Arabs and Israelis arrived at the realization that arms control and regional security were common objectives and requirements for the peoples of the Middle East. In the end, ACRS, according to Ambassador Fahmy, failed, not only because of the increasing tensions in the peace process, but more importantly, ACRS *modus operandi*, and in the reticence of its members to deal seriously with arms control and regional security issues relevant to a Middle East at peace.

Part Four of this volume presents four articles on terrorism and its ramifications on both the domestic and international scenes. The first article in this section is by Professor Richard Falkenrath who argues that, until the Aum Shinrikyo attack in the subway system of Tokyo, the non-state actors were uninterested in acquiring and using nuclear, biological and chemical (NBC) weapons, and those that may have been interested in employing weapons of mass destruction, were unable to do so. Now, according to Falkenrath, both statements are becoming questionable. First of all, the range of non-state actors that possess the technical capacity to obtain WMD is increasing. In part, this is a result of the technical diffusion of increasingly sophisticated knowledge of nuclear, biological and chemical sciences, thus broadening the number of individuals who understand that NBC weapons acquisition is technically feasible. Additionally, it appears today that non-state violence is growing more lethal. The net effect of

these two trends is that the number of NBC-capable non-state actors, with an interest in causing mass casualties, will continue to grow in the years ahead. Falkenrath cautions that, given the severity of the consequences that would result from even one successful act of NBC terrorism by a non-state actor, the threat should be considered as high enough to rank among the most serious national security challenges faced by the modern liberal democracies.

It is Alessandro Politi's presentation in Chapter Fourteen that attempts to provide a European perspective to the problem of international terrorism. Politi's presentation discusses the definitional and contextual issues that are involved in understanding the setting in which terrorism takes place. It is the author's contention that, in order to combat more effectively international terrorism, a multidimensional security concept must be adopted. This is necessary because of the present diffusion of power from states to non-state actors. As a result, the post-Cold War era finds international terrorism as a privatized, deregulated, and globalized effort that possesses mobility, flexibility, and elusiveness. Moreover, Politi argues that drug monies increasingly support terrorists, and that some criminal elements are adopting terrorist tactics in order to undermine governments and public opinion.

In the presentation that follows, Elizabeth Turpen, *et al*, suggests that how we think of the threat to national security requires a shift from industrial to postindustrial or "information age" paradigms. The authors contend that the Internet, as the infrastructure for information competence, is indisputable. There is no doubt that the multifaceted nature of the Internet, as well as the changes in society that it exemplifies, requires careful analyses and thoughtful discussion of the negative/positive potentialities and leveraging technology to reduce the vulnerabilities our dependency creates. In the end, minimizing risks and realizing possibilities in the information age requires first understanding the implications of the decentralization of

power, and then taking steps to translate, exploit, and convert information technologies into solutions that address the possible threats.

It is Gerald Epstein, in Chapter Sixteen, who analyzes technologies for fighting terrorism, and the role that the federal government can play in thwarting these types of threats. Epstein is quite realistic when he states that technology cannot solve terrorism and the challenges it poses, but technology, used as a tool, and developing technological strategies, can be an important part of any societal response to the problem of terrorism, especially when weapons of mass destruction are used. Epstein notes that the federal government is presently investing in excess of $200 million in research and development monies to combat terrorism. This will acquire the development of technologies to prevent, investigate, and respond to terrorism, including mass destruction terrorism, which is a key component of President Clinton's Administration's counter-terrorism program.

The final section, Part Five, of this volume contains four important essays that address issues of compliance to international agreements and regimes. Amy Sands' Chapter Seventeen examines the compliance assessment process within the context of today's evolving political system. It is a new world order, according to Sands, which is multilateral, multifaceted, diverse and perhaps more uncertain of its path forward than at any time since the end of World War II. As a result, the Great Power states are unwilling to relinquish their central role in compliance decisions that directly effect their national security. At the present time, according to Sands, critical actors appear to lack the political will to address consistently and forcefully looming arms control and non-proliferation compliance challenges (e.g., Russia's possible violation of the BTWC, Iraq's intransigence in dealing with UNSCOM). Even the United States, with its clear-cut military and economic prowess, is reluctant to use its superpower status to "police" the world. As a result, assuring compliance with arms

control and non-proliferation treaties must, according to Sands, be seen as the responsibility of all member-states and recognized as the highest priority by leaders of the world. If compliance issues are not addressed in an effective manner, then it is conceivable that there are nations that will reject the international norms and legal obligations against WMD, opting instead for unilateral military capabilities.

Eric Arnett provides the reader, in Chapter Eighteen, with a discussion of the problems of compliance and enforcement, and the resultant relationships between agreements, norms and regimes. Arnett notes that agreements may develop into nearly universal regimes, as is the case of the Non-Proliferation Treaty. Although there is no unanimity regarding the normative importance of the treaty, some states-parties may hold that important norms are not being honored even when an agreement is not being violated. Although there are many ways for verifying compliance of arms control agreements, an effective response to non-compliance is for a state party to demonstrate non-compliance of a treaty (proof) to the international community. Arnett develops three useful categories of non-compliance, which he proceeds to demonstrate. It is his view that, during the years of President Clinton's Administration, prudence has prevailed on establishing non-compliance contrary to the view of the Administration detractors.

Ambassador José Bustani provides the reader, in Chapter Nineteen, with an examination of treaty compliance utilizing the Chemical Weapons Convention and the Organization for the Prohibition of Chemical Weapons (OPCW) as examples. Although it is still a bit early, Bustani notes that the OPCW already provides a number of lessons in relation to compliance assurance. In the short period in the operation of the OPCW, he notes several of these: a treaty must have a complete set of provisions in establishing and maintaining compliance; second, the more technically complex a treaty is, the more likely non-compliance will occur when its functioning rests on

national implementation measures; and, finally, compliance enforcement begins with the readiness of the States Parties to establish and maintain compliance themselves. It is through cooperation, as well as transparency, according to Bustani, which are fundamental conditions that full compliance will be enhanced, and non-compliance acts will be identified.

The last chapter of this volume, by Thérèse Delpech, explores the issues of compliance utilizing two major crises: the Iraqi and North Korean confrontations. Both cases suggest that even though violations of the IAEA safeguards might be demonstrated, compliance cannot be definitely established. It is Delpech's contention that there are two essential elements involved in demonstrating non-compliance. These are the ability to detect undeclared materials and activities and the verification provisions that are found in treaties and conventions. Additionally, the technological evolution complicates the compliance issue because, for example, nuclear power is a "dual use" technology, which, in turn, creates difficulties in ascertaining proper usage by any acceptable degree of confidence. Although the need to restore compliance to an agreement is crucially important, Delpech concludes, nonetheless, that the compliance process is one that is fraught with obstacles and disappointments.

It is the editor's hope that these several contributions will continue to further stimulate debate, discussions and analyses in government, business and academic circles. No doubt, debating, analyzing, and scrutinizing these complex issues can only enhance the understanding of earlier policies and prescriptions and thus lead to the charting of new, more lasting and innovative treaties, agreements, and policies on arms control and disarmament as we proceed toward the uncharted waters of the second millennium.

Part I

Arms Control in the
Post-Cold War Era
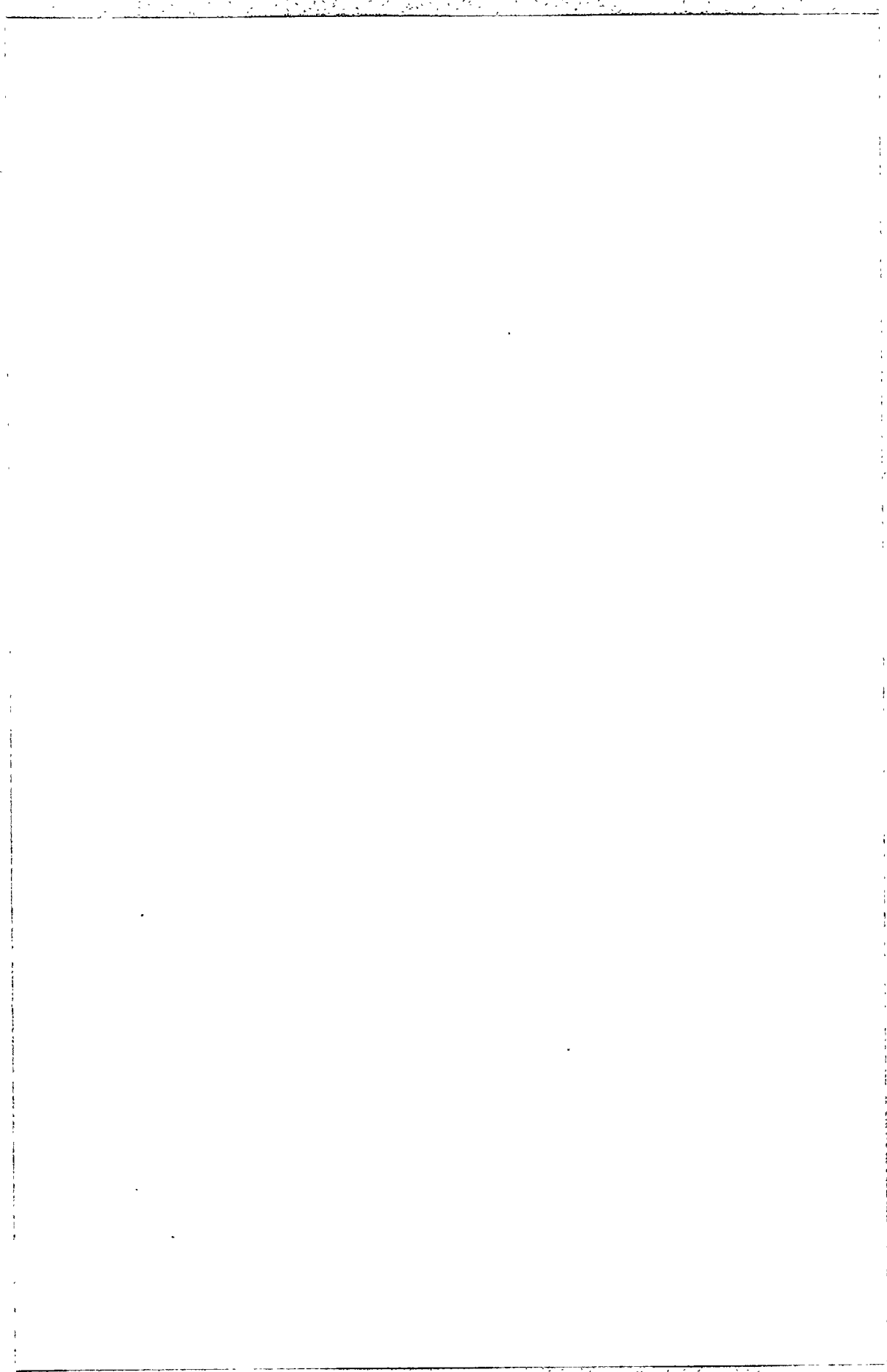
Chapter 1

Arms Control and Disarmament: An Historical Perspective

Ralph Earle II

The idea that nations can increase their security and make wars less likely by consenting to control their armaments reflects a fundamental American optimism about the manageability of human problems. In pursuit of these ideals, US leadership led to the creation of a number of important arms control regimes. This paper attempts to summarize briefly the key accomplishments of arms control during the past four decades. Although the first of these agreements were multilateral in nature, they were strongly influenced by the sharpness of the East-West division during the Cold War.

1. Initial Cold War arms control agreements

In general, it may be observed that these early multilateral agreements did not limit weapons that were already in the possession of the state parties. Instead, parties to such agreements pledged not to acquire certain types of weapons or engage in certain types of activities. The roots of US-Soviet nuclear arms control negotiations are in the sweeping proposals on "General and Complete Disarmament" of the late 1940s and 1950s. These proposals, discussed primarily under the auspices of the United Nations, were based on an attempt to apply post-WW I thinking on disarmament in the new nuclear era. However, they were unsuccessful in achieving a comprehensive disarmament agreement or even serious negotiations, and, indeed, the US and Soviet arsenals continued to grow unabated.

In the late 1950s and early 1960s, the focus shifted from comprehensive disarmament to limited agreements in the hope that partial measures would ultimately lead to more comprehensive achievements. Such limited measures included:

- "Non-armament" agreements (e.g., The Antarctic Treaty (1959), the Outer Space Treaty (1967), and the Nuclear Non-Proliferation Treaty (1968), designed to prevent, among other things, the proliferation of nuclear weapons and conflict to definable areas that remained nuclear-free or unmilitarized;[1]

- Confidence-building measures (e.g., the bilateral Hot Line Agreement of 1963) designed to reduce the risks of war; and

- Initial steps towards arms limitation measures (e.g., the Limited Test Ban Treaty of 1963) that focused on nuclear weapons testing.

Although these agreements are important to international security in their own right, they also opened a dialogue between the superpowers and helped set the stage for vigorous bilateral arms control negotiations between the United States and the Soviet Union that ultimately led to real reductions. Indeed, President Johnson used the occasion of the signing of the Non-Proliferation Treaty to announce that agreement had been reached with the Soviet Union to begin negotiations on limiting strategic nuclear weapons delivery systems, as well as strategic ballistic missile defenses.

2. **Stability and security through the strategic arms control process**

The Strategic Arms Limitation Talks (SALT I), which resulted in the ABM Treaty and the Interim Agreement, initiated a process which helped moderate and eventually terminate the superpower arms race,

arms control agenda. SALT I also established a relationship between strategic ballistic missiles and strategic missile defenses. SALT II, continuing the process of limiting strategic offensive arms begun in SALT I, recognized the threat to security by deployed multiple independently-targetable reentry vehicles (MIRVs) systems, and began the process of limiting and even reducing such systems. The 1970s also saw the conclusion of the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty, which began to rein in underground nuclear testing by the United States and the USSR (tests in other environments had been prohibited by the 1963 Limited Test Ban Treaty).

In the 1980s, negotiations on theater and strategic systems took place against a backdrop of renewed East-West tensions and a more radical examination of prospects for a changed East-West relationship. As a corollary, negotiating approaches sought deeper reductions and more intrusive monitoring regimes, including on-site inspections.

By 1987, the Intermediate-Range Nuclear Forces Treaty (INF) between the US and USSR, which required the elimination of an entire class of weapon systems, was completed. This Treaty called for the elimination of all US and Soviet ground-launched cruise and ballistic missiles having ranges between 500 and 5500 kilometers, as well as the elimination of the launchers for these missiles, their support equipment, and support structures. The Parties are prohibited from possessing, producing or flight testing such missiles for the duration of the Treaty, a duration that is unlimited.

Three and a half years after the signing of the INF Treaty, the Strategic Arms Reduction Treaty (START I) was completed. It was the first treaty to provide for an actual reduction in the number of deployed strategic warheads, with overall reductions of 30-40%, and reductions of 50% in the most threatening systems. The reductions required under START I are well ahead of schedule. All battlefield nuclear weapons have been removed from Belarus, Kazakhstan and

nuclear weapons have been removed from Belarus, Kazakhstan and Ukraine. Belarus and Kazakhstan also have eliminated all strategic offensive arms from their territories, while Ukraine is continuing to eliminate its accountable strategic offensive arms. In fact, the Parties have not only reduced their strategic offensive forces well below the levels required for the first phase reduction deadline of December 5, 1997, but have also met, or are approaching, levels that are not required until the second phase of reductions which must be completed by December 5, 1999. The Parties are already below the final phase reduction limit of the Treaty for the number of deployed strategic weapon delivery vehicles, a level that the Treaty does not require that the Parties reach until December 5, 2001.

Seventeen months after START I was signed, the START II Treaty banning heavy and MIRVd intercontinental ballistic missiles (ICBMs) was signed. When START II enters into force, it will be a significant step forward in further reducing force levels and strengthening the US-Russian strategic relationship. START II provides an orderly mechanism for the United States and Russia to decrease dramatically the resources they devote to strategic offensive arms. At the same time, it provides enhanced stability and security for the US and Russia.

I should point out that the negotiations of the INF and START I treaties were difficult and time-consuming. The START Treaty took almost a decade to negotiate, and during several of those years, the delegations were in near-continuous session. START II was concluded with much less effort, because it relied heavily on START I provisions and benefited as well from the collapse of the Soviet Union and improved US-Russian relations. Because dramatic changes have occurred in the political and strategic relationship between the US and Russia, our arms control relationship has evolved from one that was principally adversarial to one that is more cooperative. Thus, the time required to conclude future bilateral arms control agreements with

Russia promises to be less than the time which was required to reach similar agreements with the Soviet Union.

The improvement in US-Russian relations should not be interpreted as reducing the requirement for scrupulous arms control verification. In fact, monitoring and verification are even more important in this new era. One reason for this lies in the numbers. As the quantity of weapons comes down on both sides, any transgression of treaty limits becomes more significant.

Additionally, rigorously implementing and verifying arms agreements with Russia, the United States, as with other states, not only ensures their fulfillment, but also increases the legislative and popular support. This support is crucial in forming the basis for further steps in arms control and disarmament. Because our relationship with Russia is evolving, arms control verification is doubly important: the overall progress and quality of our relationship depends in part upon it. Any breach of faith, especially in a realm as sensitive as arms control, could easily disrupt the process of building trust. Strict enforcement is what makes arms control agreements work -- and working arms control agreements can, in turn, foster the trust and relative openness that permits further progress. In short, to neglect the implementation and verification of arms control agreements, or to assert that verification is no longer important, would be folly.

3. Other arms control efforts

Progress in bilateral arms control during the Cold War helped set the stage for a new series of multilateral agreements that limited, and in some cases eliminated, weapons already in the possession of the state parties. The Biological and Toxin Weapons Convention (BTWC) was the first such agreement. More recently, treaties such as the Chemical Weapons Convention (CWC) and the Comprehensive Test

Ban Treaty (CTBT) have continued the difficult task of controlling arms or activities among many nation states.

Of course, the Non-Proliferation Treaty (NPT) continues as the indispensable anchor of many of these activities. The consensus decision in 1995 to extend the NPT permanently and unconditionally was historic. It removed considerable uncertainty about the future and created a framework for future efforts in nuclear non-proliferation and nuclear disarmament. By permanently establishing a barrier to the spread of nuclear weapons, the NPT not only thwarts the emergence of additional nuclear weapon states, but also fosters an environment in which Russia and the United States, in the aftermath of the Cold War, can decrease their reliance on nuclear weapons.

The achievement in 1996 of the CTBT -- the longest-sought, hardest-fought arms control agreement, in the words of President Clinton -- will significantly advance the US's nuclear arms control and non-proliferation goals. It will ban all nuclear explosions of any size, in any environment, for all time. The Treaty has been signed by 149 states. It is now pending in the Senate, awaiting advice and consent to ratification.

Effective international safeguards, such as those implemented through the International Atomic Energy Agency (IAEA), are recognized as making essential contributions to effective non-proliferation. This is even more the case now that the IAEA, in a new model protocol to safeguards agreements, requires states to provide additional information on nuclear and nuclear-related activities and to give the IAEA greater access to activities and locations to uncover clandestine nuclear programs.

The United States continues to support the initiation of negotiations on a ban on the production of fissile materials for use in nuclear weapons or other nuclear explosive devices, which will be a critical step in controlling the nuclear threat. This Treaty will extend verification measures in nuclear weapon states and to states that have

not signed the NPT and who are non-nuclear weapons states, thus creating a climate conducive to continued, long-term progressive nuclear weapons reductions.

There is also intensive international cooperation on securing and disposing of large quantities of fissile material, with particular attention to efforts to guard against theft or smuggling. Much attention is also being paid to implementing transparency measures on fissile material. The United States and Russia have declared this material, including that removed from dismantled nuclear weapons, excess to their defense needs and are seeking ways to make this process irreversible so that this material cannot be reused in nuclear weapons.

With the end of the Cold War, new momentum has been given to the concept of nuclear weapon free zones. The United States supports the creation of such zones in regions where they would contribute to the achievement of US nuclear non-proliferation goals and would be consistent with other US national security interests.

The Treaty on Conventional Armed Forces in Europe continues to serve as the cornerstone for security in Europe; the related confidence- and security-building measures of the Vienna Document also enhance that stability. Furthermore, in the May 1997 Founding Act on Mutual Relations, Cooperation and Security, North Atlantic Treaty Organization (NATO), the allies and the Russian Federation committed themselves to further reductions in the levels of treaty-limited equipment.

The Treaty on Open Skies, based upon a US initiative put forth by President Eisenhower, establishes a regime of unarmed aerial observation flights over the entire territory of its parties. It is designed to enhance mutual understanding and confidence by giving all participants, regardless of size, an opportunity to observe any activity of concern to them using flights over another state's territory. Covering territory from Vancouver east to Vladivostok, Open Skies

will strengthen confidence, stability, and predictability, and will result in reduced tensions and prevention of conflict. These agreements, together with many others, form a solid foundation on which our future efforts will be built.

There have also been failures and lost opportunities in the arms control process. Despite these limitations, however, the process endured, and it is in that endurance that the arms control process may be most valuable. This *process* builds confidence, as well as enhances predictability and mutual understanding, thus minimizing the dangers of miscalculation.

4. Arms control efforts during 1997 and 1998

Significant progress has been made in arms control during the past year. The CWC entered into force on April 29, 1997. The United States joined the CWC on April 25, 1997, thus allowing the United States to be an original party. In November, Russia also became a member of the CWC, joining China, India, and Pakistan, and many others. There are currently a total of 110 members.

In strategic arms control, at the Helsinki Summit in March 1997, Presidents Clinton and Yeltsin sketched a vision for further deep reductions on nuclear weapons and for new kinds of controls once START II is in force. In September 1997, the United States committed to the extension of the START II elimination timetable and on early deactivation of weapons to be eliminated under the Treaty. The extension of the timetable will amend START II and thus requires Senate advice and consent.

On September 26, 1997, after nearly four years of negotiations in the Standing Consultative Commission (SCC), Secretary of State Albright and the Foreign Ministers of the Russian Federation, Belarus, Kazakhstan, and Ukraine signed a Memorandum of Understanding

In addition, they also signed Agreed Statements relating to the demarcation of lower- and higher-velocity theater ballistic missile defense systems from ABM systems or their components, a Confidence-Building Measures Agreement, and Regulations for the multilateral operation of the SCC.

Nineteen ninety-seven was both a productive and a challenging year on anti-personnel landmines (APL). Although the US has been an international leader in efforts to control mines, and remains committed to banning them, Washington could not find a way consistent with our international security responsibilities to sign the Ottawa Convention. At the same time, however, the United States leads the world in assisting nations in developing their own capabilities to remove the immediate humanitarian threat from the millions of landmines already in the ground in some 60 countries, which cause thousands of injuries every year. In September 1997, President Clinton directed that the US Humanitarian De-mining program be expanded to at least 21 countries. Congressional support for the Humanitarian De-mining program is very strong, demonstrated by the dramatic increase in its funding. The President's "De-mining 2010 Initiative" was announced, and efforts are underway to develop, by the year 2010, an international coordinating mechanism to eliminate the threat of landmines to civilian populations worldwide. Also, the United States will continue to work diligently to negotiate an export ban on APL in the Conference on Disarmament (CD) -- the forum the United States believes offers the best possibility of capturing those major APL exporting and producing states who have not signed the Ottawa Convention.

The CTBT, now pending in the US Senate, is a top priority of President Clinton and an historic opportunity for the United States. That is why the administration will make every effort this year to encourage the Senate to give its advice and consent to its ratification,

not only on the merits of the Treaty itself, but to further reinforce US global arms control leadership.

The challenging pace from last year has been carried over into 1998. The US is deeply engaged in the hard work of implementing START I, encouraging Russia to ratify START II, and setting the stage for START III. START II, when implemented, will reduce our deployed strategic weapons down to levels 80 percent below Cold War peaks. START III will also levy additional constraints not only on delivery systems, but on nuclear bombs and warheads themselves.

The United States also is seeking to ensure that fissile material from dismantled nuclear weapons is stored safely and securely. Recognizing the particular responsibility of the nuclear weapons states, the US is currently cooperating with Russia in this area. Construction of a storage facility at Mayak, in the Russian Federation, for fissile material from dismantled nuclear weapons -- a joint US-Russian cooperative effort -- is on schedule, and the first phase of the facility should be completed by June 1999. The United States and Russia are currently negotiating "transparency measures" for the facility. Since one of the goals of the Cooperative Threat Reduction Program is to increase US confidence in the irreversibility of the Russian nuclear stockpile, this transparency is necessary to provide confidence that the fissile material stored in the facility is from dismantled nuclear weapons.

At the same time, Washington is also pursuing a deliberate course of improved and expanded bilateral dialogue with China on arms control matters, and, in particular, are trying to open a dialogue on strategic arms control.

The United States is also intensifying our efforts against the mounting danger that weapons of mass destruction will fall into the wrong hands. Memories of poison gas in Tokyo's subways, the specter of Iran's missile ambitions, and Iraq's perpetual efforts to conceal nuclear, chemical and biological programs, are warning

enough. Immediate dangers to our troops abroad and civilians at home require strict enforcement of existing international standards, as well as stronger ones where needed.

In other regions where proliferation risks are acute, the US must continue intensive efforts to contain these risks. The 1994 US-Democratic People's Republic of Korea Agreed Framework froze North Korea's nuclear weapons program, but requires continued international political and economic support if it is to be successful over the long run. In South Asia, Washington is particularly mindful of the risk that the nuclear and missile programs of India and Pakistan could accelerate and seriously undermine regional stability. The United States continues to support a continuation of the Indo-Pakistani dialogue and to urge both governments to exercise restraint.

Also this year, the United States turned its focus to the 1972 Biological and Toxin Weapons Convention (BTWC). In his 1998 State of the Union address, President Clinton raised the bar to get the BTWC on track and brought up to date. The BTWC needs strengthening, the United States is now working through negotiations in Geneva to complete the framework of a Protocol that provides for declarations and on-site activity to strengthen the effectiveness and improve implementation of this Convention.

5. Conclusion

In conclusion, Cold War-era arms control regimes have laid the foundation for today's ambitious and comprehensive arms control agenda. Efforts to establish successor arrangements and to modernize and update these agreements will ensure that they remain valid and relevant. While multilateral negotiations have increased in importance and emphasis, bilateral negotiations remain critical to the broad success of our arms control policies. US leadership is essential to the

future progress and success of international arms control regimes. While there are daunting challenges to monitoring compliance with ever more intrusive and complex arms control provisions, verification remains an essential precondition for enhanced security. Finally, arms control remains an essential and vibrant process that is difficult, challenging, and often frustratingly slow, but one that is important to enhancing US national security both now and in the future.

Note

1. The Antarctic Treaty prohibits any measures of a military nature, such as the establishment of military bases, the carrying out of military maneuvers, as well as the testing of any type of weapons, not just nuclear weapons in Antarctica.

Chapter 2

Arms Control 1998 and Beyond: The Challenges, Needs, and Opportunities for Banning, Containing, and Eliminating Weapons of Mass Destruction

John D. Holum

American arms control achieved much with its partners around the world in 1997, and the US's arms control agenda for 1998 is even more ambitious and far-reaching.

In 1997, the Senate ratified the Chemical Weapons Convention so that the United States could be an original party -- eventually joined by Russia, China, India, Pakistan, Cuba, and 102 other nations -- in ratification.

On strategic arms, in Helsinki, Presidents Clinton and Yeltsin sketched a vision for further deep reductions on nuclear weapons and for new types of controls, once START II is in force. Both parties formally agreed on an extension of the START II timetable and on early deactivation of covered weapons. After nearly four years of negotiations, the United States finally agreed with Russia, Ukraine, Kazakhstan and Belarus on succession under the ABM Treaty, and on the demarcation between prohibited strategic defenses and permitted theater ones.

It was also both a productive and a painful year on antipersonnel landmines. Though the US has led international efforts to control long-lived, non-detectable mines, Washington could not find a way consistent with its security responsibilities to sign the Ottawa Convention. At the same time, the United States leads the world in removing the immediate humanitarian threat - more than 100 million mines already in the ground in some 60 countries. President Clinton

recently ordered that the US's demining funds be tripled, and Secretary Albright and Secretary Cohen launched "De-mining 2010" with a timetable for removing this humanitarian scourge. 1998 is shaping up every bit as challenging.

Implementing START I, encouraging Russia to ratify START II, and preparing for START III are at the heart of US-Russian relations. Russia's decision on START II ratification is profoundly important -- considering the consequences in stalled disarmament and the risk to its wider relationships if it fails, or the new, forthcoming opportunities for deeper cuts, dramatic savings, greater security and broader cooperation if it succeeds. When START II is operational, the United States and Russia will return to the table to negotiate deeper cuts -- down to 80 percent below Cold War peaks -- and, for the first time, direct constraints not only on delivery systems but on nuclear bombs and warheads themselves.

The year 1998 will also demand intensified efforts against the mounting danger that weapons of mass destruction will fall into the wrong hands. Memories of poison gas in Tokyo's subways, the specter of Iran's missile ambitions, Iraq's perpetual efforts to conceal nuclear, chemical, and biological programs, all serve as warnings of the immediate dangers to American civilians and servicemen and women at home and abroad. To counter the efforts of would-be proliferators, the United States and its partners around the world need to strictly enforce the international standards, while also building stronger standards where required.

This latter task includes intensified efforts on a significant gap in coverage. Humanity has labored for centuries to banish such diseases as plague, anthrax, and botulism. Saddam Hussein, and a number of others, are engaged in perverse efforts to preserve and multiply those same deadly organisms for use as weapons of terror and war. The 1972 Biological and Toxin Weapons Convention -- a thin reed,

depending heavily on voluntary reporting and compliance -- needs teeth, and supplying them is a high priority this year.

President Clinton, in his February 1998 State of the Union remarks, specifically noted the spreading threat of biological weapons and made addressing this a vital task to American arms control policy. To address this challenge, the President called for the framework of a legally-binding Biological and Toxin Weapons Convention compliance protocol by the end of 1998, thus seeking provisions that call for the declaration of relevant BW facilities and activities. This will allow for voluntary visits to gather information, and will enforce on-site activities to resolve ambiguities or inaccuracies regarding declarable activities and challenge investigations and thereby address concerns about non-compliance with the Convention.

Pursuing an international agreement which will involve on-site activity at commercial facilities is not a simple issue in the United States or elsewhere, and therefore, the international community must avoid putting industries at risk. This admonition has particular resonance in the US, where the pharmaceutical and biotechnology industries play important roles in our economy and foreign trade, while their work contributes much to an improved standard of living around the world. Consider that in 1995, 150 primary patents were issued worldwide for significant new products in the biotechnology area, and, of these, 122 were issued to US firms. Any BTWC protocol will need to balance national security needs with protecting proprietary information, economic promise, and contributions to health and well being.

Thus, a stronger BTWC is a complicated issue. But revelations in Iraq, coupled with recent terrorist scares in Great Britain or nearby Las Vegas, Nevada, underscore the need to transform this treaty into a truly effective instrument against genuinely appalling weapons the United States renounced more than a quarter century ago.

The negotiated biological weapons protocol will be another tool in our inventory of measures to deter, dissuade, and discover such threats. It will accumulate information over time and reveal patterns of inconsistent or deceptive behavior. Furthermore, it will maintain awareness that such weapons have no place in the community of civilized nations, and it will remind those who might be persuaded to work for such programs of both the inexcusable inhumane nature of what they are being asked to do and the essentially outlaw nature of the undertaking. In short, a stronger BTWC will attach the burden of international rejection to any and all that would pursue or possess biological weapons.

As if this were not enough, there is one other item on the broad 1998 agenda that is a top priority of President Clinton and serves as an historic opportunity for the United States. That is the Comprehensive Nuclear Test Ban Treaty now pending in the United States Senate.

It has been fifty-two years since the first nuclear explosion turned desert sand to glass near Alamogordo, New Mexico. Since then, nearly 2,000 nuclear test explosions have been detonated -- more than 1,000 by the United States, some 700 by the Soviet Union, China's reported 41, others by the United Kingdom, France, India and Pakistan. Three-quarters of these tests were underground.

All these tests led to the development of dozens of different types of nuclear weapons with varying explosive yields, with different combinations of blast, radiation, and thermal effects. They were designed for delivery by aircraft, missiles, and artillery to explode in the atmosphere, underground, or underwater. These weapons can destroy missile silos, fleets of ships at sea, tank formations, command and control capabilities, and, of course, cities, and millions of people.

A regular goal of testing was to make weapons more efficient -- a bigger bang and taller mushroom cloud in a smaller, lighter package. This success opened new technical avenues, including multiple

independently targetable re-entry vehicles (MIRVs), allowing a single missile to strike separate targets many miles apart. This, coupled with improvements in accuracy and maneuverability, led to the geometric growth of stockpiles, and war fighting plans employing literally thousands of warheads and bombs. Still, American leaders, beginning with President Eisenhower, understood the peril inherent in nuclear weapons and sought ways to rein them in.

Some thirty-five years ago, President Kennedy warned of a "[n]uclear sword of Damocles," hanging by the slenderest of threads. He argued that such weapons "must be abolished...the logical place to begin is a treaty assuring the end of nuclear tests of all kinds."

He did not succeed in that, though over four decades of arms control work, important progress was made:

- The 1963 Limited Test Ban Treaty ended testing in the atmosphere, underwater, and in space.

- The 1974 Threshold Test Ban Treaty limited US and Soviet underground nuclear weapons tests to 150 kilotons.

- And, in 1976, the Threshold Ban limit was extended to what we now recognize as an oxymoron term, "peaceful nuclear explosions," which were also confined to the 150-kiloton limit.

But, nuclear explosive testing and further refinement of nuclear arsenals still proceeded.

Now, at last, the original goal is at hand.

In 1993, President Clinton directed the resumption of the US effort to achieve a Comprehensive Test Ban Treaty (CTBT). US negotiators in the Conference on Disarmament in Geneva went to work, backed-up by a mighty effort in Washington to sort through technical details and make hard policy choices. By September 1996, President Clinton, wielding the pen John Kennedy used to sign the 1963 Limited Test Ban Treaty, became the first world leader to sign a comprehensive ban on nuclear explosions of any size, by anyone,

anywhere, forever. In September 1996, the CTBT was adopted by the United Nations General Assembly, 158 to 3, and now has almost 150 signatories.

What will it accomplish?

With a ban on nuclear testing in place, the international community pours cement on any possibility of a renewed arms competition. Make no mistake, there are more possibilities to focus the energy from nuclear weapons, or enhance radiation, or otherwise advance the art or lower the threshold for their use. But without testing, nuclear weapon states will not be able confidently to develop advanced new nuclear weapons types. For without testing, there is no way of being certain that a *new* weapon will function as designed, as intended, or at all.

The CTBT and the strategic arms reduction process will be mutually reinforcing. The test ban provides confidence that neither side will be making significant qualitative improvements in its arsenal, thereby fostering a stable environment for further reductions. The CTBT will not eliminate nuclear weapons, but it will clearly enhance the START process and advance disarmament. The CTBT is also a non-proliferation treaty. It throws another major obstacle in the way of anyone who aspires to nuclear arms.

Of course, a primitive fission bomb can be made without testing. But, please remember that a hole had to be dug under a B-29 bomber to load the first atomic bomb aboard. It is a much harder task to reduce in physical proportions nuclear weapons down to their most dangerous sizes, shapes, and weights, deliverable in light airplanes, rudimentary missiles, or even in a terrorist's luggage. This is where the prohibition of all nuclear explosions comes into play. The simple fact is that US security is enhanced to the extent that the US can lock all nations in place on the nuclear weapon learning curve.

Politically, as well, the test ban reinforces the Nuclear Non-Proliferation Treaty (NPT) in drawing the noose ever tighter around

the nuclear ambitions of rogue regimes. The NPT is our basic international law against nuclear weapons and it is the basis for international communities efforts to prevent them in Iraq, Iran, North Korea, and elsewhere.

Additionally, the nuclear weapon states' commitment to conclude a Test Ban Treaty in 1996 was instrumental in gaining an indefinite extension of the NPT in 1995. For the Test Ban Treaty was, from the 1960s onward, seen as part of the NPT bargain under which all members but five agreed to completely forego nuclear weapons, so long as "good faith" disarmament efforts were pursued.

Furthermore, consider that in 1997, the international community finally succeeded in reaching agreement in the International Atomic Energy Agency on much stronger safeguards, using new access methods and technologies that are better able to find clandestine weapons efforts. These efforts represent the international communities' reaction to the discovery in 1991 of Iraq's ambitious program. Obviously, the world community wants global political impetus behind those agreements. To risk the unraveling of the NPT bargain is not the way to secure it. Continuing US leadership in advancing the test ban is essential.

Enforcing non-proliferation is not an easy task. Will the test ban solve the problem? Obviously not. Will it help? Absolutely, by adding another physical obstacle, and by reinforcing international standards and the political will to punish proliferators. Given these stakes, the international community should not deny itself any tool that will assist in simplifying this challenge.

At least, not unless the price is too exorbitant for the United States. But, manifestly, the Comprehensive Test Ban Treaty's price is easily bearable, because the price has already been willingly incurred. The United States has left the testing business. Congress, in 1992, imposed sharp legal restrictions on further testing, which continue to remain in effect. The United States has no plans and no military requirements

to further test. Why, then, not hold others to the same standard the US already observes, and thereby capture the arms control and non-proliferation value?

What awaits? Washington's leadership to ratify the CTBT and put real muscle behind the treaty.

The effort begins with strong popular support. A May 1998, nationwide poll indicated that over 70 percent of the people, Republicans and Democrats alike, favor a treaty to prohibit worldwide underground nuclear explosions. Only some 13 percent of those polled are opposed. Rarely does any proposition command such overwhelming support.

Still, ratification will not be easy. At least three main strands of argument against the Treaty have already emerged. These are verification, reliability of the current nuclear stockpile, and timing.

Some will argue that the Treaty cannot be verified. They are wrong! When the CTBT is brought into force, the Treaty will rely on a broad network of some 320 sensors capable of detecting, at considerable distances, the different types of signals nuclear explosions emit depending on where they occur: seismic vibrations; underwater noise; very low frequency sounds in the atmosphere; and radioactive gases or particles. These sensors will blanket the globe.

In addition, the United States has its own considerable national technical means (NTM) of verification. The right to use its NTM is specifically recognized in the Treaty. If any of these technologies suggest that there may have been a nuclear explosion, Treaty parties can call for on-site challenge inspections to root-out the facts. With or without the CTBT, the United States will continue to monitor nuclear testing worldwide. The CTBT will make this indispensable effort a lot easier.

A practical demonstration of these technological capabilities took place last summer. In the Kara Sea, near a former Soviet nuclear testing facility where there had been ongoing activity, sensors detected

a seismic event. This activity had a seismic signal equivalent to about one-tenth of a kiloton, and was detected and confidently located, even though a major seismic station in the region was not operational. After analysis, the US Government was satisfied that no nuclear explosion had taken place, based solely on remote sensing and study.

It may be possible to conduct an underground nuclear explosion too small to be seen, heard, or felt by these remote sensors. But this does not negate the value of a "zero yield" Treaty. The objective is not to warrant honesty but to enhance security. There will be some countries that will want to cheat; by limiting their options, significant consequences are avoided. In all likelihood, an explosion too small to be detected would also be too small to provide any substantial value to a nuclear design program, such as for boosting yields and making weapons smaller, lighter, and easier to deliver.

The aspiring cheater State would also have to be concerned about unintended consequences of complicated evasion schemes, such as the so-called "oops factor" which is a very small explosion turning out bigger than intended, and thus drawing unexpected attention.

A cheater State can never confidently fix the dividing line between escape and detection and, therefore, must always consider that the overlapping international sensors, or the US's national technical means, or perhaps a whistle-blower, would reveal the test and thus precipitate international action.

US monitoring thresholds reflect our interest in detecting and identifying a test with very high confidence. This calculation is only a part of what goes into a judgment about verifiability. The bottom line is deterrence. If, for example, a would-be cheater State assesses that there is even a 50 percent chance, or perhaps even less, of being detected, isolated, and sanctioned, testing most likely would be an unappealing choice. The Comprehensive Test Ban Treaty can and will be effectively verified. It will effectively deter tests that would have an effect on our security.

A second issue will likely be the long-term safety and reliability of the enduring nuclear stockpile, because the United States, for the foreseeable future, will rely upon nuclear deterrence. With the end of the Cold War and progress in disarmament, the US is no longer designing new nuclear weapons, which is the primary reason for testing. No plans to do so exist. In addition, the United States is also maintaining much smaller arsenals with fewer different designs. The number of different nuclear weapons today is fewer than ten. All of these designs are well-known and well-tested and have been certified safe and reliable.

Indeed, when Congress adopted a testing moratorium in 1992, it authorized 15 tests for adding specific safety or reliability features to the existing weapons. Those tests were never conducted. The US military saw no improvements requiring tests that would be cost-effective.

The fundamental question remains whether we can sustain the necessary level of confidence without testing. The answer, according to the directors of the US nuclear weapons labs (Los Alamos, Livermore and Sandia), as well as leading weapon designers and technical experts, including a unanimous report of the Jasons, is a qualified "Yes, if...".

The "if" is a rigorous, fully-funded Stockpile Stewardship Program, which includes careful surveillance, computer modeling, non-nuclear experiments, and maintenance of re-manufacturing capacity to identify, address, and repair any problems that may arise in the enduring arsenal. Such a program has been in place for the past three years.

Moreover, the United States possesses a safety valve. Like most arms control treaties, the CTBT contains a provision allowing members to withdraw on grounds of "supreme national interest." The Clinton Administration has determined that the safety and reliability of our nuclear weapons *is* a supreme national interest.

Further, the President has also created an annual certification program for the stockpiled weapons. If the senior officials in charge of America's nuclear arsenal are unable to certify with high confidence that these weapons will continue to function as planned, and if tests are required to remedy the problem, tests can be resumed. There is no reason to believe such a situation will arise. But if it does, the United States is protected.

Finally, some will counsel delay. The condition for the Treaty's entry into force is ratification by 44 specifically identified countries. These are the members of the Conference on Disarmament possessing nuclear power or nuclear research reactors. India, Pakistan and North Korea are part of this group. Unfortunately, none of these have signed. So why hurry? Those that advise delay will argue that all the elements of stockpile stewardship should be in place, that they are operational, and then ratification should be considered.

However, if problems arise in the stockpile, it will most likely be in several years, perhaps in the years 2005, or 2010, or later. New facilities will then be operational, such as the National Ignition Facility in 2003, Sandia's pulsed power machines in 2001, and the DARHT second axis by 2002. Therefore, to delay in the ratification process in anticipation of stockpile failure would be a long-term perpetuation of a truly useless combination of no testing but also no test ban. This does not serve the interest of the United States.

Given that the US may exercise the safety valve provisions of the Treaty, the better response is to capture now the arms control and non-proliferation benefits of this Treaty. Reluctant signatories of the CTBT should be isolated on this issue, and *not* be permitted to use US hesitation to excuse their own inaction.

The earliest the CTBT can enter into force is in September 1998. By that time, it will have been pending in the United States Senate for a year. That is an entirely reasonable timetable for Senate action.

The question of timing depends to some extent on what role the United States wants to play in this process. Should it lead the world on such issues, or trail behind? President Clinton thinks that we should lead. The US needs to foster and promote ratification, not complicate it. The United States should set the right example so that other nations follow.

At the core, these are the CTBT issues that the Senate must consider and deliberate:

- the nuclear arms race is over;

- nuclear arsenals are shrinking;

- the US's dramatically fewer remaining weapons can be kept safe and reliable by other means;

- tests are not necessary;

- proliferators must test; and

- the American people overwhelmingly want nuclear testing banned.

Under these circumstances, does the world need *more* nuclear explosions? What individual or nation would champion the cause of making the Nevada desert shake again with nuclear blasts, and ensuring more such events at China's Lop Nur test site, or Novaya Zemlya in Russia, or other places known and unknown around the world?

Nearly forty years ago, Dwight Eisenhower reflected upon his White House years and noted that achieving a nuclear test ban, "would have to be classed as the greatest disappointment of any administration -- of any decade -- of any time and of any party... ."

The ebb and flow of history have brought us the chance to remedy his frustration.

The negotiators have done their part. Now it falls upon the United States Senate, to help close this explosive nuclear chapter in human

experience, to help approach a new millennium with yet another strong tool to ward-off dangers to our people and thus build a safer planet.

I hope the Senate will act well, wisely -- and soon -- so that we can forge ahead with the broad agenda to fight some of the greatest perils of our time.

Chapter 3

Ten Years of Inspection Activity: The OSIA Experience

John C. Reppert

For all of the 1990's, we have had universal agreement that in terms of national security issues, we live in new and different times. We have passed the era of the Cold War, but we have difficulty determining what now exists in its place and how we should respond to the new environment. Obviously, I am not prepared to answer such profound questions as regards the new national security structure, or even to properly label the post-Cold War era. However, I would like to discuss a combination of elements revolving around the issue of revising our options to deal with the new environment.

When I was attending various military schools, I learned that in foreign policy each nation has a range of choices in how to deal with issues, including economic measures, political measures, and military measures. Faced with a situation in which appropriate authority determined that a nation should become involved, the nation's leader reviewed the options available from these three areas, as well as others, in order to formulate the most appropriate response to attain national goals.

From the time I became a military officer until now, we, in the armed forces, were taught military options to offer the president to respond to national crises. If the president determined that US military involvement was appropriate, typically some five alternatives or combinations of them would be proffered. The titles may have changed slightly over time, but the options generally did not. They included:

- Presence -- for example, the decision to place American forces in readiness in a country adjacent to the country involved in the crisis;

- Show of force -- for instance, placing a naval carrier task force off the shore of the nation to be influenced;

- Blockade or Quarantine -- the decision early in the Bosnian crisis to screen or preclude certain deliveries to the zone of conflict from other nations;

- Limited military intervention -- the decision to secure the Beirut airport with Marines or to assign military forces to Somalia for emergency assistance; and

- Direct military conflict or war -- in Korea and Vietnam.

In the last 30 years, we have seen variations on this, such as the use of military forces in peacekeeping roles (e.g., Sinai and Cyprus). Here, the mission was to maintain separation of the conflicting parties until economic or political measures could be used to restore peaceful relations to the parties. Likewise, military forces have served national security objectives through humanitarian assistance and emergency relief missions throughout the world.

In the past decade, however, a new type of mission has emerged that may fundamentally change the menu of military means of contributing to national security. I have in mind, of course, military involvement in on-site inspection aspects of arms control. While military involvement in arms control is not an invention of the 1990's, its application has never before been so widespread as it has become in this decade, and the opportunities for its use in the future have never been greater. Let me describe briefly what has occurred from the perspective of the On-site Inspection Agency, and then I will discuss why I think that changing the military menu for response to national security issues is important for the future.

Ten years ago, in response to the signing of the Intermediate-Range Nuclear Forces (INF) Treaty between the Soviet Union and the United States, the US created an arms control agency within the Department of Defense to participate in inspection and escort roles assigned by the new treaty. The combination of extensive on-site inspections, combined with other means of verification, provided the nations' leaders a high level of confidence in that the demanding standards of the INF Treaty, that is, the complete elimination of a class of weapons for the two parties, was being faithfully carried out to the harm of neither side.

In part, as a result of the new found confidence in the verifiability of arms control agreements, this decade has seen a proliferation of new agreements involving these tools, including the Strategic Arms Reduction Treaty (START), the Conventional Armed Forces in Europe (CFE) Treaty, and the Chemical Weapons Convention (CWC). In the first two examples, the armed forces of the participating nations have taken the lead in both inspection and in escort missions. In the latter, the inspections are conducted by full-time inspectors assigned to the Organization for the Prohibition of Chemical Weapons (OPCW) headquartered in The Hague, while military personnel are still responsible for the escort duties.

The fundamentally new aspect of this mission is that it represents a major step forward in not only responding to threats to national security, but the military is actively involved in reducing these threats to both US's own national security and to that of other nations. One form of this is quite obvious. The presence of certified inspectors from one nation can provide strong evidence that the reported action of another party in physically reducing its weapons systems matches reality. The other form is more subtle, but nonetheless, just as real. That is the interaction of the military forces of previously confrontational states in the joint efforts required to fulfill the on-site verification aspects of their new agreements.

In fact, traditional threat assessments are based on two elements -- the capabilities and intentions of the state in question. It is easy to acknowledge the contribution of recent arms control measures to changing the score on the capabilities' side. For example, under the provisions of the INF Treaty, the United States and the former Soviet Union eliminated an entire class of weapons, some 2,700 intermediate-range missiles. The CFE Treaty reduced 58,000 tanks, artillery, armored combat vehicles, helicopters, and fighter aircraft from the European land mass. So far, the Strategic Arms Reduction Treaty has eliminated 1,600 intercontinental ballistic missiles, bombers and submarine launched ballistic missiles for a net reduction of 4,931 deployed nuclear warheads. Also, the reductions that have taken place in the US chemical weapons inventory are quantifiable. The original chemical weapons stockpile included some 31,493 tons of agent, thus far, the Army has destroyed more than 2,000 tons since 1995.

However, as a practitioner of the art of arms control inspections, it is quite obvious that all parties learn a great deal through this process about the intentions of the other side as well. Military personnel of Russia, the United States, Germany, or Poland, as a matter of professional experience and habit, make informal assessments of the type of training and military readiness of any other force with whom they work. While any state is capable of creating a Potemkin Village on a relatively limited scale, which may be capable of deceiving visitors, the extent and variety of arms control agreements in place for the United States make deception on a national scale impossible. A nation readying for conflict must take a full range of military measures that would be extraordinarily difficult to conceal in the current environment.

Thus, the existing provisions of arms control agreements such as CFE add a new dimension to the formula I originally offered that was part of military schooling, from presence to war. In this case, the military's involvement in these arms control measures fundamentally

reduces the military capacity of both a potentially hostile state as well as its own. Just as importantly, the involvement of each nation's forces on measures that provide extensive and intrusive contact also alters the understanding of intentions that affect national security.

There are three other elements of emerging arms control that are worth highlighting in this type of discussion. First, just as we continually have found new forms of "presence" to increase the arsenal of responses of policy makers to the matters they face, this is equally true of the tools of arms control and on-site verification. This same form of joint cooperation of armed forces lies at the heart of a new range of negotiated transparency measures, such as the Open Skies agreement that had originally been proposed by President Eisenhower, nearly half a century ago. Likewise, the sharing of the means and methods of on-site verification with contesting sides in Bosnia has done much which will contribute to greater stability when the international peacekeeping forces are withdrawn. Hopefully, these lessons will be studied in terms of other long-standing confrontations, such as the Middle East or Cyprus.

Second, while this presentation has concentrated on the role of the armed forces, one of the clear lessons of the On-Site Inspection Agency experience is that the interagency approach is the only approach to arms control. During the early part of my career, military thinking and training began a profound transition that only recently culminated into the concept all recognize and embrace as "jointness." The US realized, somewhat belatedly, that the world no longer allowed for "army wars" or "navy wars". All future conflicts of any magnitude could only be conducted by all services working together jointly. As a result, these concepts were introduced into our schools, then our training, and finally our command structure and our actual operations.

Today, the same argument can be made for the interagency approach. Many departments and agencies perform vital arms control

roles: the Departments of State, Defense, and Energy; the Arms Control and Disarmament Agency; and the intelligence community perform most functions but others contribute. All of us, however, recognize that none can perform successfully their own mission without the thorough integration of efforts with all others. I feel strongly that one of the bases of OSIA's success derives from the foresight of our founders and good fortune. OSIA took a first major step by *starting* with the concept of full integration of the interagency approach -- in command structure, in training, and in operations -- from the first mission to this day.

Third and finally, I will make the argument that on-site inspections can never be considered in isolation. Arms control is succeeding in many ways today because of the high level of confidence that participating governments have in the verifiability of their agreements. In this effort, on-site inspections play an important role, but represent only one aspect of a much larger program. On-site inspections are unprecedented in the manner in which they provide "up close and personal" checks on what is going on. When an inspector crawls inside a missile canister alongside a missile, or when he runs his hands along the cuts made in the wing of an aircraft or the tube of an artillery piece, there is no long "expert" debate over whether the system is the one the inspected side claims, or whether the means to render it inoperable are reversible.

Conversely, its intimacy is its limitation. Inspectors see only very small portions of the overall picture at any one time, and even with the minimum notification provided under any of these treaties, their presence is advertised in advance. National technical means, as well as other sources of information allowing policy makers to render verification judgments, are other critical components of this system of information.

Recent experience in Open Skies has led to a new perspective on the importance of forming a composite picture to support arms

control. The advantage of the rapidly developing technology to add to verification understanding for arms control is its increasing precision and detail. The disadvantage is its cost. Very few nations in the world can afford to maintain the technology and the systems on the leading edge of monitoring capability. Yet, all nations have the same basic need for assurance that their agreements are being complied with by all parties and that their participation in arms control regimes is aiding rather than damaging their national security posture. The Open Skies approach has been to focus on the power of low technology in combination with a highly permissive transparency regime.

In effect, this latest step provides two huge benefits. First, it greatly increases the confidence of participating states that all parties are adhering to agreements, or in the absence of formal limitation agreements, that all parties are behaving in a manner that does not endanger the security of the state in question. Secondly, since the proposed Open Skies regime is based on cooperative monitoring, it does provide the interaction of nationals of the participating states in a way that increases confidence in intentions, as well as the understanding of capabilities.

The challenge for the future is to extend the benefits of these tools to all states in all regions to enhance stability and to create conditions for peace at lower levels of armaments than currently exist by removing uncertainties from threat estimates. For the On-Site Inspection Agency, this means the possibility, in conjunction with our interagency partners, of expanding operations in three aspects. First, the US needs to engage states currently caught in cycles of violence and arms escalation, explaining how we have benefited through these regimes, so that they may assess their utility in their own situation. Second, examining technologies that together with on-site aspects of verification or transparency regimes provide a comprehensive picture at affordable costs. Obviously, the cost of transparency must be less

than the cost of arms that would be required to live with the level of uncertainty that now exists. No doubt, the new technologies and the information revolution hold keys to greater transparency at much lower costs than currently exist. Third, the US foresees a growth in combined training with new states entering for the first time into regimes that include arms control and/or transparency measures. When both the Soviet Union and the United States shared its "lessons learned" with our CFE Treaty partners -- lessons gleaned from years of cooperation in strategic agreement -- we hopefully cut short the training time for the new states in on-site inspections. More importantly, we learned a great deal in the process by exposing ourselves to piercing questions on the rationale for our modes of operations, which frequently resulted in revisions to our policies and more effective work on our behalf.

The On-site Inspection Agency is excited about the potential for the future and is confident that we will have a critical role to play as it unfolds. We hope that this contribution will result in soldiers and strategic planners of the future holding a much more diverse range of options for national decision-makers than has been offered in the past. Military forces must continue to ensure the national security of their homeland. This vital mission is made less complex through the creation of conditions favorable to peace among all participants both in terms of reduced capabilities for all parties and clearer understanding of intentions.

Chapter 4

Arms Control as Part of the Peace Process in Bosnia and Herzegovina, Croatia and the Federal Republic of Yugoslavia

Vigleik Eide

The Bosnia Proximity Peace Talks were held at Wright-Patterson Air Force Base, at Dayton, Ohio, from November 1-20, 1995, under the auspices of the Contact Group. During these talks, delegations from the Republic of Bosnia and Herzegovina, the Republic of Croatia, and the Federal Republic of Yugoslavia (FRY) engaged in discussions aimed at reaching a peaceful settlement to the conflict in Bosnia and Herzegovina. On November 20th, the Framework Agreement and its Annexes were initialled, and December 14, 1995, the General Framework Agreement for Peace in Bosnia and Herzegovina was signed in Paris. In spite of it being signed in Paris, it came to be known as the "Dayton Agreement".

Although the discussions at Dayton were formally "under the auspices of the Contact Group", they were, in reality, driven by the US Delegation and, specifically, Ambassador Richard Holbrooke, with the support of President Clinton. For the first time in this conflict, the full political weight and military power of the US seemed to be behind the efforts to reach a negotiated settlement.

The pressure on the Parties was overwhelming, and the discussions were extremely difficult. An important factor contributing to the final result was the changes in the military balance that took place during the summer and fall of 1995. The forces of the Federation (Muslims and Croats) had been reconstituted, and they witnessed some significant success on the battlefield. Together with the NATO air attacks, this decisively weakened the Republika Srpska's military capabilities as well as their forces' morale. Had the war continued into 1996, the Republika

Srpska might well have lost. On the Federation side, however, some observers seemed to hold the view that the Dayton Agreement, in a way, prevented a full military victory.

For the implementation of "Dayton's" many elements, it is of vital importance to realize that it is an agreement based on a compromise. It is intended to serve as the basis for a secure future for all the three constituent groups in Bosnia and Herzegovina, based on equal rights and obligations, as well as equal treatment. The agreement is not based on an "unconditional surrender" by one of the parties to the conflict, regardless of who was responsible for the war, or of the atrocities committed.

The arms control efforts in Bosnia and Herzegovina were mandated in the Dayton Agreement, specifically, Annex 1B of the "Agreement on Regional Stabilization". This annex states

> that the establishment of progressive measures for regional stability and arms control is essential to creating a stable peace in the region. To this end, they agree on the importance of devising new forms of cooperation in the field of security aimed at building transparency and confidence and achieving balanced and stable defense force levels at the lowest numbers consistent with the Parties' respective security and the need to avoid an arms race in the region.

To attain these goals, three progressive steps were foreseen:

- Within 45 days after the Paris signing, the Parties in Bosnia and Herzegovina (the State and the two Entities) were to agree on "Confidence- and Security-Building Measures in Bosnia and Herzegovina" (Article II of the Annex).

- Under Article IV, "Measures for Sub-Regional Arms Control", the Parties in Bosnia and Herzegovina, together with the Republic of Croatia and the Federal Republic of Yugoslavia agreed to negotiate arms control measures and to complete the negotiations within 180 days after the Paris signing. The aim of Article IV was to reach an agreement that mirrored the Treaty on Conventional Armed Forces in Europe (CFE).

- Under Article V of Annex 1B, "Regional Arms Control Agreement", the OSCE (Organization for Security and Cooperation in Europe) was mandated to help organize and conduct negotiations with the goal of establishing a regional balance in and around the former Yugoslavia. This provision was conditioned on the satisfactory implementation of Article IV.

1. Practical framework

The arms control negotiations under Article IV were, in reality, the only part of the Dayton Agreement where Croatia and the Federal Republic of Yugoslavia were required to participate and to undertake concrete commitments. In view of the evolution and development of the Yugoslav conflict, it appears that these two entities escaped a little too easily. Stronger demands of non-intervention in Bosnia and Herzegovina could have been required of both.

The OSCE was required to assist the Parties in their negotiations under Articles II and IV and in the implementation and verification of the resulting agreements.

The first meetings with the Parties took place in Bonn on December 18, 1995, and in January 1996 the negotiations were moved in Vienna. From the inception, it was evident that an arms control agreement which was similar to the CFE Treaty would require the willingness of the Parties to openly exchange information on the status of their forces and armaments, to accept a verification regime based on inspections, and to accept physical reduction of armaments above the agreed ceilings. Even during the CFE negotiations this was not easy, and those negotiations took place after a period of reduced tension. In this case, it began almost directly after the end of a nasty war, when emotions were still running high, with some elements even holding the view that the war should -- and perhaps would -- start again. The fact that the political normalization

process had hardly begun added to the rather hostile atmosphere at the beginning.

Two factors came forth to influence the efforts throughout this process, and they follow:

- Five Parties were identified as part of the Article IV negotiations. Even from the start, it was clear that all Parties had to be given equal treatment, but they were far from "equal", consisting of three States and two "Entities." Croatia and the FRY were "normal" States. They, at least, controlled their own armed forces. Bosnia and Herzegovina was clearly a State; but the armed forces were controlled by the two "Entities," and the territory was split between them. Since an arms control agreement was aimed at limiting and controlling the armaments that were held by the two "Entities," both had to be full and responsible Parties to the negotiations and the resulting agreement. This was also in accordance with the Dayton mandate, and was supported by the witnesses, but not favored by the State of Bosnia and Herzegovina.

- The other factor was that the OSCE was to assist the Parties, including the FRY whose membership in the OSCE was suspended during the conflict that had taken place in the former Yugoslavia. As a consequence, the FRY accepted the negotiations as being "under the auspices of the OSCE". This limited the role the OSCE could play.

The countries which signed the Dayton Agreement as witnesses (the Contact Group and the EU Presidency), therefore, had to continue to take the responsibility as the "support group". It should come as no surprise, however, that this group at times had difficulties agreeing on negotiating strategy as well as on some of the issues emerging during the negotiations. Mention should be made of the lack of cohesive negotiating strategy which led to tricky balancing acts, and to some strain in the relations among the members of the group whose views could not be taken fully into account. Without consultation and the support of these

key countries throughout the negotiations and implementation phase, success would have been slim.

2. The negotiations

An agreement among the parties was supposed to be signed six months after the Dayton Agreement had entered into force by the Paris signing on December 14, 1995. The time span was short, and the Parties seemed not to be mentally ready for such negotiations. The first meetings in Vienna early January 1996, were -- sort of -- a continuation of the war, with strong verbal attacks on persons, as well as delegations. In addition, it was evident that the Parties had rather unclear views regarding their individual aims, as well as the contributions they were willing to bring to the process.

Even our Vienna Group of Witnesses, at the beginning, expressed rather pessimistic views of reaching a satisfactory agreement -- not to speak of implementing it.

Initially, it was necessary to work tirelessly to convince Croatia and the FRY to support the general thrust of these negotiations. After a couple of months into this process, both Croatia and the FRY were generally supportive. The Parties in Bosnia and Herzegovina had -- for good reasons -- more fundamental and lasting problems. The will to seek solutions and compromises seemed to be limited for all of them. From the first days, the representatives from the State of Bosnia and Herzegovina did not want to accept the two Entities -- the Republika Srpska and the Federation of Bosnia and Herzegovina -- as equal Parties to the negotiatons, but to regard them as "Entities under the State". On the other side, this was absolutely unacceptable for Republika Srpska. This problem remained throughout this process.

With the limited time available for the negotiations, the CFE Treaty was used as a model whenever applicable. The Parties themselves also

referred extensively to the CFE Treaty, but tended to be very selective in suggesting only what they saw to be to their own advantage. In addition, the process was building on the formula laid down in the Dayton Agreement of the ratio of armaments between the Parties. Based on the approximate ratio of populations of each Party, the Dayton Agreement operated with 5:2:2 ratio between the FRY, Croatia and Bosnia and Herzegovina, respectively, and for the two Entities, a 2:1 ratio between the Federation of Bosnia and Herzegovina and the Republika Srpska.

The Dayton Agreement also identified the determined holdings of the FRY and, as a result, the FRY had to reduce its holdings to 75% of the baseline, thus giving Croatia and Bosnia and Herzegovina 30% of the baseline, the Federation of Bosnia and Herzegovina 20%, and the Republika Srpska 10%.

It was important for the credibility of this Agreement that the Parties to these negotiations agree to the final limits to their armaments, so as to be fully committed to implement the Dayton Agreement. It came to be a tacit understanding between the Parties, however, that the Dayton formula should and would remain the basis for these negotiations, as well as for the final limits. The Republika Srpska had the problem of accepting a formula that gave it only half of the Federation future holdings, and they claimed that the ratio of 2:1 had been changed in the final stages of the Dayton Accord discussions without their knowledge or approval. This was disadvantageous to them. Additionally, at times, the witness countries' delegations were not in agreement, and this further added to the negative negotiating atmosphere.

3. Final days of the negotiations

As the deadline approached, a number of unresolved issues surfaced. Many of these issues were trivial and technical in character, but they tended to block agreement.

However, the perceptual "political" problem remained unresolved. The State of Bosnia and Herzegovina continued to insist that the agreement should be between the three "State Parties" and the two "Entities Parties". Since Sarajevo's position was well known, the witness countries "promised" that, if an acceptable agreement could be reached on the "real arms control issues." they would resolve the "political" problem. This promise turned out to be hard to deliver and blocked the planned signature of the Agreement in Oslo on June 11, 1996. President Izetbegovic in Sarajevo remained immovable, in spite of the fact that the leader of his delegation in Oslo, his own Foreign Minister, called his position "irrational and unacceptable." The efforts of the Contact Group to resolve this political problem did not help this matter, and, in fact, it seemed to have the opposite effect. After a couple of days, these efforts came to naught in securing signatures in Oslo, and the negotiations were transferred to Florence, Italy, where the "Peace Implementation Council" met at ministerial level to assess the implementation record of the Dayton Agreement six months after the Paris signing. The Florence meeting had the advantage over Oslo in that more of the key political actors were present, i.e., the Foreign Ministers of France, Germany, Great Britain and Italy. After continued meetings and a lot of political "influence" being executed, President Izetbegovic accepted an agreement among five Parties, and the "Agreement on Sub-Regional Arms Control" was signed at the very end of the last day of the meetings. Representatives of the Contact Group and the Host Nation signed as witnesses.

4. The agreement

On future armament holdings, the Agreement set limits for the same five categories of heavy weapons as the CFE Treaty (the only exception being artillery, where the lower limit was set at a calibre of 75mm, instead of the CFE's 100mm).

The agreed limits on heavy armaments follow:

Parties	Battle Tanks	Armored Combat	Artillery Pieces	Combat Aircraft	Attack Helicopters
Federal Republic of Yugoslavia	1025	850	3750	155	53
Republic of Croatia	410	340	1500	62	21
Bosnia and Herzegovina	410	340	1500	62	21
Subset					
Federation of Bosnia and Herzegovina	273	227	1000	41	14
Republika Srpska	137	113	500	21	7

In addition, the Agreement detailed protocols on information exchanges and verification by inspections. The inspections were the responsibility of the Parties in the same way as under the CFE Treaty. It was also agreed upon that the OSCE would assist the Parties by offering assistants to the inspecting as well as the inspected Party.

The reductions of armaments to the agreed limits were to be carried out within 16 months (by 31 October 1997), with the first phase within a six months period (31 December 1996). This was a remarkably short

time span compared to the CFE Treaty, which had two years for ratification and a forty month reduction period.

5. Implementation of Agreement

From the outset, the implementation varied between the Parties. FRY and Croatia had very few difficulties, whereas the Parties inside Bosnia and Herzegovina all had -- or created -- various problems. The State of Bosnia and Herzegovina insisted on carrying out their own inspections in the FRY and Croatia, even if they could not receive any inspections because their armed forces, armaments and territory belonged to the two "Entities." FRY and Croatia accepted this, with the conditions that the inspections had been decided by the proper elected political authorities of the State Bosnia and Herzegovina, and if their inspection teams consisted of members from all three constituent groups. This issue blocked the inspections the last months of 1996, but, eventually, the Parties agreed to leave this problem to the newly elected political authorities of Bosnia and Herzegovina, while the other Parties continued their inspections. By the end of 1997, these authorities still had not reached political agreement on this issue.

The Federation had considerable difficulties agreeing between the Croat and Muslim part of the Federation on how to share their armament reduction liability. After much effort and outside "assistance", they managed to carry out their first phase reductions.

It was the Republika Srpska that, from the outset, created the most serious problems. They consequently abused some of the exception rules in the Agreement in a way that neither the other Parties, nor the Witnesses could accept.

These problems persisted through the last six months of 1996, and reflected in many ways the lack of cooperative spirit among the Parties in just about all areas of the Dayton Agreement.

Political pressure, formal meetings of the "Sub-Regional Consultative Commission," and numerous direct contacts with the parties involved, slowly prepared the ground for a solution which came about at the "Peace Implementation Council" in London in December 1996. It was not until the end of January 1997, that the Parties agreed to the limits.

This decision was followed, within weeks, by corrected reporting on holdings and liabilities, and then followed by concrete and detailed reduction plans. Outstanding inspection issues were also resolved, and both inspections and reductions continued in a positive way.

Croatia completed its first full reduction obligation by the end of April, more than six months ahead of the deadline; and the plans presented by the FRY were very solid and credible. For the two Entities in Bosnia and Herzegovina, it was important to make sure that both of them were moving forward, and preferably more or less in parallel. This was necessary to overcome the deep-rooted suspicion that existed between the two. An offer of joint reduction assistance from France and Germany was used to this effect, by alternating their efforts between the "Entities." An offer of some financial support from the Netherlands to the Parties was also used to encourage especially the Republika Srpska to an early reduction of most of their battle tanks. This, in turn, had a very positive psychological effect on the whole process.

One question haunted the Parties inside Bosnia and Herzegovina throughout the whole of the reduction period: were the Parties (the Entities) providing correct and complete information of their individual holding of armaments, or were they giving incorrect or incomplete reports?

As under the CFE Treaty, the Parties were responsible for verification through inspections, even if the OSCE coordinated the inspection schedules and provided assistants to the inspections. None of the inspections revealed any serious underreporting. However, since

inspections can control only a limited amount of the total holdings, incorrect reporting could not be completely ruled out. Since the heavy weapons inside Bosnia and Herzegovina were also controlled by IFOR/SFOR, access to their data was secured. This was very useful, and provided important indications of some "less than complete" reporting. Since the "Parties'" weapons definitions, storage areas and system of inspections were not compatible with the Dayton Agreement, the data provided had to be used with great care.

Some members of the Contact Group, not the least the US, claimed that they had "evidence" of serious underreporting, especially by the Republika Srpska. Since this information was mainly based on intelligence sources and assessments of somewhat varying quality, such underreporting could not be substantiated, and various attempts to put political pressure on Republika Srpska failed.

Sharing the feeling that both of the "Entities" could and should improve their reporting efforts, and since accusing the Parties of underreporting brought no results, the Entities were offered practical working level assistance to help them improve their data. This approach took time and effort; but was well received by the Parties and provided good results, especially for the Republika Srpska. In July 1997, the Republika Srpska reported more than 840 heavy weapons in addition to its earlier reports, and later in the fall 100 more were added. All of the numbers were included in their reduction liability, bringing it from about 150 pieces of armaments in January to well above 2000 by the end of the reduction period. All the Parties had an impressive compliance record during this period. It should be pointed out that, after the January decision, the Republika Srpska very positively met the spirit and will of the compliance requirements. This attitude was very much in contrast to their earlier position, and it happened in spite of the internal political conflict that existed between the factions within Republika Srpska; between Pale and Banja Luka. Contrary to what might have been

expected, this turbulence did not influence negatively the arms reductions process.

One special project received a lot of attention, and not always in a positive light from an arms control perspective. Under the US program of Training and Equipment, considerable amounts of armaments were provided to the Federation of Bosnia and Herzegovina, and a special contractor carried out the extensive training programs.

As time passed, the Federation of Bosnia and Herzegovina's representatives were persuaded to be more open and to provide more information concerning their program, which proved, in the end, to be very helpful for all concerned.

In addition, the rule was established that, if newly purchased armaments exceeded the agreed limits, as was the case for artillery, then an equivalent number had to be reduced before the new armaments were permitted. In these efforts, close cooperation between SFOR and the Dayton Agreements implementors was essential.

6. Results

Toward the end of the reduction period, a tight control regime was in place to avoid surprises for incomplete reductions. However, the Parties themselves did an excellent job, and all their declared reduction liabilities were completed and duly inspected within the final deadline of 31 October 1997.

By the end of the November meeting of the Sub-Regional Consultative Commission, the following positive results were in place:

- Some 6580 heavy weapons were reduced, almost all by destruction.
- Within this total number, 700 battle tanks, 80 armored combat vehicles, 60 combat aircraft, and more than 5700 pieces of artillery were destoyed.

- Croatia and the Federation of Bosnia and Herzegovina reduced only artillery, most of it in the lower caliber ranges. The FRY and Republika Srpska reduced battle tanks, aircraft, and most of the heavy artillery.
- Well above 4000 of the total reductions were carried out by the two "Entities" within Bosnia and Herzegovina. The reduction of artillery pieces was more than double of the remaining allowed numbers.
- The Parties carried out 185 inspections, thus contributing to enhanced transparency and growing confidence and openness.
- The Parties improved their attitude and their ability to cooperate among themselves, and not the least,
- the Parties, themselves, had been responsible for the implementation of these measures, and demonstrated a growing willingness and ability to take resposibility for their own future.

In spite of the rather gloomy predictions at the start of the negotiations, and in spite of considerable difficulties during the process, the arms control part of the Dayton Agreement was successful. It should be noted, however, that the Agreement is of unlimited duration. The Parties are obliged to continued compliance, and a Review Conference is scheduled for June 1998.

The Agreement on Sub-Regional Arms Control among the five Parties, and the Confidence and Stability-Building Measures Agreement for the three Parties in Bosnia and Herzegovina, suggest that arms control and confidence-building measures can provide important contributions to the overall efforts to build peace, stability and cooperation after the end of the fighting phase of a conflict, given that there is established a comprehensive political basis and framework, as was the case in the Dayton General Framework Agreement. It also shows that results can be achieved in a relatively short period of time, and that arms control efforts can be conducted in parallel to the political and economical normalization and rebuilding. There is no doubt that all

elements within a Peace Implementation Framework must be carried forward in a full and comprehensive manner.

And finally, the Parties demonstrated a growing confidence and willingness to cooperate during the process, and to note that more moderate and moderating attitudes emerged from among them. That, in itself, is crucial, if peace, stability and future cooperation will succeed in this, or in any other conflict-ridden region.

Part II

Next Steps in Nuclear Arms
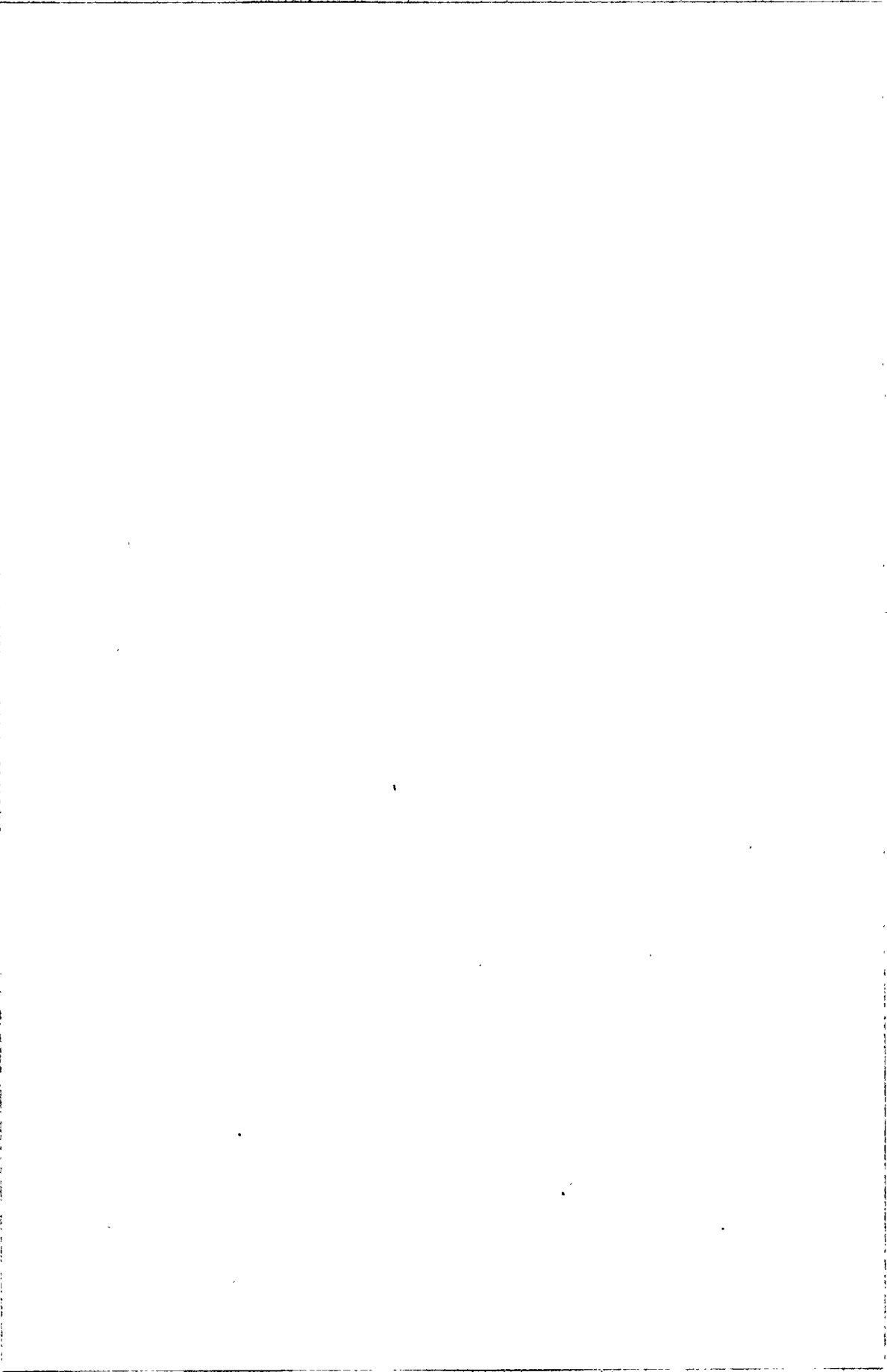
Chapter 5

The Politics and Prospects of the Comprehensive Test Ban Treaty

Joseph Cirincione

> *Every man, woman and child lives under a nuclear sword of Damocles, hanging by the slenderest of threads, capable of being cut at any moment by accident or miscalculation or by madness. The weapons of war must be abolished before they abolish us...The logical place to begin is a treaty assuring the end of nuclear tests of all kinds.*

> President John F. Kennedy
> September 25, 1961

President Kennedy's words are just as true today as they were 37 years ago, when his young administration revived an effort begun by President Dwight D. Eisenhower to ban all nuclear weapons testing. Eisenhower said his failure to make any progress on a test ban "would have to be classed as the greatest disappointment of any administration—of any decade—of any time and of any party." Today, President Bill Clinton is close to achieving this long-sought trophy. Negotiated over two and one-half years in the Conference on Disarmament, and now signed by 149 nations (including all five nuclear-weapons states), the Comprehensive Test Ban Treaty awaits ratification by 44 specific nations, including the United States, before it can enter into force.

To date, 13 nations have ratified the treaty, most recently, the nuclear weapons states France and the United Kingdom. But three of these 44 -- India, Pakistan, and North Korea -- have not yet signed. Whether these states will ever sign, or if the treaty can be effectively observed without their signing, depends in large measure on the

political will of the nations that do ratify the treaty. The early ratification by the United States could be decisive. The US Senate will likely consider the treaty later this year or early next. Though facing strong opposition from key Senators, the treaty enjoys such strong domestic support and is so vital to international non-proliferation efforts that it is likely to win approval if it can overcome several procedural hurdles and reach the Senate floor.[1]

1. A brief history of the test ban

Efforts to ban nuclear tests began almost as soon as the dust from the first nuclear explosion had settled back onto the New Mexico desert in 1945. Scientists responsible for the development of America's nuclear weapons urged various restraining measures, including a test ban. In June 1946, the United States representative to the newly formed Atomic Energy Commission, Bernard Baruch, presented an American plan to stop the manufacture of all atomic bombs and to eliminate all bombs in the US arsenal. But rising US-Soviet rivalry and false hopes that the United States could maintain a nuclear monopoly thwarted these early proposals.

Eisenhower's interest in a test ban stemmed from his military appreciation of the disproportionate destructive power of nuclear weapons. In a December 8, 1953 speech to the United Nations he noted, "A single air group, whether afloat or land-based, can now deliver to any reachable target a destructive cargo exceeding in power all the bombs that fell on Britain in all of World War II." By that time, the United States had already conducted 42 nuclear tests and had developed hydrogen bombs with the explosive power of several million tons of TNT. The United Kingdom and the Soviet Union had also acquired their own nuclear weapons. This meant two things, Eisenhower feared. "First, the knowledge now possessed by several

nations will eventually be shared by others—possibly all others. Second, even a vast superiority in numbers of weapons...is no prevention, of itself, against the fearful material damage and toll of human lives that would be inflicted by surprise aggression."

In early 1958, the Soviet Union announced that it would stop testing if the United States would do likewise. Eisenhower responded by proposing that scientists from the two countries jointly assess the verifiability of a test ban. On the basis of the scientists' findings, the President, in October 1958, initiated formal negotiations for a comprehensive test ban and declared a moratorium on testing that lasted almost three years, until France tested in 1960 and the Soviet Union in 1961.

By 1963, President Kennedy argued that a test ban "would check the spiraling arms race in one of its most deadly areas. It would place the nuclear powers in a position to deal with one of the greatest hazards which man faces in 1963, the further spread of nuclear arms." But the United States and the Soviet Union could not agree on the number of on-site inspections and Kennedy settled for the 1963 Limited Test Ban Treaty banning nuclear tests in the atmosphere, underwater and in outer space. The signatories vowed in the treaty's preamble that they would seek "to achieve the discontinuance of all test explosions of nuclear weapons for all time."

On many occasions during the next 30 years, the nuclear weapons states repeated their intention to end all testing, but never completed a treaty. However, President Lyndon Johnson negotiated, and in 1970 President Richard Nixon signed, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The treaty entered into force in 1970 with almost 100 nation as signatories. It now has 185 members -- almost every nation in the world. The NPT remains the sole global, legal, and diplomatic barrier to the spread of nuclear weapons. Key to the promise by non-nuclear ,weapon states not to acquire nuclear weapons is the pledge by the nuclear weapon states, enshrined in

Article VI of the treaty, to undertake good-faith negotiations on "effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament...". Three of these measures are explicitly cited in the treaty's preamble: a comprehensive nuclear test ban; an end to the manufacture of nuclear weapons; and the elimination of existing nuclear weapons. A fourth is implied: refraining from the threat or use of nuclear weapons.[2]

President Jimmy Carter came close to fulfilling the test ban pledge in 1979, only to have the negotiations lose their momentum after the Soviet invasion of Afghanistan. Negotiations were not resumed during the administrations of Presidents Ronald Reagan or George Bush.

The US Congress, in September 1992, moved into this presidential vacuum and mandated a September 1996 deadline for ending all US nuclear tests. The "Hatfield Amendment," supported by Senators Mark O. Hatfield, George Mitchell, and James Exon, specified that:

- The United States would begin a nine-month nuclear testing moratorium;

- The President must submit to Congress, at least 90 days before any resumption of testing, a report that provides a plan for achieving a multilateral comprehensive test ban no later than September 30, 1996;

- Any tests performed by the United States before the test ban target date would be limited to 15 and conducted for the purpose of weapon safety and reliability; and

- The United States would not be the first nation to conduct a nuclear test after September 30, 1996.

President Bush reluctantly signed the law in October of that year, ending a 47-year testing program that included 215 atmospheric and 815 underground tests. Neither President Bush nor President Clinton

used the 15 tests allowed under the moratorium to verify weapon safety or reliability.

The Soviet Union had observed its own testing moratorium since 1990. President Clinton extended the moratorium in July 1993, and at the Moscow Summit in January 1994, he and Russian President Boris Yelstin declared their intention to work to achieve a test ban treaty as quickly as possible and urged other nuclear weapons states to refrain from nuclear testing while test ban talks were underway. On January 25, 1994, the 61-nation Conference on Disarmament (CD) convened in Geneva, Switzerland to begin multilateral talks on a Comprehensive Test Ban Treaty (CTBT). The Conference on Disarmament is the only multilateral disarmament-negotiating forum linked to the United Nations. A test ban had been at the top of the forum's agenda since its inception in 1959.

Many nations participating in the CD are also members of the NPT and identified a test ban as a key indicator of whether the nuclear-weapon states took the treaty's disarmament commitments seriously. Steady progress in the negotiations was a major factor influencing the decision by these nations to make the NPT permanent at the NPT Review and Extension Conference in April 1995. The states also strengthened the NPT by implementing a regular review process and adopting "Principles and Objectives for Nuclear Non-Proliferation and Disarmament" as a yardstick for determining progress in realizing the treaty's purposes. The first specific measure cited in the document is the completion by the CD of "a universal and internationally and effectively verifiable Comprehensive Nuclear Test Ban Treaty no later than 1996."

After two and one-half years of arduous negotiations, debate, and a last minute effort by India to block transmittal of the treaty to the United Nations, the treaty was approved by the UN General Assembly by a vote of 158 in favor, 3 against and 5 abstentions on September 10, 1996.[3] On September 24, President Clinton became the first world

leader to sign the treaty, using the pen President Kennedy had used to sign the Limited Test Ban Treaty, 33 years earlier. His remarks to the General Assembly on that occasion outline the basic Administration position on the international security benefits of the treaty:

> By overwhelming global consensus, we will make a solemn vow to end all nuclear tests for all time.... This Comprehensive Test Ban Treaty will help to prevent the nuclear powers from developing more advanced and more dangerous weapons. It will limit the ability of other states to acquire such devices themselves. It points us toward a century in which the roles and risks of nuclear weapons can be further reduced, and ultimately eliminated.
> The signature of the world's declared nuclear powers-- the United States, China, France, Russia and the United Kingdom—along with those of the vast majority of its nations—will immediately create an international norm against nuclear testing, even before the treaty formally enters into force. Some have complained that it does not mandate total nuclear disarmament by a date certain. I would say to them, do not forsake the benefits of this achievement by ignoring the tremendous progress we have already made toward that goal.[4]

All the nuclear weapon states have now ended their test programs. China was the last nation to test, exploding two devices in 1996, for a total of 45 Chinese tests. France conducted the last of its 210 tests in 1996 as well. The United Kingdom, which had used the US test site in Nevada for its 24 underground tests, ended its 45-test series in 1991. Russia/Soviet Union conducted 715 tests from 1949 to 1990 (219 atmospheric). Including India's and Pakistan's underground test explosion in 1998, there have been 2056 known nuclear tests conducted from 1945 until 1996.

2. Treaty components

The treaty has 17 articles, two annexes, and a three-part protocol complete with its own two annexes. A summary of the treaty follows:

- Basic Obligations

  The Treaty creates an absolute prohibition against the conduct of nuclear weapon test explosions or any other nuclear explosion anywhere. Specifically, each State Party undertakes not to carry out any nuclear weapon test explosion or any other nuclear explosion; to prohibit and prevent any nuclear explosions at any place under its jurisdiction or control; and to refrain from causing, encouraging, or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion.

- Organization

  The Treaty establishes an organization to ensure the implementation of its provisions, including those for international verification measures. The organization includes a Conference of States Parties, an Executive Council and a Technical Secretariat, which includes an International Data Center.

- Structure

  The Treaty includes a Protocol in three parts: Part I details the International Monitoring System (IMS); Part II on On-Site Inspections (OSI); and Part III on Confidence-Building Measures. There are two Annexes: Annex 1 details the location of treaty monitoring assets associated with the IMS; and Annex 2 details the parameters for screening events.

- Verification and Inspections

  The Treaty's verification regime includes an international monitoring system composed of seismological, radionuclide, hydroacoustic and infrasound monitoring; consultation and clarification; on-site inspections; and confidence-building

measures. The use of national technical means, vital for the Treaty's verification regime, is explicitly provided for. Requests for on-site inspections must be approved by at least 30 affirmative votes of members of the Treaty's 51-member Executive Council. The Executive Council must act within 96 hours of receiving a request for an inspection.

- Treaty Compliance and Sanctions
  The Treaty provides for measures to redress a situation and to ensure compliance, including sanctions, and for settlement of disputes. If the Conference or Executive Council determines that a case is of particular gravity, it can bring the issue to the attention of the United Nations.

- Amendment
  Any state party to the Treaty may propose an amendment to the Treaty, the Protocol, or the Annexes to the Protocol. Amendments shall be considered by an Amendment Conference and shall be adopted by a positive vote of a majority of the States parties with no State party casting a negative vote.

- Entry Into Force
  The Treaty will enter into force 180 days after the date of deposit of the instruments of ratification by all States listed in Annex 2 to the Treaty, but in no case earlier than two years after its opening for signature. Annex 2 includes 44 States members of the Conference on Disarmament (CD) with nuclear power and/or research reactors. If the Treaty has not entered into force three years after the date of the anniversary of its opening for signature, a conference of the States that have already deposited their instruments of ratification may convene annually to consider and decide by consensus what measures consistent with international law may be undertaken to accelerate the ratification

process in order to facilitate the early entry into force of this Treaty.

- Review

  Ten years after entry into force, a Conference of the States Parties will be held to review the operation and effectiveness of this Treaty.

- Duration

  The Treaty is of unlimited duration. Each State Party has the right to withdraw from the CTBT if it decides that extraordinary events related to its subject matter have jeopardized its supreme national interests.

- Depository

  The Secretary General of the United Nations is the Depository of the Treaty and receives signatures, instruments of ratification and instruments of accession.

3. Ratification Prospects

Article Two, Section Two, of the US Constitution empowers the President, with the advice and consent of the Senate, to make treaties, providing two-thirds of the Senators agree. At least 67 of the present 100 Senators must vote in favor of the treaty. Accordingly, President Clinton transmitted the CTB Treaty to the US Senate for its consideration on September 23, 1997, with a section-by-section analysis. He noted:

> The Comprehensive Nuclear Test Ban Treaty is of singular significance to the continuing efforts to stem nuclear proliferation and strengthen regional and global stability. Its conclusion marks the achievement of the highest priority item on the international arms control and non-proliferation agenda. Its effective implementation will provide a foundation on which

further efforts to control and limit nuclear weapons can be soundly based. By responding to the call for a CTBT by the end of 1996, the Signatory States, and most importantly the nuclear weapon states, have demonstrated the bona fides of their commitment to meaningful arms control measures.[5]

Since then, the President has spoken out strongly and often in support of the Treaty, using opportunities including his State of the Union address, speeches before the UN General Assembly and a February 1998 visit to Los Alamos National Laboratory. So, too, have Secretary of Defense William Cohen, Secretary of State Madeleine Albright, Secretary of Energy Federico Peña, and others. The treaty has the support of all of the Joint Chiefs and the Chairman of the Joint Chiefs of Staff, General Hugh Shelton.

In addition, the directors of the three national nuclear weapons laboratories -- John Browne (Los Alamos National Laboratory), Bruce Tarter (Lawrence Livermore National Laboratory) and Paul Robinson (Sandia National Laboratories) -- have all publicly expressed their confidence that the safety and reliability of the nuclear weapons stockpile can be ensured within a test ban treaty regime. In January 1998, four former Chairmen of the Joint Chiefs of Staff -- General John Shalikashvili, General Colin Powell, Admiral William Crowe, and General David Jones -- supported Senate approval of the treaty.

The laboratory directors and the military leaders conditioned their support on the implementation of six "safeguards" the President has established and noted in his submission to the Senate with the treaty. The safeguards are as follows:

- The conduct of a Science Based Stockpile Stewardship program to ensure a high level of confidence in the safety and reliability of nuclear weapons in the active stockpile, including the conduct of a broad range of effective and continuing experimental programs;

- The maintenance of modern nuclear laboratory facilities and programs in theoretical and exploratory nuclear technology to attract and retain highly qualified scientists and technical experts.

- The maintenance of the basic capability to resume nuclear test activities prohibited by the CTBT should the United States cease to be bound by the treaty;

- The continuation of a comprehensive research and development program to improve treaty monitoring capabilities and operations;

- The continuing development of a broad range of intelligence gathering and analytical capabilities and operations to ensure accurate and comprehensive information on worldwide nuclear arsenals, nuclear weapons development programs, and related nuclear programs; and

- The understanding that if the President of the United States is informed by the Secretary of Defense and the Secretary of Energy (DOE) -- advised by the Nuclear Weapons Council, the Directors of DOE's nuclear weapons laboratories, and the Commander of the US Strategic Command -- that a high level of confidence in the safety or reliability of a nuclear weapon type that the two Secretaries consider to be critical to our nuclear deterrent could no longer be certified, the President, in consultation with the Congress, would be prepared to withdraw from the CTBT under the standard "supreme national interests" clause in order to conduct whatever testing might be required.

To implement the last safeguard, the President has established a new, annual certification procedure for the nuclear weapons stockpile. On February 12, 1998, the President provided his second annual certification to Congress, including the following report from the Secretaries of Defense and Energy:

In response to your direction to conduct an annual certification of the nuclear weapons stockpile, we have thoroughly reviewed the safety and reliability of the stockpile under the Comprehensive Test Ban Treaty. The nuclear stockpile has no safety or reliability concerns that require underground testing at this time. Problems that have arisen in the stockpile are being addressed and resolved without underground nuclear testing to ensure the stockpile remains safe and reliable. In reaching this conclusion, we have obtained the advice of the Directors of the National Weapons Laboratories, the Commander in Chief, United States Strategic Command, and the Nuclear Weapons Council. We will continue to inform you annually on the safety and reliability of the nuclear weapons stockpile in the absence of underground nuclear testing, and in the context of the DOE's Stockpile Stewardship and Management Plan.

The Stockpile Stewardship Program is, according to the Department of Energy, "a single, highly integrated technical program for maintaining the safety and reliability of the US nuclear stockpile in an era without nuclear testing and without new weapons development and production."[6] The program consists of a wide variety of new facilities, programs, experiments and activities. The total cost of facilities now planned or under construction is $2.6 billion, according to DOE. Annual expenditures for the program are expected to total $4.5 billion, or more than the DOE normally spent on nuclear weapons maintenance and production during the test years.

4. Senate opposition

There remains, however, strong opposition to the Treaty from conservative leaders in the Senate. The most important of these is Senator Jesse Helms (R-NC), chairman of the Senate Foreign Relations Committee. He is, in effect, the "gatekeeper" of the treaty: it must

pass through the Foreign Relations Committee in order to get to a full Senate vote.

Senator Helms opposed the other two arms control treaty President Clinton submitted to the Senate, the START II Treaty and the Chemical Weapons Convention (CWC). Both were negotiated by and signed by President George Bush, but derided by conservative Senators. The Senate overwhelmingly approved START II, 87 to 4, on January 26, 1996. After several missteps by the Administration, Senator Helms was finally persuaded to allow the CWC to come to the Senate floor, where it was approved by a vote of 74 to 26 on April 24, 1996. The 26 Senators who voted against the CWC, a popular treaty backed by a strong lobbying effort from the chemical industry, are likely to vote also against a CTBT.

Senator Thad Cochran (R-Miss) represents the skeptical attitude these Senators have about arms control treaties in general and the CTBT in particular:

> We have to be assured before we approve this treaty that it is clearly going to help protect security rather than the other way around. If it creates a more dangerous environment and is an incentive for others to cheat and steal and march on the rest of the world, and puts us at risk, then we would make a bad mistake to approve the treaty.[7]

Senatorial concerns are fueled by a steady barrage of faxes, mail and visits from far-right advocates such as Frank Gaffney of the Center for Security Policy. He writes in one of his numerous "Decision Briefs," against what he calls, "a prescription for the further, complete 'denuclearization' of the United States." Gaffney warns:

> Without nuclear weapons tests to assure the reliability and effectiveness of the existing nuclear deterrent-to say nothing of introducing continuous improvements that will enhance its safety and credibility-the US arsenal will, in not too many years, become

unsustainable and ineffectual as a means of deterring aggression and other grievous threats.[8]

This view reflects the position held by several Senators, key staff and some mid-level officials in the Department of Defense that the nation will have a continuing need for militarily useful nuclear weapons. That is, in addition to the role many believe nuclear weapons play in deterring a nuclear attack on the United States, its troops or allies, these individuals see a role for using nuclear weapons in combat against non-nuclear targets, in particular, chemical and biological weapons and facilities. To do so, however, it may be necessary to make the warheads smaller or adapt them to different delivery vehicles. This would necessitate new designs and testing. Thus, a test ban is seen as an unnecessary impediment to improving the military capabilities of the United States against the current and developing proliferation threats.

There are many Senators, perhaps a majority, who strongly support a test ban. Senate Minority Leader Tom Daschle (D-SD) believes:

> This treaty represents another useful and important step toward reducing the spread of nuclear weapons...The CTBT is an important step down the path toward a safer world. In simple terms, the United States, the country with one of the largest and certainly the most sophisticated nuclear weapons arsenals in the world, has the most to gain from freezing the competition in place.[9]

In the middle are Senators such as Senator Pete Domenici (R-NM) who says he is "leaning strongly in support" of the Treaty, but warns the Treaty has no chance of passing unless the Senate can be assured that funding and programs are in place to sustain the safety and reliability of the nuclear stockpile.[10]

The question remains: Will eight additional Senators join the 26 likely opponents to defeat the treaty?

Senator Helms would prefer to delay the answer to that question. Days before the President's State of the Union address this year, the Senator wrote him a letter:

> Mr. President, the Committee's first priority when Congress reconvenes will be to work with you and Secretary Albright to secure Senate ratification of NATO expansion. [approved, April 30, 1998].... Following the vote on NATO expansion, the Committee will turn its attention to several other critical treaties, which could affect both the security of the American people and the health of the United States' economy. Chief among these are the agreements on Multilateralization and Demarcation of the 1972 Anti-Ballistic Missile (ABM) Treaty, and the Kyoto Protocol to the UN Convention on Climate Change. Ironically, while the Administration has delayed in submitting these vital treaties to the Senate, some in your Administration have indicated that the White House will press the Senate for swift ratification of the Comprehensive Test Ban Treaty (CTBT), immediately following the vote on NATO expansion. Such a deliberate confrontation would be exceedingly unwise because, Mr. President, the CTBT is very low on the Committee's list of priorities. The treaty has no chance of entering into force for a decade or more. Article 14 of the CTBT explicitly prevents the treaty's entry into force until it has been ratified by 44 specific nations. One of those 44 nations is North Korea, which is unlikely to ever ratify the treaty. Another of the 44 nations -- India -- has sought to block the CTBT at every step: vetoing it in the Conference on Disarmament so that it could not be submitted as a Conference document. India has opposed it in · the United Nations. And, India has declared that it will not even sign the treaty... .
> Mr. President, let me be clear: I will be prepared to schedule Committee consideration of the CTBT only after the Senate has had the opportunity to consider and vote on the Kyoto Protocol and the amendments to the ABM Treaty. When the Administration has submitted these treaties, and when the Senate has completed its consideration of them, then, and only then, will the Foreign Relations Committee consider the CTBT.[11]

Demonstrating the high, personal priority that he attaches to the CTB Treaty, President Clinton immediately wrote back to the Senator (despite the swirl of events surrounding the President at that time). On February 10th, he reasserted his strong support for the test ban and countered Senator Helms objections:

> I believe it is essential that the United States demonstrate leadership with regard to the crucial treaties and regimes that strengthen our global non-proliferation system. Rather than waiting to see if others will ratify the CTBT, I believe America must lead in bringing the CTBT into force. And with regard to India and Pakistan, I think it is important that when I travel to the subcontinent later this year I do so with US ratification in hand.[12]

The President also deftly echoed concerns about the Kyoto treaty voiced by the Senate, i.e., it would be premature to commit the United States to the treaty until "key developing countries meaningfully participate in meeting the challenge of climate change."

5. Prospects

During the first part of the year, the Clinton Administration conducted a well-orchestrated campaign to win Senate approval. Inter-agency cooperation was well coordinated and included a steady stream of faxed fact sheets produced by the White House Working Group on the Comprehensive Test Ban Treaty.[13] Cabinet secretaries and key Senators have regularly and repeatedly voiced their support for the Treaty and urged the beginning of Senate hearings. The President appears to have assembled the military and scientific support for the Treaty that is normally sufficient to ensure passage.

In addition, there is strong public and editorial support for the test ban. The most recent survey of public opinion reveals that an

overwhelming 70 percent of the American public support a treaty banning all nuclear explosions, while only 13 percent oppose it (17 percent are undecided).[14] With 26 out of 100 Senators likely to oppose the treaty, the Senate is twice as negative on the treaty as is the American public.

Moreover, these latest results are consistent with the high level of public approval for banning nuclear tests over the past three decades. Polling data collected by the Roper Center for Opinion Research show strong public support ranging from 61 percent to 85 percent in favor of a limit or a ban on nuclear weapons tests since the question was first asked in 1957.[15] As President Kennedy noted while savoring the popular approval garnered with the signing of the Limited Test Ban Treaty, "If I had known it was so popular, I would have done it a long time ago."

The editors of *The Salt Lake City Tribune* reflect the logic many editors see behind the treaty when they opine:

> The theory of the treaty is simple. Without test explosions, it is difficult to develop reliable nuclear weapons, especially for newcomers to the nuclear club. That is less true for the five acknowledged nuclear weapons states -- the United States, Britain, France, Russia and China -- which have conducted extensive tests and can improve their weapons using computer simulations based on knowledge gained from prior detonations.
> However, the inability to conduct test explosions should retard the proliferation of nuclear weapons to wannabe nations such as Iraq, Libya, Iran and North Korea. Without tests, it would be difficult for them to develop advanced nuclear warheads that are deliverable by ballistic missiles.[16]

Significantly, the *Tribune* editors also sympathize with Senator Helms' concerns over the ABM Treaty and favor deployment of a national missile defense system. Nonetheless, the editors conclude, "Helms should not hold up action on a test ban treaty that would advance US security." Dozens of editors around the country have

expressed similar sentiments, from the big-city New York Times, Los Angeles Times, and Denver Post, to the St. Petersburg Times, Lexington Herald-Leader, Dayton Daily News and The News & Observer in Raleigh, North Carolina.

Strong public and editorial support are particularly important for this president, whose initiatives are often fueled by popular opinion as well as their intrinsic merits. This support reinforces the President's own personal commitment to this treaty, which he has exhibited since the beginning of his Administration. While the Administration secured the indefinite extension and strengthening of the NPT and officials have been involved in dozens of arms control negotiations, the Comprehensive Test Ban Treaty remains the only arms control treaty bearing the personal signature of President Clinton. Whereas President George Bush, in his four years, signed two strategic arms reduction treaties, a treaty prohibiting chemical weapons, unilaterally eliminated thousands of tactical nuclear weapons and took all strategic nuclear bombers and many intercontinental ballistic missile off alert, the CTBT is the sole nuclear Clinton legacy. It would undoubtedly be a personal as well as a political defeat if the Treaty were to fail.

6. Conclusion

With significant military, scientific, editorial and public support, and the strong personal presidential commitment, it appears likely that the Comprehensive Test Ban Treaty would win Senate approval, if it gets to the floor. Senator Helms remains the main hurdle, but, as in the START II Treaty and the CWC, he is also a man willing to negotiate.

The cooperation of Senate Majority Leader Trent Lott (R-MS) is also essential. No major treaty has ever passed the Senate when the majority leader was in active opposition. In the case of the CWC,

Senator Lott had a critical role in bringing the treaty to the floor and, although he voted against it, he withheld his vote until it was certain the treaty would pass and never took a lead role in opposing the pact. With NATO enlargement now decided, the exchange of letters in the first few months of the year suggests a deal waiting to be struck: consideration of the ABM Treaty amendments in exchange for a commitment to Senate hearings and consideration of the CTBT this year.

To complete this deal, the Russian Duma would have to ratify START II, and that is by no means assured. Without Duma approval, it would be politically impossible to bring up either the ABM Treaty amendments or the CTBT. Further, if Duma approval comes too late in the year, the Senate's legislative clock—already one of the shortest in many years—could run out before the CTBT could be brought to the floor. With a favorable Duma vote, however, and a determined presidential push, there could still be enough time to consider the Treaty before the Senate adjourns.

If time runs out and the President goes to South Asia without the benefits of a ratified treaty to help him press for action on regional proliferation concerns, the pressures would still be there for Senate consideration in early 1999. In fact, it is imperative that the debate does not slip into 2000. The Senate has never approved a major arms control treaty in a presidential election year. This history was lost on the Administration when it tried to win ratification of the CWC in 1996, only to see the treaty succumb to campaign politics as Senator Bob Dole withdrew his support in order to shore up his right flank.

. The Administration seems to have learned the painful lessons of that failed effort. Officials regrouped and won CWC ratification in 1997 with the strong support of non-government organizations and business interests.[17] The CTBT campaign has been tightly integrated with non-governmental support groups and has the attention of national security officials at the highest levels. Barring Duma failure

to ratify START II, a major electoral defeat for the President's party in the 1998 elections, or a scandal more serious than those yet alleged, the Administration should be able to win ratification of the Comprehensive Test Ban Treaty in late 1998 or early 1999.

US Senate approval would provide critical impetus to the international ratification process. With the United States, the United Kingdom and France on board, Russia and finally China could be expected to follow suit. Japan has already ratified and Germany and other nations possessing the technical ability to construct nuclear weapons could then be expected to ratify soon, knowing the US was committed to the treaty. Pressure would build on the holdout nations to join. Even without ratification by all 44, there are a number of ways that the Treaty might be effectively brought into force, or its test ban established as the international norm.

The CTBT Treaty provides that in September 1999, three years after the Treaty opened for signature, there could be a review conference by all those who have ratified to evaluate and confer on steps for bringing the treaty into force. Ambassador Wolfgang Hoffman, Executive Secretary of the Preparatory Commission for the CTBTO, suggests that this conference will certainly bring pressure on those who have not yet ratified, but may also be able to bring the treaty into force provisionally, as allowed by Article 14 of the treaty.[18] Further, this meeting could come shortly before the first of the new review conferences for the Non-Proliferation Treaty convenes in 2000. A questionable or collapsing CTB process would ignite bitter debate at the 2000 Review, weakening the entire international non-proliferation regime.

The international effort to end nuclear testing, the longest marathon in nuclear arms control history, may well have several more years to go and several more significant hurdles to leap. It may be some time before there is a clear finish line. But the momentum seems difficult to resist at this point. It is, as then Ambassador to the

United Nations Madeleine Albright noted after the September 1996 UN vote, "...a treaty sought by ordinary people everywhere. And today, that universal wish could not be denied."

Notes

1. A wealth of information on the CTBT, including the treaty text and lists of signators and ratifications is readily available on the Internet. See the large and well maintained sites at:
Arms Control and Disarmament Agency, http://www.acda.gov/ctbtpage/ctb_page.htm
Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO PrepCom), Vienna, http://www.ctbto.org/
The Coalition to Reduce Nuclear Dangers, http://www.clw.org/pub/clw/coalition/ctbindex.htm

2. For further information on the relationship and history of the Non-Proliferation Treaty and the Comprehensive Test Ban Treaty, see, "The Non-Proliferation Treaty and the Nuclear Balance," Joseph Cirincione, *Current History*, May 1995, available at: http://www.stimson.org/campaign/currhst.htm

3. For additional background on negotiations at the Conference on Disarmament, please see "History of the Comprehensive Test Ban Treaty Negotiations, Remarks by Joseph Cirincione at Arms Control Association Press Conference," *Arms Control Today*, September 1996, p. 6, available at: http://www.stimson.org/coalition/jcctbt.htm

4. President Clinton's full remarks are available at: http://www.acda.gov/ctbtpage/excerpt.htm#3

5. President's Transmittal Letter available at: http://www.clw.org/pub/clw/coalition/whtransm.htm

6. "The Stockpile Stewardship and Management Program," Office of Defense Programs, Department of Energy, May 1995, available at: http://www.clw.org/pub/clw/coalition/doessm.htm

7. September 23, 1997, The Associated Press.

8. "Warning to the Nuclear Labs: Don't Count on 'Stockpile Stewardship' to Maintain Either Overhead Or Confidence," Decision Brief, Center for Security Policy, 1 December 1997. Available at: http://www.security-policy.org/papers/1997/97-D183.html

9. October 1, 1997 *Congressional Record.*

10. July 15, 1997 *Congressional Record.*

11. Senator Helms' letter available at: http://www.clw.org/pub/clw/coalition/helm0121.htm

12. President's letter available at: http://www.clw.org/pub/clw/coalition/clint210.htm

13. White House fact sheets available at: http://www.acda.gov/ctbtpage/tbn_pg.htm

14. "Public Support for a Test Ban Remains High," Press Release from the Coalition to Reduce Nuclear Dangers, September 26, 1997, available at: http://www.clw.org/pub/clw/coalition/rel926.htm

15. *Public Attitudes on Nuclear Weapons: An Opportunity for Leadership*, p. 20, figure 11 and 11a, The Henry L. Stimson Center, March 1998, available at: http://www.stimson.org/policy/pollrpt.htm. See also, "Public Support for a Nuclear Test Ban Treaty Remains High," Backgrounder, Coalition to Reduce Nuclear Dangers, September 26, 1997.

16. "End Treaty Standoff," The Salt Lake City Tribune, April 27, 1998, available at: http://www.sltrib.com/1998/apr/04271998/opinion/30258.htm

17. For more information on the CWC ratification effort, see *The Battle to Obtain U.S. Ratification of the Chemical Weapons*

Convention, Occasional Paper #35, The Henry L. Stimson Center, July 1997, available at: http://www. stimson.org/cwc/op35annc.htm

18. Ambassador Wolfgang Hoffman at a meeting of the Nuclear Roundtable of the Henry L. Stimson Center, October 21, 1997, summary of his remarks available at: http://www.stimson.org/rd-table/ctbt-97.htm
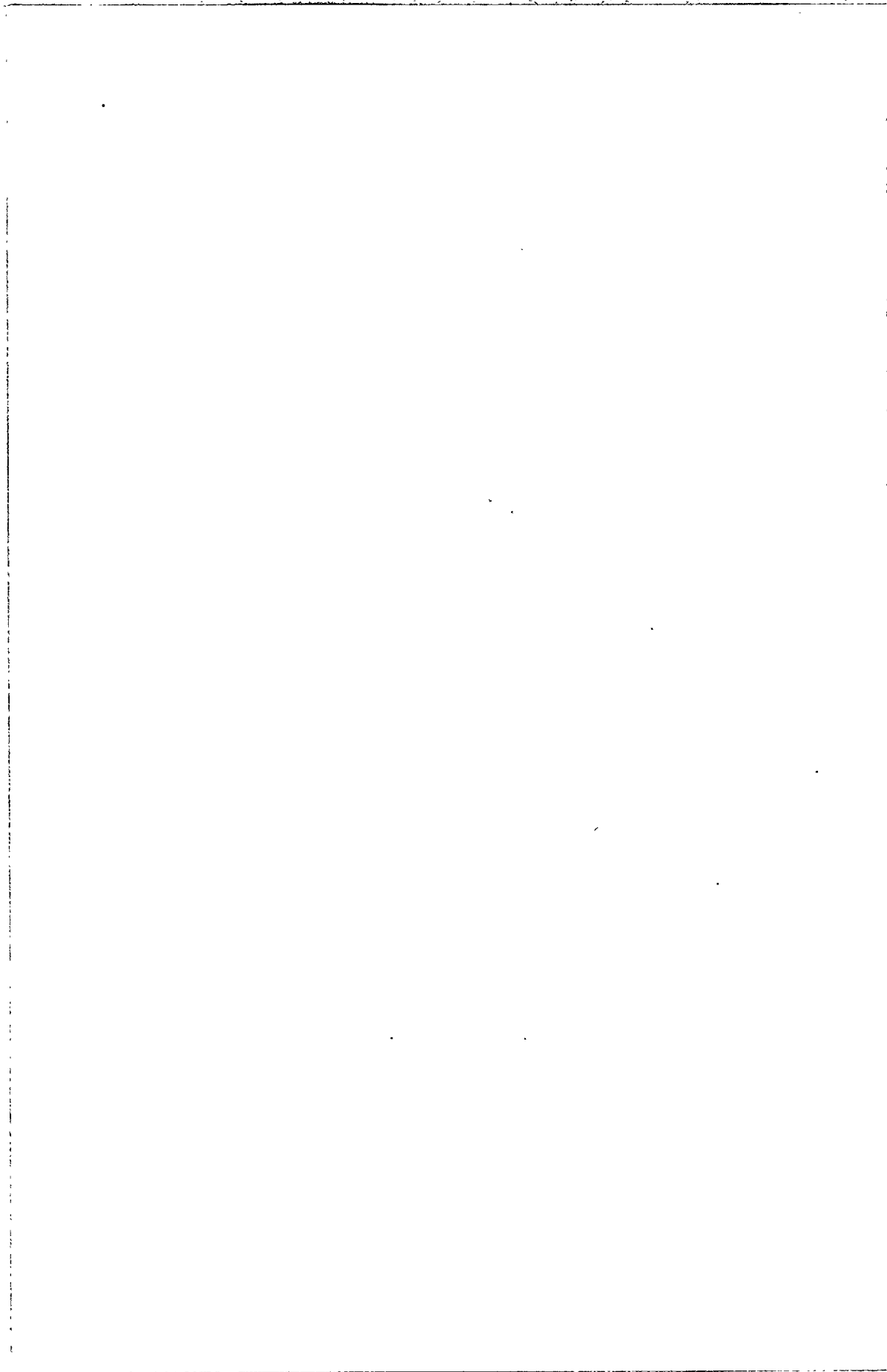
Chapter 6

**If Not Now, When? The Case for Taking Strategic Nuclear
Weapons Off Hair-trigger Alert**

Harold A. Feiveson

In the *Scientific American* article "Taking Nuclear Weapons Off Hair-Trigger Alert",[1] the following points in more or less this order were made:

- The US and Russia, incongruously, seven years after the breakup of the Soviet Union, maintain thousands of nuclear warheads on high alert. They do so because both sides insist upon having a launch on warning capability, in which ballistic missiles could be fired very rapidly at the start of a conflict: the US insisting because rapid launch may be the best way to limit damage. Russia, on the other hand, pressing to make a US preemptive attack on its ICBMs in silos impossible.

- The high state of alert of the nuclear forces is dangerous for several reasons, among them a growing deterioration in Russia's early-warning and command and control capabilities which may lead Russia to adopt circumventing strategies.

- There exist several alternative ways to de-alert the nuclear forces, so that the time to launch is raised from seconds today, to hours or days. ·

- The de-alerting could proceed through parallel unilateral initiatives, a process probably most easily initiated by the US.

In this paper, as opposed to the *Scientific American* article, I would like to proceed in a different and less transparent or logical manner, by going through various arguments that have been raised against de-alerting. It does, however, mean addressing objections to de-alerting without first explaining why de-alerting is a good idea, or in explaining in detail how it could be accomplished. While not so straightforward, this process does have the advantage of putting the burden of the argument on those opposed to de-alerting, not its proponents. After all, our starting point should be, "Why should the US and Russia, who are no longer mortal enemies, any more than say the US and Great Britain, keep nuclear weapons targeted upon each other ready to be launched in seconds?"

Objections to de-alerting have come from several quarters, including elements of the US Strategic Command, the Russian military, some defense intellectuals, and conservative critics, such as the Editors of the *Wall Street Journal*. The objections (very roughly speaking) are of two general types (although the two cannot always be neatly separated):

a.   De-alerting is unwise in principle (and unnecessary) even if it can be accomplished technically.

b.   De-alerting, even if defensible in principle, cannot be done in a way that is workable, verifiable, or stable.

1. De-alerting scenario

To set the stage for considering the objections to de-alerting, I will put forward a slightly modified version than appeared in the *Scientific American* article on this issue.

The President should direct the US Strategic Command to undertake the following measures:

The President should direct the US Strategic Command to undertake the following measures:

a) To remove and store the warheads of the MX missiles, which will, in any event, be retired under START III.

b) Also, all Minuteman III missiles should be disabled by having their safety switches pinned open as was done for the Minuteman II in 1991.   If Russia reciprocates, these missiles could be immobilized in a manner that would take much longer to reverse.

c) Furthermore, the warheads on the four Trident II submarines that are to be retired under START III be removed and put in storage, and the number of warheads on each remaining submarine missile be cut from eight to three.

d) Additionally, the W88 warheads be removed from the Trident II missiles, placed in storage, and the warheads be replaced with lower-yield weapons.

e) Also, allow Russia to verify the actions taken by utilizing some of their annual inspections that are permitted under START I.   The United States would accept a greater number of inspections if Russia would do likewise.

f) All US submarines at sea would be placed on a low level of alert, so that it would take at least 24 hours to prepare them to launch their missiles, and they would be kept out of range of Russian targets. These changes should be made verifiable and reciprocal arrangements with Russian officials be made.

Even after these actions are taken, six US submarines carrying up to 576 warheads would remain undetectable at sea, and the immobilized Minuteman IIIs could be destroyed only by a massive attack on about 500 silos.

In response to the US initiatives, the Russian president could order the following actions be taken:

a) Remove the warheads from all 46 SS-24 rail and silo-based missiles which will be retired, in any event, under START II.

b) Immobilize all other silo-based missiles that are to be retired under START II.

c) Remove the warheads from the 15 ballistic missile submarines which are likely to be retired under the START Agreements.

d) Condition all ballistic missile submarines, in port and at sea, so that these missiles can not be launched for at least 24 hours.

e) Finally, disable the launchers of all truck-mobile ballistic missiles so that they cannot be activated for at least a few hours.

After these actions are taken, some 128 to 400 warheads on two submarines will remain undetectable at sea, and some 9 to 18 SS-25 warheads on truck-mobile launchers will remain securely hidden. In addition, approximately 2,760 warheads on silo-based ICBMs might be destroyed by mounting a successful attack on some 340 missile silos.

These scenarios, as presented, require unilateral initiatives by each party. In practice, the actual de-alerting would be implemented in parallel by both the US and Russia.

2. Objections to de-alerting in principle

2.1 *De-alerting is a novel, untested concept.*

There are some recent precedents for de-alerting. In the wake of the August 1991 Moscow coup, the US Strategic Command, in order to encourage further de-alerting of nuclear forces by Russia than already taken, took all strategic bombers off alert and unloaded their warheads for storage in nearby depots. Also, the Strategic Command took 450 Minuteman II missiles off alert by removing the launch keys from their underground control posts and installing, instead, safety pins in each missile silo to physically block the possibility of rocket motor ignition. Russia pledged to take similar steps. That is to say, to deactivate 503 intercontinental ballistic missiles, and to keep its bomber fleet at a low level of readiness. Some uncertainty exists on how soon Russia actually accomplished these steps of deactivation of its ICBMs. Also, both countries removed from alert status the ballistic-missile submarines that were to be retired under the START I Treaty.

Presidents Clinton and Yeltsin also took the symbolic step of further de-alerting in 1994, when each pledged to stop aiming strategic missiles at each other's country. These actions, in my opinion, are "symbolic" because target coordinates are readily reloaded into the missile guidance computers within seconds. Indeed, a Russian missile, whatever its current target coordinates, launched by accident, automatically switches back to its primary wartime target, which might be a Minuteman silo in Montana, or perhaps a command center in Washington, London, Paris, or Beijing.

Lately, within the START III framework negotiated in Helsinki in March 1997, Presidents Clinton and Yeltsin agreed to extend the START II deadline for the elimination of specified strategic systems

by five years to December 31, 2007, *provided that "all systems scheduled for elimination under START II will be deactivated by removing their nuclear warheads or taking other jointly agreed steps by December 31, 2003"* [emphasis added].

These precedents thus far have featured the de-alerting of forces mainly scheduled for elimination under START I and in the Helsinki Accord under START II. In this spirit, the scenarios put forward call for the immediate de-alerting of weapons planned, or expected to be eliminated, under START II and III. Why wait until 2003 to de-alert multiple-warhead, land-based missiles, and furthermore, why wait to de-alert submarine based missiles that are to be eliminated under the START Agreements?

While previous de-alerting has been directed at only a part of each country's strategic forces, full de-alerting, which the author is advocating, will face serious objections.

2.2 *The US requires its nuclear weapons to be on high alert in order to cover a range of counter-force targets in Russia.*

Washington has long held the view that the ability to hold certain target sets at risk of a rapid retaliatory strike is a fundamental element of deterrence strategy. As a result, nuclear war plans are dominated by hundreds of "time-urgent" military targets in Russia, particularly nuclear forces and associated command and control posts. The US command system is geared to launch strategic missiles *en masse* against these targets after a missile attack is detected, but before the incoming missiles arrive. This is done for two principal reasons: to limit damage to the United States and its allies by striking the Russian nuclear forces rapidly before all their weapons could be launched and while the US command and control networks remain fully intact; and to assure that the US's ICBMs in fixed silos, which are vulnerable, could be launched before they are pulverized by incoming warheads.

The number of warheads that the US military believes must be kept on high alert is falling. The Strategic Command has recently produced the following calculations showing US warheads on alert during the height of the Cold War, under START I, and expected under START II and START III. The assumptions behind these numbers are that all ICBMs that are deployed will be on high alert, that four submarines will be on what is termed "hard alert" -- that is on station in the northern oceans ready to launch missiles in minutes of a command to do so. The loading of the submarine missiles will be 5 warheads per missile under START II and roughly 4 warheads per missile under START III, which would provide an overall ceiling of strategic warheads of about 2000 or approximately 1300 warheads on SLBMs.

Indeed, as long as the US Strategic Command holds to its nuclear war-fighting, counter-force objectives, it will oppose comprehensive de-alerting. But are these objectives really compelling? First, consider the view that nuclear war fighting capability is necessary for deterrence. According to this view, it is immoral and incredible for the United States to threaten the cities of an adversary (we do not target cities *per se*, counter-value targeting). Therefore, we must deter by threatening Russian military forces, not its population centers. However, we plan to attack military and command targets within cities. At one point, the US's targeting plan called for 20- to 200-kiloton weapons to be delivered against military sites in Moscow. It is highly hypocritical for military experts to claim that the capacity to respond to a Russian attack by delivering nuclear weapons against Moscow (not a time-urgent requirement) will not deter and it is immoral, but the capacity to deliver 10 or 20 weapons on military sites within Moscow is moral and credible and will deter (aside from the absurdity of this claim, that it is somehow moral to destroy a city as long as one is aiming at its military target). The US quite explicitly withholds

weapons from its initial attacks so that it could hold cities at risk as a nuclear war progressed.

Apart from deterrence, the second rationale for maintaining a powerful counter-force capability on high alert is that a rapid attack at the onset of a nuclear exchange could limit damage to the US and its allies. Perhaps so! Consider, however, these difficulties. First, a large-scale counter-force attack employing hundreds to thousands of weapons, each on average ten times the destructive yield of the bomb that destroyed Hiroshima, would kill millions of Russians and invite retaliation against US cities. Also, since the US attack is predicated on a launch only after Russia had launched its ballistic missiles, the US warheads would rain down mostly on empty silos. In fact, a US first strike might get around this latter problem, but such a strike is unthinkable, except perhaps to a Russian worst-case planner. The idea of a massive strike to limit damage, you may remember, was highlighted in the film, Dr. Strangelove. The exchange between Buck Turgidson and the President of the United States follows:

Air Force General Buck Turgidson (George C. Scott): "It is necessary now to make a choice, to choose between two admittedly regrettable but nevertheless distinguishable postwar environments. One where you got twenty million people killed and the other where you got 150 million people killed."

President Merkin Muffley (Peter Sellers) [shocked]: "You're talking about mass murder, General, not war."

Turgidson: "I'm not saying we wouldn't get our hair mussed. But I do say no more than ten to twenty million killed tops -- depending on the breaks."

Muffley (angrily): "I will not go down in history as the greatest mass murderer since Adolph Hitler." ·

Turgidson: "Perhaps it might be better, Mr. President, if you were concerned with the American people more than with your image in the history books."

Therefore, I do not believe that insistence on a rapid counter-force capability should be used to stymie de-alerting, if de-alerting on other grounds appears desirable. Furthermore, of course, if Russia de-alerted *its* forces, then the United States, from any point of view, would have little reason to keep its own forces on high alert.

2.3 *Russia needs weapons to be on high alert to make a US preemptive strike against its ballistic missiles in silos impossible.*

Unlike the US, which has today thousands of warheads invulnerable at sea, Russia has a preponderance of its strategic forces on ICBMs in fixed silos, potentially vulnerable to a US first strike. Typically, Russia has only one or two submarines at sea and only a handful of mobile missiles out of garrison, where they are invulnerable to attack. Furthermore, Russia may not be assured of the survivability of its submarines at sea given an active US program to send attack submarines to the northern waters where Russian submarines typically patrol. The United States believes in its capability to launch thousands of warheads in seconds or minutes of a launch decision as providing a launch-on-warning capability to respond to an attack from Russia; but to Russia, such a capability looks indistinguishable from a first strike, preemptive capability. To hold weapons on launch-on-warning thus is Russia's protection, or so Moscow believes.

it has removed a sufficient number of weapons off high alert (remove warheads from MX and Trident missiles) so that Washington could not, even under worst-case scenarios of a pessimistic Russian planner, launch a first strike against Russia. That is the logic behind this argument.

2.4 *De-alerting will undermine deterrence, not just against Russia, but against other countries, by weakening US ability and resolve to employ nuclear weapons*

Some examples of this line of argument follow:

> *"The 'biggest flaw' in suggestions for de-alerting "pertains ... to rogue states like North Korea, Iran, and Iraq, all of them developing long-range ballistic missiles."* [*Wall Street Journal*, Editorial, January 19, 1998.]

> *"[T]he primary reason that US nuclear missiles are on alert ... is that Russia retains as many as 10 times more tactical [that is, short-range] nuclear weapons than we do, an arsenal capable of destroying the US."* [Kathleen Bailey, op-ed, *Wall Street Journal*, January 19, 1998]

> *"President Clinton has asked the Pentagon to review his 'de-alert' option. If it is adopted, we will lose the ability to respond immediately to a missile attack -- nuclear, biological, or chemical. De-alerting is only the first step toward its proponents real goal: the elimination of our nuclear deterrent".* [Casper Weinberger, former Secretary of Defense, *Forbes*, February 23, 1998]

> *Messrs. Blair, Feiveson, and von Hippel have the cheek to conclude with the assertion that such [de-alerting] steps would substantially reduce the risk of an accidental nuclear catastrophe "without in any way weakening deterrence". Think about it. These individuals would have us believe that the entire US ballistic missile force could be made incapable of launch in less than one day -- and most of it unable to*

an accidental nuclear catastrophe "without in any way weakening deterrence". Think about it. These individuals would have us believe that the entire US ballistic missile force could be made incapable of launch in less than one day -- and most of it unable to be readied for use in less than weeks or months -- without having any adverse impact on deterrence whatsoever. Even if the Russians do adopt the measures that the authors airily say they "expect" President Yeltsin to implement to reduce the readiness of Russian land- and sea-based missiles, how can anyone say the deterrent to acts of aggression by China, Iran, or other emerging missile-equipped nuclear threats currently represented by American's nuclear deterrent would not be degraded. [Decision Brief, No. 97-D170, The Center for Security Policy, 14 November 1997.]

These arguments, for the most part, should not be taken seriously. It is frivolous to suggest that, today, the United States must keep thousands of nuclear weapons ready to be fired in minutes, because North Korea, Iran, and Iraq might be ready in several years (if ever they are) to deploy a few long-range ballistic missiles armed with weapons of mass destruction, or because Russia may still maintain thousands of short range, tactical nuclear weapons.

However, in one respect, the critics of de-alerting do have a point. It is assumed that many or most of the weapons that are de-alerted in an early stage could eventually be eliminated when verification permits in a later stage. Furthermore, de-alerting will lead inexorably to countries placing less reliance on nuclear weapons for deterrence. The critics, of course, think that this is bad. The author does not.

2.5 De-alerting is unnecessary since the weapons on high alert do not significantly raise the risk of accidental or mistaken launch.

Indeed, high military officers of the US Strategic Command and the Russian Strategic Rocket Force have generally downplayed the

risks of accidental or mistaken launch. But their optimism is not convincing. Both sides, as already noted, remain geared to launch strategic missiles merely on warning of an incoming attack; and both regularly exercise such a response, which requires a decision time of about 15 minutes, allowing for only 3 or 4 minutes for assessing attack information, and another 3 or 4 minutes for top-level decision making.

Even in peacetime, this high state of readiness to launch nuclear weapons appears to be risky. There have been a few sobering moments to suggest how risky this can be. These moments have been analyzed by a former US intelligence office, Peter Pry, in a soon-to-be-published book, *War Scare*. One such moment, as Pry relates, was in the period in late September and early October 1993, when parts of the Russian military sought to wrench control of the government from Yeltsin. On the second day of the coup attempt, 22 September, Defense Minister Grachev announced that Russia was undertaking a military exercise of its nuclear forces, which Pry persuasively argues was almost certainly done to provide clandestine cover for a general and sharp rise in the readiness of Russian nuclear forces to perform a retaliatory or preemptive strike. This increase in the combat readiness of the nuclear forces may have been done to ensure that the US could not take advantage of the growing turmoil in Russia to launch its own preemptive strike. Surely Washington had no such thoughts, and in the event, the US did not notice the extent of Russian preparations for launch, and did not respond in kind. It is not hard to imagine that the Russian actions could well have triggered a response by US forces that would have further increased Russian nervousness about Washington's intentions and driven both sides to an unprecedented pitch of hair-trigger readiness to launch nuclear weapons, awaiting only a spark to set-off a nuclear conflagration.

What such a spark could be, is illustrated in another incident chronicled by Pry, and the one that the author recounted in the

Scientific American article of November 1997. On 25 January 1995, a US scientific rocket was launched toward the North Pole from an island off the coast of Norway. Although Russia's embassy had been notified of the impending launch, somehow this information never reached the General Staff. In any event, for several minutes the Russian military treated the launch as possibly one from a Trident missile from a US or British submarine. As a result, Russia entered the early phases of its prescribed firing procedures, including activation of President Yeltsin's nuclear briefcase and the initiation of an emergency telecommunications conference between Yeltsin and his nuclear advisors. After about eight minutes (just a few minutes short of the procedural deadline to respond to an impending attack), senior military officers determined that the rocket was headed far out to sea and posed no real threat to Russia. A close call? Russian officials say not. Vladimir Dvorkin, director of a leading military think tank in Moscow, noted that he saw no danger from the Norwegian alert, "none at all". Indeed in tranquil times, it seems highly unlikely that any leader would launch nuclear weapons merely on warning of an impending attack. But in a crisis, with both sides in a maximum state of combat readiness, an incident, such as the Norwegian missile, could be disastrous.

3. Objections to De-alerting Based on Concerns of Operational Clarity, Stability, and Verifiability

3.1 *De-alerting complicates operational control over nuclear weapons and an orderly, sustained implementation of START agreements*

The US Strategic Command appears comfortable with the current START process involving a steady reduction, over several years, in the

numbers of deployed strategic weapons and of the weapons on high alert -- including ceilings on deployed nuclear warheads of 1000 or fewer. By contrast, de-alerting appears messy, requiring complicated verification arrangements by placing both US weapons and Russian targets in an ambiguous status. In sharp contrast to START, where for the most part weapons systems are verifiably eliminated and thus removed from any targeting considerations, it is less clear whether de-alerted US weapons should remain in the US's targeting plan and whether de-alerted Russian weapons need to be targeted. Therefore, rather than enter into arrangements to de-alert ICBMs in silos, the Strategic Command might actually be more amenable to seeing the ICBMs eliminated altogether.

Objections such as these will, in practice, shape the kinds of de-alerting that the US and Russian armed forces will find the most comfortable. But they should not stand alone in the way of de-alerting, if the de-alerting otherwise appears stable and verifiable -- the subject to which we now turn.

3.2 *De-alerting would not be stable. It would make the strategic forces of both sides more vulnerable and, in a crisis, lead to a race to de-alert.*

It is helpful, in addressing this issue, to imagine a two-by-two matrix such as depicted in Figure 1. Nuclear forces could be either on alert and ready to launch quickly or not on alert.

FIGURE 1. DE-ALERTING AND STABILITY

	ALERT	NOT ON ALERT
VULNERABLE	• ICBMs in silos • Pier-side subs on LOW • Mobile missiles in garrison on LOW	• Pier-side subs with SLBM guidance sets removed • Disabled ICBMs in silos
INVULNERABLE	• Subs at sea on station • Mobile ICBMs in field	• Subs on modified alert

Likewise, they can be either potentially vulnerable or invulnerable (survivable). In the top left box (or quadrant) are the systems that are both vulnerable and on alert, for example, silo-based ICBMs on launch-on-warning (LOW) or ballistic missile submarines at pier-side able to launch quickly. This appears to be the most dangerous and unstable situation, with the weapons in "a use them or lose them" posture. At the right top box are systems that are vulnerable, but not on alert, for example, disabled silo-based ICBMs.

Although this latter situation is less dangerous than the former, there remains an important instability that an adversary might be tempted to attack the weapons before they could be made launch

ready. In the bottom left box are systems that are invulnerable but on alert. An example is US subs on station in the North Atlantic. Although this situation is less dangerous than that depicted in the top left box, it is not ideal, for although the weapons themselves cannot be attacked by an adversary, they may lead the adversary to launch its own vulnerable weapons before they can be attacked. The most stable situation is that pictured in the bottom right quadrant where weapons are both invulnerable and de-alerted. For example, this might be the case of ballistic missile submarines on modified alert in the Southern oceans, out of range of critical targets.

This matrix helps to explain the logic of de-alerting and its connection to deep cuts. The de-alerting scenario is first to move weapons out of the top left quadrant as fully and as quickly as possible, essentially by removing all launch-on-warning vulnerable ballistic missiles including ICBMs warehoused in silos, submarines at pier-side, and mobile missiles in garrison. This is followed by further de-alerting under the START reductions in strategic weapons to deployments and operational modes represented by the lower right quadrant -- that is, to submarines at sea and mobile missiles out of garrison. At first, it may appear to be difficult to make the de-alerting of the invulnerable systems fully transparent. However, such a state of affairs is not unstable, especially if both sides' deterrents rely essentially on invulnerable systems. In such circumstances, whether or not one side's forces could be brought to full-alert status before the others, would not matter. Therefore, there should not be high danger in a re-alerting race, even in a deep and protracted crisis.

This, of course, does not mean that any kind of de-alerting will be stable. Clearly, there are de-alerting alternatives that could raise concern. I turn below to one of the most serious of these concerns.

3.3 *De-alerting by separating warheads from their delivery vehicles could make strategic forces more vulnerable by concentrating warheads in fewer targets and could make protection of the warheads from theft and terrorist attack more difficult.*

The statements below are typical of the arguments made by US and Russian experts on this scenario:

> *Some argue that a first step to elimination is to remove all weapons from alert status by removing warheads from our ICBMs and SLBMs and placing them in a small number of storage sites. But this creates a new vulnerability: these warheads could be destroyed or made unusable through attack by a very small number of enemy warheads ... . If de-alerting sought to address this by dispersing the weapons, they might be no more secure than they would be if deployed in a missile silo or on a submarine -- and probably less so ... . Moreover, if a crisis were to occur, having weapons stored separately from their launchers could generate a race to be first to re-mate the warheads with their delivery systems.* [Walter Slocombe, Under Secretary of Defense, *NATO Review No. 6*, Nov-Dec 1997; web edition, Dec 1997.]

> *The greater the disparity between the sides' potential for restoring strategic nuclear force combat readiness, the greater the influence of destabilizing factors. ...*
> *It is hardly necessary to demonstrate that, with the strongest scientific, technical, and industrial potential and retaining its national nuclear laboratories, the US would be able to swiftly ensure an overwhelming superiority for itself over any adversary. ... On the whole, the idea of removing warheads is not in line with Russia's strategic, military, technical, or economic interests. ... [As noted by Alexei Arbatov.]*

> *If people try to implement the concept for reducing combat readiness levels by removing warheads before eliminating the huge arsenals of nuclear weapons, the problems relating to their safe storage, transportation, and recycling could prove to be insuperable.* [Major

General Vladimir Semenovich Belous (Retired) of the
Strategic Rocket Forces][2]

Indeed, the most often-mentioned de-alerting measure is to remove the warheads from ballistic missiles. It is a measure, for example, which has been put forward by former CIA Director, Stansfield Turner, who suggested that nuclear warheads be removed from most missiles and stored in a "nuclear escrow." This action has several attractions. The removal of the warheads would be easily verifiable. Any attempt to re-mate the warheads and missiles would be quickly observable. Re-mating, if it were attempted, would typically take months to complete. There are, however, drawbacks, as noted by Slocombe and Belous in the above quotations. If the warheads are removed, they will have to be stored somewhere; and Russia, in particular, claims that it has little suitable storage space in which to put the warheads. Moreover, as indicated above, if the warheads were stored in just a few sites, these sites would become prime targets for a nuclear strike.

These arguments have led the author to explore other forms of de-alerting than de-mating for at least a part of the US and Russian nuclear forces. These are briefly discussed below.

3.4 *De-alerting cannot be verified in a manner that would not also compromise the survivability of the strategic forces being de-alerted.*

An examination of the individual elements that go into the verifiability of de-alerting follow:

3.4.1 *Remove the warheads from the MX missiles, the W88 warheads from the Trident missiles, the warheads from the mobile land-based SS-24s, and the warheads from the US and Russian ballistic missile submarines that are planned for dismantlement under the START II and III Agreements:*

De-mating of warheads can be easily and readily verified. Once the warheads are removed, replacement will require highly visible and time-consuming activities, including removal of the silo cover, lifting of the reentry vehicle or the entire missile by special equipment, etc. These activities could be observed by satellite. On-site inspections could also assure that the warheads have been removed. Under START I, the US and Russia are each allowed to count the warheads on ten randomly selected missiles a year. Each country is also allowed to conduct 15 random "data update" inspections per year. Such inspections could be used to check to see that a missile was carrying no warheads or that a missile on a US submarine was carrying any W88 warhead.

3.4.2 *De-activation of ICBMs in silos:*

As discussed above, there are benefits to not de-mating all ballistic missiles. In particular, if the warheads remain on the silo-based ICBMs, any attempted disarming strike must target all the hardened missile silos. How best to de-alert these missiles, without removing the warheads, is subject to a current study by US and Russian experts. There appear to be several possibilities, although all require further study.

One procedure would be to heap tons of material over the missile-silo door, so that the missile could be launched only after the material is bulldozed away, a process that would nominally take hours and which could be observed by satellite. Another possibility would be to

replace the shroud or nosecone, which protects the warheads from aerodynamic forces during ascent, with a non-aerodynamic shroud. Monitoring the absence of a shroud could be done by on-site inspections, or by placing a seal on the platform on which the nosecone sits, so that the nosecones could not be reinstated without breaking the seal.

3.4.3 *De-alerting of submarines at pier-side:*

It is important that Russian pier-side submarines not be placed on launch-on warning status. (The US does not maintain its submarines on alert while in port.) Most likely, the US could monitor the alert status of Russian submarines through various national technical means, but it would also be desirable if Russia would make this status more transparent.

3.4.4 *De-alerting of mobile missiles in garrison:*

Early de-alerting of Russia's mobile land-based missiles (the US has none) could begin by removing warheads from the 36 rail-mobile missiles which are to be eliminated under START II. With regard to Russia's approximately 400 single-warhead, truck-mobile missiles, a de-alerting measure that might be undertaken is to immobilize the roofs of their storage garages. Currently, these are designed to slide open upon receipt of a remote signal to allow the launcher inside to erect and fire the missile. Other measures might be to incapacitate the missile launching mechanism in ways that it would take at least some hours to restore. The status of the storage garages and launchers could be verified during random START I inspections.

3.4.5 *De-alerting of submarines at sea:*

Approximately half the submarines, which the United States has at sea today, are transiting to their launch stations in a state of "modified alert." A submarine crew requires approximately 18 hours to perform procedures such as removing the flood plates from the launch tubes that bring a submarine from modified to full alert status. In the scenario presented, we suggest that all US and Russian submarines at sea be limited to such an alert level. For example, US submarines could be restricted to sailing south when they leave port and to patrol in the southern oceans. If the missiles are sufficiently downloaded, they may never be technically out of range of Russian targets, but accuracy of the missiles would be degraded if the missiles are fired from a range greater than about 6,000 kilometers, and, naturally, the time of flight would be lengthened.

Without additional verification arrangements, neither country could determine the launch readiness of the other's submarines at sea. However, such arrangements appear feasible. For example, the US could install electronic seals on its submarines so that upon receipt of an interrogation from Russia as to the submarine's location, the submarines could, in turn, send a coded reply. This procedure could be delayed for hours, so that it would not give away the precise position of the submarine, by loading the response message into a buoy released by the submarine.[3] Another de-alerting measure is to remove the guidance systems from the missiles and store them on board the submarine, with a seal installed so that the guidance systems could not be restored without breaking the seal. Again, on a random basis, the submarines could be inspected to assure that the seals have not been broken. Unfortunately, Russian submarines lack this option, as their missiles are not accessible from inside the boat.

While verification measures discussed above are unfamiliar and ground breaking, they do not appear to be technically daunting.

They will, however, require time for their implementation. For this reason, both the United States and Russia should not delay the initial stage of de-alerting, while the modalities for de-alerting their submarines are made operational.

4. Conclusion

After almost a decade since the collapse of the Berlin Wall, it is absurd to think that both the United States and Russia still maintain thousands of warheads ready to be launched upon command. It is time for both of these nations to end their anachronistic state of affairs notwithstanding the objections that they have been set forth against de-alerting.

Notes

1. Bruce Blair, Harold Feiveson, and Frank von Hippel. "Taking Nuclear Weapons Off Hair-Trigger Alert", *Scientific American*, November 1997, pp. 74-81.

2. Major General Vladimir Belous, FBIS-TAC-97-267, translation of document text, 24 September 1997.

3. Richard Garwin, "De-alerting of Nuclear Retaliatory Forces", for Tenth Amaldi Conference, Paris, France, November 20-22, 1997.

Chapter 7

Does Strategic Arms Control Have a Future?

Michael Nacht*

President George Bush and Soviet President Mikhail Gorbachev signed the Strategic Arms Reduction Agreement (START I) in July 1991 that called for the total number of deployed strategic nuclear warheads to be reduced from about 12,000 on each side to a maximum of 6,000 deployed on intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs) and heavy bombers. START I also created an elaborate compliance and verification system and called for the destruction of large numbers of delivery vehicles.

The agreement did not enter into force until December 1994, in large measure because of Russian insistence that it would not ratify the Treaty until Ukraine gave up its nuclear weapons and became a party to the Nuclear Non-Proliferation Treaty (NPT). Since then, despite a number of major difficulties, the parties (now revised to include Russia, Belarus, Kazakhstan, and Ukraine in place of the Soviet Union, along with the United States) are likely to complete all the Treaty requirements by the called-for deadline of December 2001.

President Bush and Russian President Boris Yeltsin signed the START II agreements in January 1993. If implemented, these agreements would reduce the total number of deployed strategic nuclear weapons to 3,000-3,500. It took three years, until January 1996, for the US Senate to consent to ratify START II. In its resolution of ratification, the Senate asserted that the United States

would not reduce its deployed strategic nuclear warheads below START I levels until START II had entered into force. As of July 1998, the Russian Duma still had not voted on ratification of the Treaty.

This paper addresses several key issues relevant to the future of strategic nuclear arms control: 1) what was agreed upon at the Helsinki Summit in March 1997 and the significance of these agreements; 2) the issue of "sequencing"; 3) the challenges posed by START III; the post-START III environment versus no START II or START III.

1. The Helsinki package

During the first Clinton Administration, senior officials sought to understand the reasons for Russia's delay in ratifying START II and, where feasible, addressed each obstacle so that START II would enter into force. The Clinton team endorsed START II ratification not out of any knee-jerk support for arms control, but out of the belief that, in the post-Cold War era, world nuclear weapons would be of decreasing value in the pursuit of US national security interests. After much discussion and formal negotiation, three issues were identified: the need for a clearer NATO-Russia relationship emphasizing Russia's role in the alliance and underscoring that it was not a threat to Russia; completion of the demarcation agreement that would clarify the distinctions between strategic and theater ballistic missile defenses, and that would reassure Russia in the continuation of US adherence to the Anti-Ballistic Missile (ABM) Treaty; and an outline of a START III framework to reassure Russia that START II would not be the end of the process of strategic arms control.

The Clinton Administration conducted a major review of its strategy to induce Russian ratification of the START II Treaty after the 1996 election and on the advice of out-going Secretary of Defense William Perry. Perry, who had taken the extraordinary step of testifying before the Russian Duma in support of the Treaty in October 1996, came away from this bruising experience convinced that the US would have to enhance its incentives to Russia in order to win Duma approval.

After intense Russian-American negotiations from January through early March 1997, the stage was set for the presidents to meet at Helsinki in late March, once it was clear that President Yeltsin's health permitted such a meeting to take place (Yeltsin, it will be recalled, had open heart surgery in September 1996, and some observers were uncertain if he would survive). With considerable effort extended by both presidents, a package of five agreements was reached with joint presidential statements.* This package codified a new US-Russian relationship and indicated the future intentions of both leaders.

The first of the joint statements dealt with economic issues. In many ways, this is the most important statement of all because it indicated that Russia, under Yeltsin, unequivocally wished to become a member in good standing of the international economic community and that the US, under Clinton, was determined to do everything in its power to facilitate the achievement of this objective. Russia sought membership in the Group of Seven (the G-7, the "rich man's club of nations -- the United States, the United Kingdom, France, Germany, Italy, Canada and Japan), the Paris Club, the Organization for Economic Cooperation and Development (OECD) and other international economic fora. The United States pledged to assist in obtaining these memberships for Russia and promised technical

advice and financial assistance so that Russian products would be more acceptable in the West. Russia, in turn, promised to open its markets and facilitate western investment in Moscow and other major centers.

A second agreement dealt explicitly with NATO-Russia relations. It established a process for the "transparent" enlargement of NATO in which Russia would be informed of each step as new states (which turned out to be Poland, Hungary and the Czech Republic) were admitted to the alliance. Russia was given a seat at the table (though no veto power) in some NATO decision-making councils. Although Clinton and Yeltsin agreed to disagree about the wisdom of such expansion -- the US president obviously in favor, the Russian against -- they formulated a framework that Yeltsin could sell back home to a skeptical elite.

A third document on strategic nuclear forces laid out a framework for START III once START II was ratified. This framework called for the reduction of the total number of deployed strategic warheads to the 2,000-2,500 range by the end of 2007, an extension of the implementation of START II from 2003 to 2007 (to satisfy Russian concerns that they could not meet the earlier deadline), a willingness to engage in separate negotiations on nuclear-armed sea-launched cruise missiles [(SLCMs), a Russian objective] and tactical nuclear weapons (a US objective), and at least a limited recognition to address problems of the chain of custody of nuclear materials.

A fourth agreement developed an overall framework to reach a missile defense demarcation agreement, an agreement that would be reached in Geneva later in the year. Under the terms of this agreement, missile interceptors with specified speeds and ranges were considered to be permissible for deployment under the ABM Treaty. The United States, with several such systems under development, made

a commitment to adhere to the terms of the ABM Treaty and agreed to various transparency and confidence-building measures to reassure the Russian side that the US theater missile defense (TMD) systems were not aimed at degrading the Russian strategic nuclear force, but were intended to protect US forces in the field and US allies from missile attack by so-called "rogue states" (e.g., North Korea, Iran or Iraq).

A fifth and final agreement spelled out terms for compliance by both sides with the Chemical Weapons Convention and codified the pledges of both governments to become parties to this convention.

The package deal, in sum, was intended to promote the integration of Russia into the world economy and world security system. It was also an unambiguous public commitment on the part of the President to assist Russia in achieving these objectives. As part of this package, President Yeltsin pledged privately to President Clinton, and publicly in a new conference after the negotiations ended, that he would move forward to secure Russian Duma ratification of START II.

2. Sequencing

Students of international affairs sometimes are insensitive to the ways in which governments work. Summit meetings are important because they are "decision forcing" situations. Senior ministers and their aides scramble to complete negotiations so that the principals have fewer issues to address and so that "deliverables" can be announced at the meetings, guaranteeing public pronouncements of their success.

Much, but far from all, of the negotiations on the five agreements took place before the presidents met on March 21st. The presidents

and their top aides still had plenty of hard bargaining to undertake to reach agreement on the five statements. But beyond these statements, there was also a general understanding on the "road ahead" or sequencing of events that would put in place all the pieces so that Russia would move forward to ratify START II.

The first step in the sequencing process was the completion of the NATO-Russia Founding Act, which was signed in late May 1997 in Paris. The formal decision on NATO enlargement took place in Madrid in July 1997.

A second step was the invitation for Russia to participate in what came to be termed the "G-7 + 1" meeting in Denver in June 1997. The G-7 was then formally enlarged to include Russia and is now called the G-8.

A third step was the completion of the ABM/TMD demarcation agreement. After some hard bargaining in Geneva over the summer, both governments signed the documents in September 1997 in New York on the margins of the opening session of the United Nations General Assembly meeting.

With these three steps in place, the stage was supposed to be set for the Duma to act. Moreover, it was understood that the Russian side would ratify START II before the US Senate took up the protocols to the ABM Treaty which contained the new demarcation agreement. This sequence was considered vital because the political judgment on the US side was that Senate approval could not be secured on the controversial missile defense measures unless Russia had ratified START II first.

Unfortunately, Yeltsin's physical health and political weakness delayed a concerted push by the executive branch to secure Duma support. Matters dragged on into the spring of 1998. President Clinton refused to hold another summit meeting with Yeltsin,

normally scheduled for the fall in the United States or the spring in Russia, until START II was ratified. By the early spring of 1998, Russian Duma members were threatening to forestall action on START II if the US Senate went ahead and consented to ratification of the NATO enlargement measures. Senator Jesse Helms of North Carolina, Chairman of the Senate Foreign Relations Committee and a critical figure in the Senate's ratification of all treaties, threatened to take up the ABM protocols first, knowing that without Russian ratification of START II, they would likely be defeated. The administration, on a related but separate track, had signed the Comprehensive Test Ban Treaty (CTBT) and had, as a high priority in the spring of 1998, Senate approval.

Then, the unexpected intervened. In short order, first India and then Pakistan detonated several nuclear devices in May 1998. Senator Helms declared that the CTBT was worthless and would not permit it to be voted upon. Russia, facing increasing economic difficulties that were not anticipated at Helsinki one year before (caused in part by the contagion of the East Asian financial crisis that had begun in Thailand in July 1997), turned increasingly to these matters. Yeltsin, who had been largely inactive through much of the fall of 1997, returned early in the new year and sacked many of his ministers, including Prime Minister Victor Chernomyrdin and top economic advisor, Anatoly Chubais. By late spring, Yeltsin was openly pleading for a new major bailout from the International Monetary Fund, which, thanks to US support, was approved in July 1998. This economic crisis, however, was a useful excuse for skeptics of START II in the Duma to delay further. Consequently, the Helsinki timetable has not materialized and, at this writing, it remains unclear if or when Russia will, in fact, become a party to START II. It is not impossible that START II will

suffer the fate sometimes ascribed to fusion power: it is receding into the future faster than the future itself!

3. If START stops

Some students of international security affairs and US-Russian relations, in particular, lose little or no sleep over the prospect of the collapse of the START process. They argue that it is a relic of the Cold War, that the United States now commands an extraordinary military edge over Russia, and that we should not waste our time in laborious negotiations with a far weaker nation.

The author's view is different. As was emphasized in the first part of the paper, the US-Russia strategy is multi-faceted, with an overall aim of bringing Moscow into the family of nations as a democracy with a market economy. Only when Russia has moved much further down this road will it really cease to be a threat to the United States and the West. Clearly, strategic nuclear arms control is no longer at the center stage of the bilateral relationship as it once was during the Cold War. START and related activities, however, remain a necessary, although no longer sufficient condition, to maintain a positive bilateral relationship.

Consider the likely consequences if the entire START process collapsed and a new frostiness developed between Washington and Moscow. Russia would quickly adopt policies antithetical to US interests in the United Nations, where it holds veto power through its seat on the Security Council. It would become increasingly meddlesome and difficult on regional security issues, especially with respect to the Arab-Israeli peace process, Iran and Iraq, and North Korea. Lab-to-lab relations (such as between the Los Alamos

National Laboratory and Arzamas-16, and Sandia National Laboratories and Chelyabinsk-70), which have been useful in steering Russian scientists and engineers away from military work, would almost certainly cease. The entire bilateral relationship could easily head into a tailspin, irrespective of the economic rationality of avoiding such a condition, with negative consequences for both parties and for the international system generally.

Some have argued that the formal negotiating process, laborious and frustrating as it is, could be replaced by reciprocal unilateral measures and other confidence-building steps, a policy end-run to avoid legislative scrutiny. This approach is simplistically appealing, but the fact is that only ratified agreements are legally binding upon states. And, despite the views of arms control skeptics, the vast majority of treaties are adhered to by their parties. Therefore, the painfully slow strategic arms control process is worth continuing, at least through the implementation of START III, if it can be reached.

4. Challenges of START III

Even if Russia were to ratify START II and the negotiating process of START III were to resume immediately, a number of challenges inherent in the START III framework, completed at Helsinki, would make life difficult. First, the lower number of deployed warheads specified in this agreement would press the United States to make a tough decision about the future of its "triad" of strategic forces. While the Joint Chiefs of Staff have signed off on their ability to sustain the "triad" at the 2,000-2,500 warhead level, if pressures were to develop to build down to 1,500 or less, it would be difficult to sustain this position. The US Strategic Command, the

Secretary of Defense and, indeed, the President would have to choose among tough alternatives: eliminating the ICBM force (highly unlikely), taking all long-range bombers off nuclear missions (as has already been done with the B-1s), or trimming all three legs of the "triad". The difficulties of moving away from the "triad" were indicated in the published reports in November 1997 where a new Presidential Decision Directive on nuclear employment policy reiterated the need for three separate delivery vehicles.

A second challenge inherent in START III is the tension between arms control and non-proliferation goals. Some observers have called for early deactivation of US and Russian strategic systems and accelerated warhead dismantlement. But "de-alerting" and "de-mating" of Russian nuclear warheads raises two major problems for Russia. First, if Russia de-alerts its ICBM force, it has virtually no nuclear deterrent left, given the poor state of its bombers and ballistic missile submarines. Therefore, it is highly unlikely that Russia could agree to such a scheme, and the US would be politically constrained to take these initiatives unilaterally. Russia, more attentive to the political value of its nuclear systems, in light of its humiliation on the ground in Chechnya, is highly sensitive to military cuts that would diminish its standing as a great power. Second, the de-mating process automatically places the nuclear weapons and nuclear materials in more hands, thereby exacerbating the problem of maintaining nuclear security in Russia. This problem is already recognized as a major post-Cold War challenge, given the paucity of security systems outside the uniformed military as well as the meager pay of the armed forces themselves. Consequently, the lower the level in deployed warheads, the more difficult the problems.

A third challenge concerns the linkage of tactical nuclear weapons and nuclear armed SLCMs. These issues were agreed upon to be

discussed "in the context of" the formal START process. Each side sees the other's capabilities as especially worrisome for its own security. There is a huge problem of verification associated with any constraints on tactical systems. And, when push comes to shove, there will be enormous opposition from the US Navy on any constraints imposed on SLCMs through the negotiation process.

Finally, the issue of transparency of fissile materials is still a matter that the Russian side is willing to address with the greatest reluctance. It would open-up all sorts of intrusive inspection systems and probably also expose Russian weaknesses in material protection, control and accountability that they would be highly reluctant to reveal. These considerations almost certainly explain why a very concerted effort by Ambassador James Goodby to make progress on this subject went unheeded for more than two years. Given the enormity and importance of the nuclear energy/nuclear weapons complex supervised by the Ministry of Atomic Energy -- and the fact that this ministry is a "cash cow" for Russia since it sells technology and facilities abroad -- it is highly questionable whether Russia would be willing to permit any tangible negotiating progress on these matters.

5. After START III

It must be appreciated that even if all the obstacles cited above related to START II ratification and START III completion were overcome expeditiously, we are still looking at a ten-year timeframe that would reach completion at the end of 2007. This is the "best case" scenario unless some totally new conceptual approach to strategic arms control was introduced in the interim. What then?

It is widely assumed, within the Administration and by outside observers, that bilateral nuclear negotiations of this kind would have run their course.   Thinking ahead, it is important, therefore, to develop, as soon as feasible, a dialogue with China on the roles, missions, and doctrine of its nuclear forces and on how it might be brought into the nuclear arms control negotiating process. China has maintained that, until the United States and Russia reach its own levels (unstated, but thought to be less than 1,000 deployed warheads), and until the United States adopts a no-first-use (NFU) of nuclear weapons declaratory policy, China will not participate in such negotiations.

At the Clinton-Jiang Zemin summit meeting in June 1998, China did agree to a "de-targeting" agreement in which both sides pledged not to aim their nuclear forces at the other (which, of course, could be changed in a matter of minutes, at least on the US side) without insisting on an NFU pledge by the United States (a change of Chinese policy). But this agreement is clearly only of symbolic significance; whether China would be willing to engage in serious negotiations on nuclear arms control remains to be seen.

To involve China in the process also means involving the French and the British, a mating of the "P-5," the five permanent members of the UN Security Council. Neither the British nor the French have any interest, at least for now, in participating in a process that could lead to the elimination of their small but potent nuclear deterrent forces. Now, with India and Pakistan having made unambiguous their status as nuclear weapons states, this plan to expand the P-5 is even less realistic.

A final key and important point is the impending impact of the deployment of US theater missile defenses on both Russian and Chinese strategic thinking.   Although the United States has experienced considerable difficulties in the development of these

systems, plans for deployment at the theater level, and perhaps for a national missile defense to protect the US homeland, remain key elements of American national security policy with strong congressional support. To move forward on missile defenses will automatically impact on the process of offensive force reductions. This means that some hard thinking needs to be done about possible combined offensive/defensive formulations that would permit the offensive arms reduction process to move forward.

6. Conclusion

Since the concept of arms control negotiations and agreements between potential adversaries was fleshed out in the academic literature of the early 1960s, especially by Tom Schelling and Morton Halperin of the US and by Hedley Bull in Great Britain, there have been numerous skeptics regarding its utility. In its purest form, this skepticism is captured in the following reasoning: "arms control is of no value; when you need it, you can't get it; when you can get it, you don't need it." Yet, the fact is that every US administration since John F. Kennedy's has found it a useful and important activity to pursue. Moreover, the administrations with perhaps the greatest skepticism going in -- the Nixon, Reagan and Bush administrations, all Republican -- have produced the most far-reaching agreements. The first arms reduction and missile defense agreements were reached by President Nixon, the removal of intermediate nuclear forces from Europe was completed by President Reagan, and the START agreements were finalized by President Bush. In all cases, overwhelming congressional support was obtained.

Does strategic arms control have a future? Yes. It is a long, complex, difficult, even tortuous future. But it has become an essential feature of the international strategic landscape. President Reagan said "build and talk." The United States and Russia have done so for several decades. These talks have led in recent years to deep reductions in deployments and to arguably a more stable strategic environment. Despite all the obstacles cited in this paper, this difficult process is highly likely to continue.

Note

*The author had the privilege of participating directly in the negotiations on three of these statements as Assistant Director of the US Arms Control and Disarmament Agency.

Chapter 8

What Role for Medium Nuclear Weapons States:
The French Case

Camille Grand

Historically, France has had various experiences and policies with
nuclear weapons and arms control. A non-nuclear weapon state
(NNWS) in the late 1940s and 1950s, France promoted disarmament
and experienced the limits of alliances in the nuclear era during the
Suez crisis. An emerging nuclear weapons state (NWS) in the late
1950s and 1960s, France encountered the first non-proliferation
efforts of the superpowers and developed its own forces
independently in a rather hostile environment. As an established NWS
in the 1970s and 1980s, France was reluctant to undertake arms
control and non-proliferation efforts. As a status quo nuclear power
since the 1990s, France has been taking an active part in preserving
the international nuclear order by promoting non-proliferation,
accepting some steps toward nuclear disarmament, but still
maintaining its nuclear capability. Based upon a national strategic
culture, this special nuclear history defines the basis of what could be
called a "French nuclear exception."[1]

After an overview of the past French arms control policy and of
the steps taken by the French governments over the last few years, this
paper explores the French diplomatic commitment to nuclear
disarmament and its limits, before attempting to define what possible
role medium nuclear weapons states, such as France, will play -- or at
least could play -- in forthcoming arms control negotiations.

1. **French nuclear arms control policy: from refusal to careful commitment**

In the early period of nuclear arms control and disarmament, France demonstrated a great reluctance to join arms control treaties and negotiations. France never signed the Limited Test Ban Treaty (LTBT) of 1963, refused to join the Nuclear Non-Proliferation Treaty (NPT) for more than twenty years, and never took part in any bilateral or multilateral disarmament agreements. France even practiced an "empty chair" policy in the various disarmament fora to protest the Soviet-American duopoly. During the 1970s and 1980s, France followed the same principles even though it proved more open-minded.

This policy of refusal to participate in nuclear disarmament has nevertheless undergone drastic changes since 1991. In the early 1990s, the new concern over nuclear proliferation and the global changes in international security led to a major policy shift. President Mitterrand announced this shift in his June 1991 United Nations speech promoting an international disarmament plan. Besides various actions in the field of chemical and conventional disarmament, France decided to join the NPT as a nuclear power.

In the following years, the French government announced various unilateral nuclear disarmament steps including the early withdrawal of several unreplaced pre-strategic weapon systems (Pluton short-range missiles and AN-52 air-dropped bombs), the non-replacement of the 30 Mirage IV-P medium-range bombers, and their reduction of alert status, the reduction of the number of planned French SSBNs from 6 to 4, and the non-deployment of the Hades short-range missile. Finally, in April 1992, President Mitterrand also initiated a moratorium on nuclear testing, which lasted for three years.

Altogether, from 1991 to 1995, France completed a 15 percent unilateral reduction of its nuclear arsenal. Since then, further unilateral steps have been taken by President Chirac, including the complete dismantling of the Plateau d'Albion 18 S-3D ground-to-ground strategic missiles and of the 30 short-range Hades missiles.

Even though many of these reductions were motivated by budgetary constraints and only *a posteriori* presented as disarmament measures, they nevertheless show a new trend in French nuclear policy. Until 1991, the French nuclear arsenal was growing in size and capacity. These decisions have thus put an end to the growth in the arsenal and started a true disarmament process.

From its peak in 1991 (540 deployed warheads), the French nuclear arsenal has been reduced to less than 400 deployed warheads. Finally, it is important to remember that the current French warhead stockpile remains below five percent of the arsenals of either the United States or Russia, and was for a long time below one percent of their arsenals.

Beyond these unilateral arms reduction measures, this commitment to arms control extended to multilateral arms negotiations. As far as the Comprehensive Test Ban Treaty (CTBT) was concerned, France was for decades strongly opposed to nuclear testing limitation or interdiction. In 1993, it accepted participation in the CTBT negotiations. Even though (or because?) France conducted six tests in the fall and winter of 1995-96, it was, in August 1995, the first nuclear weapon state to support the "zero-yield option" in the CTBT negotiations and to accept the so-called Australian definition of a nuclear test. The announcement of this decision, which was immediately followed by a US statement, was clearly a breakthrough in the CTBT negotiations. France was among the first signatories of the CTBT in September 1996 and has taken a further step by closing its test site and signing the Rarotonga Treaty in March 1996, thereby becoming one of only two nuclear weapon

states, with the United Kingdom, without an available national test site. The CTBT ratification process is now completed.

France, in 1995, announced new security assurances, both positive and negative, clarifying an earlier statement made in 1982. This declaration harmonized the French position with the statements made by the United States, the United Kingdom, and Russia. On positive security assurances, France abstained in 1968 when the United Nations Security Council adopted Resolution 255. It was, therefore, considered that France had never granted positive assurances. The French decision announced in April 1995 gave the same enhanced assurances granted by the other NWS. Following this statement, France co-sponsored the United Nations Security Council Resolution 984 (11 April 1995).

The French position on providing security assurances through nuclear-weapon-free zones (NWFZ) has also changed. Besides signing and ratifying both protocols of the Tlatelolco Treaty, France refused until recently to commit itself to the other existing NWFZ, the Rarotonga Treaty. This position changed greatly since 1995. After the last testing campaign, France signed the three protocols of the Rarotonga Treaty (8 March 1996), together with the United States and the United Kingdom. A few days later, France signed, without any reservations, Protocols I, II, and III of the Pelindaba Treaty at the Cairo signing ceremony on 11 April 1996.

With the previously described unilateral and multilateral disarmament steps, and commitments announced during the NPT extension process and in the Conference on Disarmament (CD) in Geneva, France has clearly shifted its nuclear disarmament policy from strong reluctance to cautious but serious participation over a very short period of time. What could then be the next steps?

2. France and future nuclear arms reduction treaties

Up to this date, France's arms control efforts have either been the product of multilateral treaties (NPT, CTBT, etc.) or of unilateral decisions. Even though France supported the INF and START process, it has always proved reluctant to negotiate with the other NWS a legally binding limitation or reduction of its nuclear forces.

In 1983, President Mitterrand had set (hard to meet) conditions for French participation in nuclear disarmament: "correction of the fundamental differences" between the arsenals of the two superpowers and those of the other nuclear weapon states, end of the conventional disparity in Europe, and an end of the race in anti-missile, anti-submarine and anti-satellite weapons. Even though most of these conditions are being met, a certain reluctance remains when it comes to involve France in forthcoming arms reduction treaties as a possible START III or IV.

During the 1995 NPT Conference, France indeed accepted the principle of future cuts as it accepted the declaration on "Principles and Objectives." This commitment was confirmed in a P-5 statement during the 1997 PREPCOM to the 2000 NPT Conference. This statement, delivered by France on behalf of the five NWS, expressed, among other things, their determination to implement fully all the provisions of the NPT, "including those of Article VI." What remains to be seen is how this goal will be implemented, and to what extent the French government will fully agree on the scope of this commitment.[2]

In 1996, President Chirac indeed announced his intention to turn France into a champion of disarmament. In a later speech, the President however proved more cautious and clarified this view by stating: "I do not think nevertheless that a French participation in international negotiations on the reduction of nuclear weapons is a topical subject. Our deterrence posture has been defined, in the new

planning, at a strictly measured level to insure our security. Today, other fields of disarmament should draw our attention."[3]

One can argue that some of the conditions set in 1983 by President Mitterrand for French participation in nuclear disarmament have not yet been met, especially the "end of the race in anti-missile, anti-submarine and anti-satellite weapons." The issue of nuclear missile defense (NMD) deployment by the United States and possibly Russia is looked upon with anxiety in Paris as undermining the ABM Treaty.

France is also waiting to see if the START Treaties are implemented before entering into any further negotiation. France will probably not accept further major cuts until the two "big" NWS (the United States and Russia) have reached START II or even START III levels. This position does not forbid participation in nuclear disarmament talks, but it leaves Paris (and the other two medium NWS) another 10 to 15 years before being directly involved. First expressed by Douglas Hurd in 1995, the position of the former British conservative government ("waiting for the 100's figures") is often quoted in Paris as most appropriate.

To summarize, France could probably agree on the principle of formal P-5 discussions on nuclear issues, because these discussions already exist to a large extent in an informal manner and because the NWS framework is also viewed in Paris as the most appropriate. France is, however, not ready for the moment to accept much deeper reductions of its nuclear forces in the present security environment. Moreover, a treaty on the elimination or prohibition of nuclear weapons or setting a deadline for that goal would certainly not get Paris's approval in the present situation. France's position on the elimination of nuclear weapons is unlikely to change in the midterm, unless some dramatic and unpredictable event occurs, such as nuclear accident or use.

There are very few factors that could have a decisive influence on French nuclear policy, besides the international security environment. This reflects the very cautious approach of the French strategic community to the issue of elimination; an approach that is reinforced by an (almost) all-party consensus and the lack of support from any significant share of the public. As already explained, the inner-rationale of elimination remains challenged in France.

3. What role then for France and the other medium NWS?

Given its reluctance to commit itself to further reductions in the present international security environment, and its desire to remain nuclear at least in the midterm, it would seem that discussing French participation in the next steps of nuclear disarmament is rather a non-issue. I will, however, try to demonstrate as a last point that medium nuclear weapons states (China, The United Kingdom and France) have a major role to play in the debates defining a post-Cold War era, which is a more stable and less nuclear international security system.

In the foreseeable future (next 10 to 15 years), this agenda includes three items:

- Contributing to the US-Russian disarmament arms reductions agenda;
- Preserving and enhancing the international non-proliferation and arms control regimes; and
- Defining enhanced confidence-building and safety measures.

3.1 *Contributing to the US-Russian disarmament arms reductions agenda*

As already seen, France is not, as yet, directly involved in the US-Russian arms reductions process. However, and together with the other two medium nuclear states, Paris could contribute to what will remain for a certain time a bilateral effort. What are then the possible political and concrete steps?

Once the START II Treaty is ratified and official START III discussions open, it would probably be fair to see the "other three" accept a ceiling to their own nuclear forces to reassure the "big two" that their reduced arsenal are not under threat of being challenged by second-tier nuclear forces. Given the huge differences during the Cold War, accepting a ceiling on their own nuclear forces was not an issue. However, now that the START III levels are discussed, this becomes an issue for Russia which might feel threatened by the addition of US + British + French + Chinese forces being twice as large as its own nuclear arsenal. Russia and the United States can expect some assurances on behalf of the "three" that they will cap their nuclear arsenal at a certain level. This could take the form of a "no increase commitment" or of a cap at 400 or 500 to give a figure. It seems easy and obvious in the case of Britain[4] and France, but what about the Chinese growing and modernizing forces? In any case, at least clear unilateral statements can be expected of the "three", which would prepare for a future START IV.

Moreover, discussion on the composition of the arsenals themselves might be put on the table. What is the use of prohibiting destabilizing weapon systems bilaterally, if the other "three" are allowed to deploy them if they choose?

A last connected point is certainly the future of the ABM Treaty. If the treaty were to be dismantled by the deployment of large scale NMDs, it would certainly undermine the chances of involving the

medium "three" in nuclear reductions. Multilateralizing the ABM Treaty is an option. The association of five former Soviet Republics as successor states opened the way to such a widening of the Treaty. A closer involvement of the medium NWS might be needed today, as the "three" all view the treaty as the cornerstone of their own security and credibility.

France and Britain, together with other European countries, might also contribute technically and financially to the dismantling of the former Soviet arsenal and the management of the excess fissile material. Non-proliferation and nuclear safety in the Commonwealth of Independent States (CIS) is not a bilateral issue, but a global one. So far, the efforts of Western countries other than the United States, have been sometime successful, but too often very limited. If the Europeans, nuclear and non-nuclear states, want to be associated with the new relationship between Russia and the West, their commitment is a necessity. Moreover, the nuclear know-how of many Western Europeans in several technical fields (MOX fuel, fast-breeders, etc.) offers a wide spectrum of possibilities of cooperation with Russia in fields the United States are more reluctant to commit.

Last but not least, France and the other medium nuclear states should be ready to discuss nuclear doctrine and all security related measures. Rather than following (as with de-targeting), medium nuclear weapon states should already be involved in more formal negotiations over nuclear doctrine. As a first step, defining a non-hostile cooperative deterrence is a tremendous task. Conceptualize jointly the last resort mission assigned to nuclear weapons is a second step. All security related efforts are another vast field for joint efforts. Discussions on these topics can only increase confidence among the P-5, and confidence is a key to further disarmament.

3.2 *Preserving and enhancing the international non-proliferation and arms control regimes*

As everyone agrees, preserving the present international non-proliferation and arms control regimes is the key to further arms reductions and enhanced security. As the other NWS and as any other responsible state, France should commit itself to this task, including accepting new restrictions to its nuclear status.

Its commitment to non-proliferation is now taken seriously, but in forthcoming NPT negotiations, France will have to accept some concessions to insure that the NPT regime remains solid. This mean accepting a new set of constraints, by implementing the 93 + 2 Program, by finding ways to implement Article IV, and by accepting a greater transparency in its nuclear programs. It also probably involves new efforts in the fields of security assurances, both positive and negative; to affirm that the NPT Treaty remains mutually beneficial for all parties. Addressing the issue of the remaining nuclear capable non-signatories is the major challenge in the coming years.

A good example of medium NWS commitment was the Franco-British early ratification of the CTBT which helped establish the CTBT as a norm, and contributed to ratification by the other parties including the other three NWS. After the May 1998 Indian and Pakistani tests, a major international effort should be made to insure that India and Pakistan sign the CTBT. Otherwise, the signature of the CTBT and the establishment of the CTBTO will not be relevant. The international efforts undertaken in the recent years over the NPT extension, the CWC ratification and entry into force, and the landmines convention should be taken as examples of the path to follow: a path in which NWS and NNWS can achieve majors steps together in the field of arms control.

A strong and renewed commitment to a multilateral Fissile Material Cutoff Treaty (FMCT) is also one of the keys to a stable non-

proliferation and disarmament regime by freezing arsenals at an internationally agreed and verified level. The present unilateral freeze observed by four NWS is reversible without an international FMCT. Any major progress on nuclear disarmament is unlikely without addressing the three threshold states' nuclear capabilities. A first step might be talks among the P-5, but they should be quickly expanded to the three nuclear capable states and moved to the CD along the lines of the Shannon Mandate.

As a last connected point, the European Union and its unique combination of nuclear, non-nuclear, and sometimes antinuclear countries have a role to play in producing consensus-building positions by taking into account the views of all states involved in arms control negotiations. The Europeans together can push together in the same direction and work together in the framework of the Common Foreign and Security Policy, as they did for NPT extension in 1994-1995. Such action could benefit the entire international community.[5]

3.3 *Defining enhanced transparency, confidence-building and safety measures*

Enhancing transparency, confidence-building and safety measures seem to be the next main step in nuclear arms. However, a strong reluctance still exists among medium NWS including France on this topic. This probably has to do with the fact that these measures have so far been essentially defined in the narrow framework of Russian-American relations.

One of the broadest transparency proposals of the last years, is the idea of a nuclear weapons register. This proposal raises bad memories in Paris, as everyone recalls the Kinkel Proposal of December 1994 as a blow to both the European Common Foreign and Security Policy and Franco-German cooperation. But, putting aside this episode, one

can observe a new French openness in nuclear matters, which may mean that similar proposals of transparency measures might become more acceptable. Moreover, since 1994-1995, there is a growing French readiness, at least among its decision-makers, to accept nuclear transparency. The nuclear weapons register deserves a second look, not only because it would benefit transparency, but also because it would also meet the concerns of the medium NWS that the remaining differences in stockpiles would become more obvious.

It is also a tool to involve the three threshold (or nuclear capable) states: India, Israel, and Pakistan. The "three" have become a key issue in future disarmament talks, especially since the May 1998 Indian and Pakistani nuclear tests.

The issue of de-alerting is taken seriously in France. However, the military and nuclear establishments seem likely to oppose the most ambitious measures, arguing serious technical and strategic problems. Some of the de-alerting measures discussed in the United States just do not make any sense for France. First of all, since France or Britain never developed a first-strike capability (and no longer deploy ground-to-ground systems), the measures proposed for these most destabilizing weapon systems, designed for launch on warning, do not apply to France and Britain. Among other examples, taking French nuclear-powered, ballistic-missile submarines (SSBNs) off firing range while on patrol, when they are within range when in port, would be a strange form of de-alerting. Some other de-alerting and transparency proposals raise specific problems for a medium power in terms of credibility. For instance, placing 50 percent or more of the French (or British) submarine fleet off alert status, or forcing submarines to surface periodically, would mean relying on one single submarine at sea. This would undermine the entire strategy of an insured second-strike capability, which is the core function of both countries' nuclear forces. As a consequence, the interesting measures proposed by US analysts (which make a lot of sense for the United States and Russia)

should probably be designed differently to take into consideration the concerns of smaller NWS. Moreover, France has already reduced the alert status of its remaining nuclear forces since the end of the Cold War. Further discussions could nevertheless be undertaken on further de-alerting in the future as part of a package of measures involving the United Kingdom, China and France.

On the issue of no-first-use (NFU) of nuclear weapons, France remains extremely reluctant to make such a commitment because it would contradict with its deterrence strategy, which allows first use whenever vital interests are threatened. According to the French doctrine, it is precisely the credible threat of use that allows nuclear weapons to prevent war. However, there have been some supporters of no-first-use in the academic community, but they remain rather isolated. Accordingly, the French nuclear school intends to preserve the "inhibitory" character of nuclear weapons by refusing no-first-use. Changes on this issue are extremely unlikely in the near-to-mid term, unless other NWS make such a major move. However, and in spite of its sensitive character in Paris, efforts toward stating a rule, somewhere short of NFU but more compatible with the present core function of deterrence, should be studied. Joint unilateral declaration abandoning the possibility of pre-emptive strikes of affirming a refusal of aggressive first use might be explored.

As already stated, discussions on nuclear doctrines should take place among the five as the strategies of the NWS are still, to a large extent, rooted in Cold War memories and practices. Moving from traditional forms of deterrence to a renewed concept of minimum and cooperative deterrence does need an enhanced transparency on nuclear doctrines which, combined with forms of de-alerting, would certainly reduce the nuclear dangers.

4. Conclusion

Hopefully, France and the other two medium NWS will play their part in the emerging discussions on the future of nuclear weapons in international security. While France favors most of the steps leading to a major down-sizing of nuclear arsenals and a minimum deterrence posture (a posture that it already holds to a large extent), a strong reluctance toward very deep reductions and radical measures such as NFU remains in the French strategic community. In spite of rhetorical commitments, the international debate on the ultimate goal that should be pursued through arms control is not resolved. This is all the more true in the French case, where nuclear weapons are still perceived as an unchallenged war-prevention (i.e., peace and international stability preserving) tool.

In the forthcoming years, the emphasis should be placed on making the world safer by enhancing non-proliferation, safety, and confidence-building measures and dismantling excess stocks of weapons. States who favor further cuts and confidence-building measures without judging complete elimination feasible might work along with countries and non-governmental organizations (NGOs) that favor elimination as a final stage. The five NWS should first agree on both practical and symbolic measures to de-emphasize the role of nuclear weapons, and to go down to a level of minimum or existential deterrence.

The next decade will be the occasion to test the commitment of medium NWS, including France, to more nuclear arms control and disarmament. It seems to me that these medium nuclear states have a major role to play in what should be a joint effort towards the definition of a safer security environment, in which the role of nuclear weapons is reduced to its core function: avoiding wars among the major powers.

Notes

1. For an overview of France's nuclear history and on the French policy towards the elimination of nuclear weapons, see Camille Grand, "A French Nuclear Exception?", Occasional Paper No. 38, Henry L. Stimson Center, Washington, DC, January 1998.

2. Thérèse Delpech, "France's Last Tests: A Catalyst for New Policies," The Non-proliferation Review, Vol. 3, No. 1, Fall 1995, pp. 58-59.

3. Jacques Chirac, "La politique de dèfense de la France," Dèfense Nationale, August-September 1996, pp. 7-18 (reprint of a June 8, 1996 speech).

4. For the British perspective, refer to the study by Rebecca Johnson, "British Perspectives on the Future of Nuclear Weapons", Occasional Paper No. 37, Henry L. Stimson Center, Washington DC, January 1998. The paper also proposes many steps that apply to all three medium NWS.

5. On this issue and many others, refer to Harald Muller (ed.), *The Europeans and Nuclear Disarmament*, PRIF/European Inter-university Press, forthcoming, including chapters on "Germany" and "France".
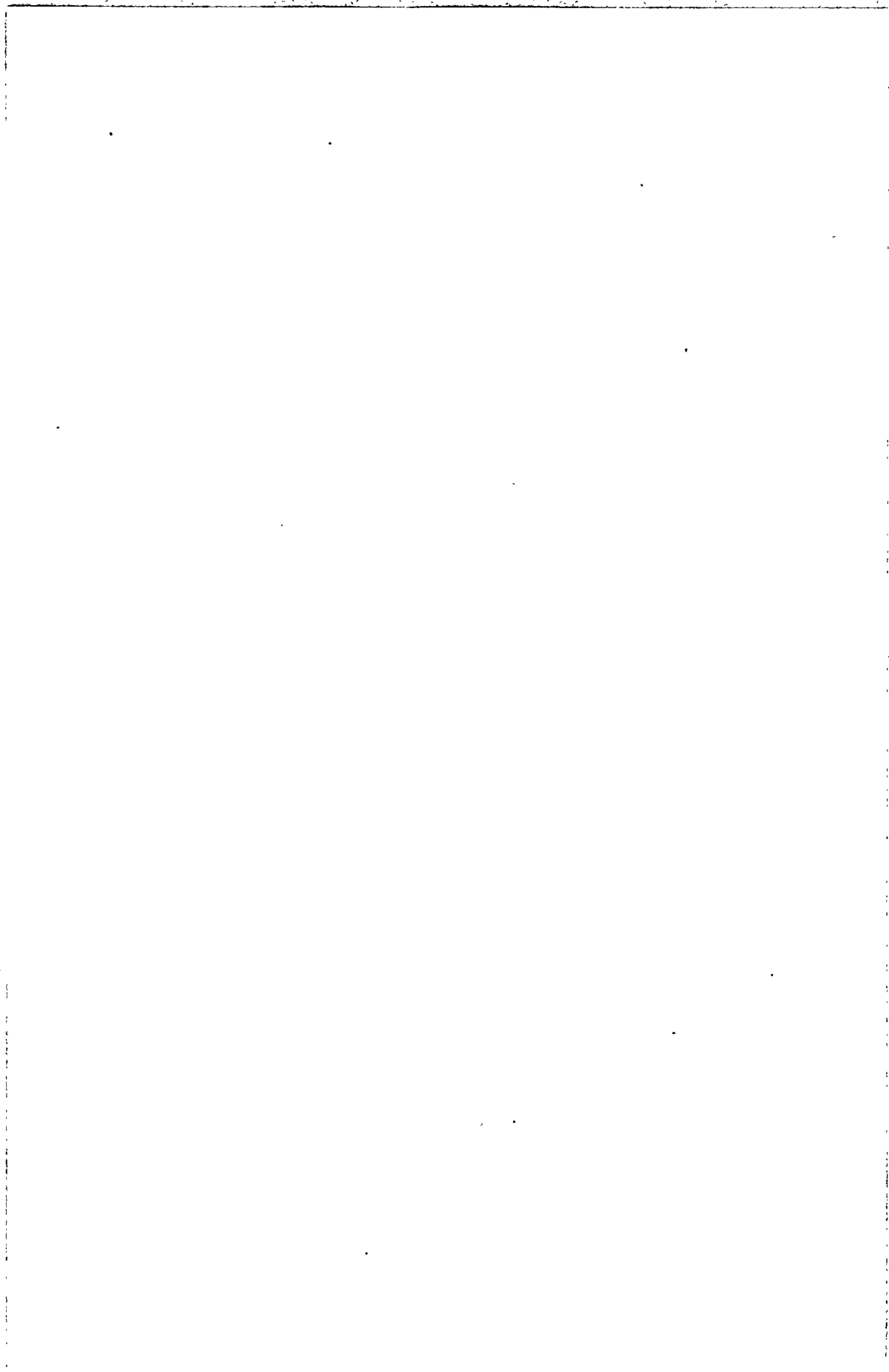
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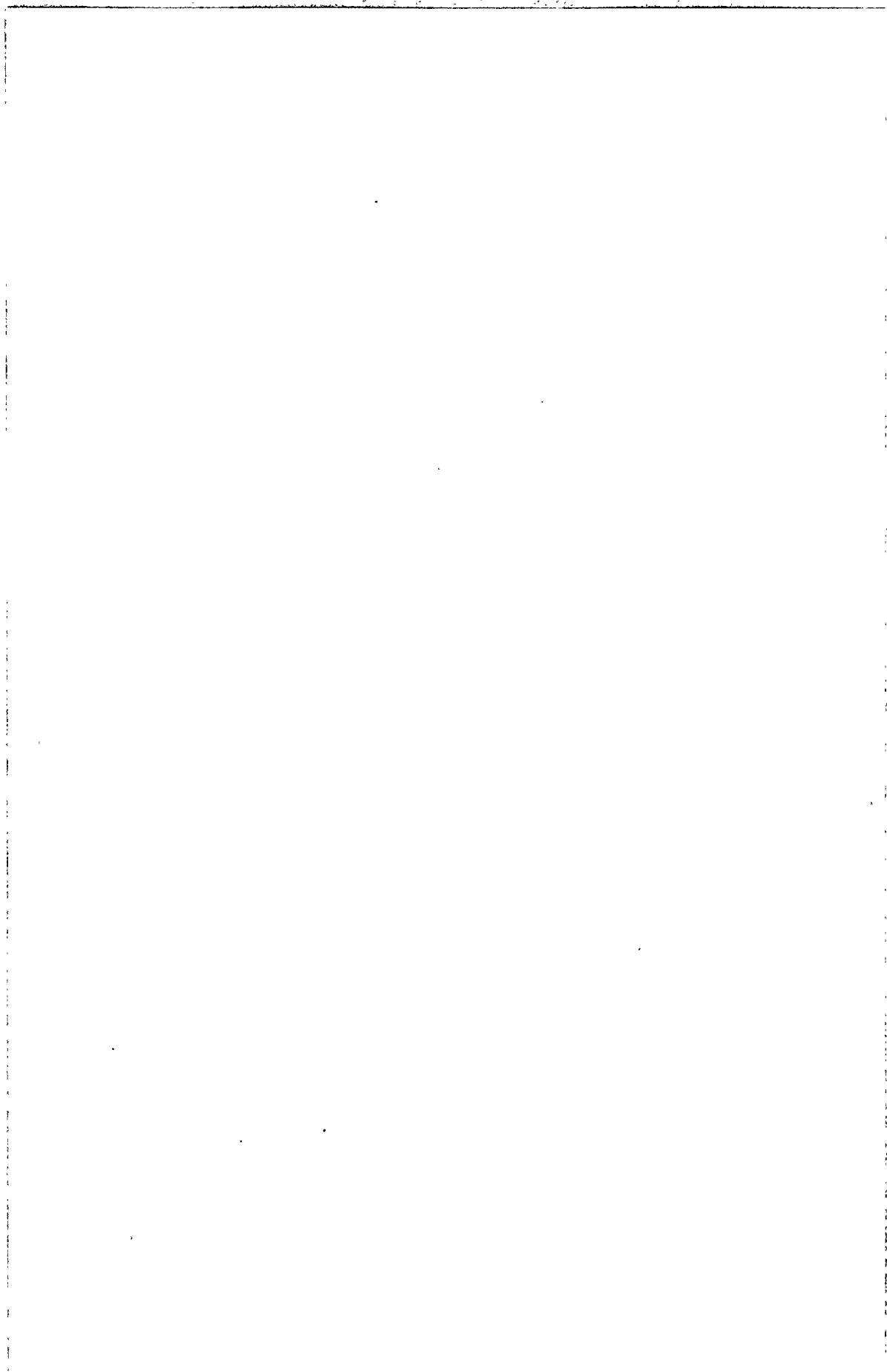
Chapter 9

The Future of Multilateral Arms Control:
Prospects Not Bright Within a Time-Bound Framework

Stephen Ledogar

My comments on the issue of the future of multilateral arms control will be confined to broad based arms control and disarmament efforts which might take place in the Conference on Disarmament (CD), or in an <u>ad</u> <u>hoc</u> substitute multilateral disarmament treaty-negotiating forum in which the rule of consensus prevails. Some items that I will discuss might not apply to multilateral arms control in more narrowly focused efforts such as the Ottawa Process, which is playing out successfully in the anti-personnel landmine arena. In the more traditional CD-style negotiations, projects begin with emphasis on near universality of participation, and the consensus group seeks to enlarge the scope of the prohibitions out to limits of common tolerance. In the Ottawa approach, the lead group defines and codifies the comprehensiveness of the scope of prohibitions, and then that group seeks to garner adherents so as to enlarge participation outward on the scale of universality.

The Conference on Disarmament (CD) is neither resting between jobs, nor is it suffering terminal decline. The CD is simply out of work (i.e., the kind of work which there is agreement to embark). That is not to say there is any lack of disarmament work that needs doing. There is plenty to do, and some of it is urgent, but there is no broad agreement in the CD on what should be done next, nor on how much of some complex challenges should be tackled at a time.

So what is the CD's problem? Clearly the issue of multilateral nuclear disarmament is at the core of its paralysis. Success in

achieving a Comprehensive Test Ban Treaty (CTBT), the first five signers of which were the five declared Nuclear Weapon States, has whetted appetites for further progress in nuclear disarmament. I argue that satisfaction of that hunger is not likely to end in the near term. The motives of the Nuclear Weapon States (NWS) are misunderstood, their adherence to nuclear deterrence is underrated, and the notion that dudgeon and preachments alone will carve out a supervisory role for Non-Nuclear Weapon States is naive.

The non-nuclear CD members (NNWS), especially those of the Group of 21 (G-21), have the largest stake in keeping the CD occupied and productive. They have convinced themselves that it is time for the CD to take over the whole business of nuclear disarmament and to accelerate the pace of developments so that the total nuclear disarmament can be achieved in what the NNWS have come to call "a time-bound framework" -- whatever that means. The more radical leaders of the G-21 (i.e., radical on nuclear disarmament issues as seen from a NWS perspective) have imposed, through the CD's rule of consensus, a blockage on any further treaty negotiation in the CD on any subject until such time as the five NWS accede to the formation of a Nuclear Disarmament Sub-Committee in the CD, with a mandate to begin nuclear disarmament negotiations forthwith. These radicals seem to have convinced themselves that just a little more leverage will pry out of the NWS "the political will" to place their stockpiles on the CD negotiating table, where orderly and prompt reductions can be organized and supervised by the international community. In other words, the CD will do nuclear disarmament, or it will do nothing.

Making matters worse is a recently intensified atmosphere of bad feeling among nations when they contemplate long-range national security and disarmament issues. Perhaps the end of the Cold War greatly complicated national security alignments. The days are over when whole diplomatic careers in disarmament affairs could be made,

and even significant international recognition could be had, through eloquent indignation over what the US and USSR were doing or not doing. Increasingly, member states are expected to offer to do something themselves, not just to talk about the sins of others. That makes some old time third world diplomats nervous.

Perhaps some non-aligned states still feel they were railroaded in the 1995 Non-Proliferation Treaty (NPT) Extension Process. Perhaps some players feel the CD's rule of consensus was abused in the end game of the CTBT. The surest indication of national frustration in these matters is when one state or group of states accuses other disarmament players of simply lacking "the political will" to do the right thing. That almost always means that the accuser is totally disinterested in even hearing about, no less trying to understand, a recalcitrant's perceived national interests which are standing in the way of his agreement. This is but one indication that the dialogue in most multilateral disarmament forums has turned sour.

This foul atmosphere leads to international orneriness that finds expression in such tactics as retaliatory vetoes, work-program linkages, and UN disarmament resolutions drafted precisely to cause pain and embarrassment to some member or group, with no thought for agreement or progress. A little bit of parliamentary thrust and parry in the massively tedious UN disarmament debates helps to keep things lively. But when collectively we have rendered useless the CD, a potentially effective and flexible tool for important disarmament achievement, things have gone too far.

One reason a majority of CD members and disarmament-oriented Non-Governmental Organizations (NGO's) conclude that the CD has fallen behind the times is because they tend to take at face value the tone and content of the disarmament debate in UN bodies. It is easy to overvalue the importance of disarmament resolutions worked out in the UN General Assembly's First Committee (UNFC). As the annual cull of these resolutions widens, its quality sinks. Non-binding to

begin with, these resolutions are increasingly non-serious. A look at the UNFC product over the last decade reveals hundreds of resolutions that are repetitive, hyperbolic, and mostly composed of international disarmament cant and cliché. As proof of this prejudice, the fact remains that UNFC work is almost never mentioned in non-specialized journals or other media. Because UNFC votes are politically cheap and forgettable, they are frequently insincere.

Moreover, movement solidarity is often more important to UN members of the Non-Aligned Movement (NAM), both NNWS and Threshold States, than are precision, nuance and true reflection of their national points of view. Since the breakup of the Warsaw Pact, NAM voting on disarmament is the only discipline that resembles lockstep precision, and the cadence is called by a few influential leaders who practice outright disdain for the policies on nuclear deterrence embraced by the NWS. In short, there is a large, disciplined majority in the General Assembly that can be brought to bear on most disarmament issues, especially those touching on nuclear weapons, a majority that is responsive to a handful of leaders.

The Western nuclear powers, on the other hand, can count on only tepid support, at best, from most of their security treaty allies. In Western democracies, liberal constituencies in national bodies politic are much more attentive to UN disarmament developments than are conservative ones, and close calls in resolution work often reflect these political realities.

Disarmament committee participants in the General Assembly get no credit for, and have no incentive to take, bold and principled positions against popular and emotionally-charged disarmament appeals that are long on utopian aspiration but short on practical reality. All these factors combine to cause very lopsided vote results in favor of crowd-pleasing propositions. With exaggerated majorities attaching exaggerated importance to the calls for international supervision of nuclear weapons reductions, it is not surprising that

militants are encouraged to think that a few more nudges can push the NWS over the edge.

Add to this the encouragement anti-nuclear weapon factions find in: a) the 1996 International Court of Justice Advisory Opinion on the legality of nuclear deterrence; b) recent statements on nuclear deterrence by a number of generals and admirals who held command responsibility for strategic forces during the Cold War; c) the conclusions of the 1996 Canberra Commission; d) stirring and interlocking appeals by NAM ministers in recent summit communiqués;[1] and e) a popular though wishful misreading of undertakings by the NWS set forth in the 1995 NPT Review and Extension Conference document on Principles and Objectives for Nuclear Non-Proliferation and Disarmament.

Altogether, it becomes quite understandable that anti-nuclear weapon militants are emboldened, and willing to play for high stakes in the CD work program game. Still, their dream of dictating daring new steps in nuclear disarmament is not going to come true, certainly not in the way the militants in the CD would like to think it will. The concept of accelerated and total nuclear disarmament by the declared nuclear weapon states, to be carried out under the supervision of and according to a timetable set by the non-nuclear weapon states, frankly sounds absurd to leaders responsible for the national security policies of the NWS. None of the five NWS cares enough about the CD and its future that they would agree in the foreseeable future to give to it a negotiating role, or indeed any effective oversight, of their respective nuclear weapon stockpiles.

It would appear that the question of a future work program for the CD has become a dialogue of the deaf. This is not a sudden phenomenon. For more than a decade, one international disarmament debate, endeavor or conference after another has come a cropper over some aspect of nuclear disarmament.[2] Still, the militants convince

each other that one more push is all it will take. While their cause is not hopeless, the way they are going about it is.

It is hopeless for the anti-nuclear weapon militants to believe that higher decibel levels of indignation and more stridency in demands will bring the nuclear weapon states to abandon nuclear deterrence. Impassioned declarations and communiqués to the contrary notwithstanding, the NWS have made no stand-alone international commitments to total nuclear disarmament. The NPT itself, the documentation embraced at the NPT Review and Extension Conference, and to my knowledge all relevant official public commitments by national leaders of the NWS, all speak of doing nuclear disarmament in the context of general and complete disarmament under strict and effective international control.

Even the Chinese, with their calls for no-first-use and non-use conventions, miss no opportunity to display themselves as more forthcoming toward international nuclear disarmament demands than the other four NWS, but refuse to sign on to a commitment that *each* of the five NWS will separately pledge to reduce their individual stockpiles. China will, and did in the NPT Extension documentation, join the other NWS in committing to "the determined pursuit by the nuclear-weapon states of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons, and by all states of general and complete disarmament under strict and effective international control." But that commitment will be satisfied, in the Chinese view, so long as the total number of weapons in the *collective* stockpiles of the Five goes down. In fact, China, which sees itself as a latecomer to the nuclear club and far behind the others in numbers and sophistication of weapons, justifies continuing to add to its stockpile so long as those increases are more modest than aggregate reductions in the NWS weapons totals achieved by ongoing US and Russian destructions and dismantlements -- a very wide margin of freedom.

From this observation springs my first prescription for a cooperative approach toward the question of nuclear disarmament. Anti-nuclear weapon constituencies should stop treating the NWS as if they are in violation of exiting commitments, and instead should start building understanding and seeking common cause. For openers, the nuclear disarmament militants might pay more attention to, and show more respect for and encouragement of, the progress that has been made in bilateral superpower strategic arms control and disarmament, and in unilateral nuclear disarmament moves by the NWS. That will not hurt, and it might help, their cause.

Next, they might consider attempting to come to grips with NWS perceptions and interests. To begin with, the NWS and their nuclear weapon programs and stockpiles are quite different. Consider how diverse are the nuclear doctrines of France and China, on the one hand, as compared with those of the United States and the United Kingdom. The anti-nuclear militants would do well to take into account the separate threat perceptions of each of the Nuclear Weapon States.[3] The militants are underestimating the continuing reliance by all five NWS on nuclear deterrence. They also ignore the NWS perceived need for safety and reliability of the weapons in those stockpiles. Incidentally, the militants are also overestimating the desire of the NWS to have an active CD.

At a maximum, the separate NWS could only contemplate a carefully negotiated series of discrete nuclear arms reduction steps, each building on its predecessor steps, and each one accomplished in tandem with broader improvements in the international security environment. Complex, specialized, intrusive, expensive, and effective verification measures would be necessary all along the way.

Then, the anti-nuclear militants will need to deal with the logic in the British, French and Chinese views that until such time as the warhead quantities in the Russian and US nuclear stockpiles have been brought down from the thousands to levels in the hundreds, more in

line with their own stockpiles, there is not much by way of reductions that London, Paris or Beijing should be expected to undertake.[4]

The argument that the very existence of nuclear weapons poses a threat to the common interests of mankind is not so persuasive that the NWS will cease to wonder what might be the benefits to themselves and to the search for a solution to their common problem that would flow from dealing-in the outsiders.

There are many other obstacles that arise when one contemplates the path to multilateral nuclear disarmament negotiations. Before the question of a NNWS role in such negotiations would even arise for the NWS, they think they would need to know much more about how things might work. The outsiders who are seeking a voice in nuclear disarmament negotiations might begin by setting forth their own plans for dealing with obstacles. The following questions illustrate some of the challenges:

- Assuming the NNWS agree that there is some need to take into account overall international security dynamics, how would nuclear disarmament be accomplished in the context of, or at least in some relationship to, general and complete disarmament?

- It is no help to the cause of nuclear disarmers that they allow states like India and Pakistan to blur their own nuclear programs even as they shout the loudest about NWS sins and wicked motivations. Would the NWS plus India, Pakistan, Israel and other NPT non-signatories be free to continue production of fissile material for nuclear weapon purposes during nuclear disarmament negotiations? In general, what would be the role of the undeclared nuclear-capable states in the event of CD work on nuclear disarmament?

- In the militants' call for CD work on nuclear disarmament, do they see that work going forward in parallel with, or instead of,

US-Russian bilateral efforts like START and NWS unilateral disarmament efforts? If the former, how would that work?

- Would the CD take up verification considerations in nuclear disarmament? Why is verification never mentioned? Would verification apply just to the NWS, or also to non-signatories of the NPT?

The list of questions goes on and on. How do you disinvent nuclear weapons? If you moved toward elimination, how would you deter rogue states who might acquire a few primitive weapons good enough for nuclear blackmail? How many should be kept to deter terrorists?

All of these more detailed questions can be summed up in the following which I think makes my case. What advantages and benefits, from the point of view of their own national interests, might the NWS be missing by following their inclination to undertake actual negotiations about nuclear reductions at some future time among themselves, rather than in a large international disarmament forum? Do Non-Nuclear Weapon States have anything to bring to the table besides rhetoric and indignation?

This is not an essay about hopelessness. The eventual abolition of all nuclear weapons is and should remain the policy of each of the NWS. That eventuality can be made sooner and more definite by cooperation, understanding, and willingness to sacrifice also on the part of the Non-Nuclear Weapon States, and not just by the Nuclear Weapon States.

The disarmament community must learn to take smaller steps. Almost any disarmament endeavor can be threatened or have its back broken by overload. But overloading CD issues is the recent tendency. Sometimes projects are expanded by the participants' sense of justice and fair play. For example, equity suggested that the

Conventional Arms Register should publish not just arms transfers into poorer nations, but also arms manufacture and stockpiling by richer nations. But should that Register be terminated unless it also publishes nuclear weapon capabilities? Most think not. Another example, a ban on the production, henceforth, of fissile material for weapon purposes would seem to be in the general interest. But if that ban also requires disclosure and scrutiny of all existing weapon grade material, the payoff is made out of reach. Yet another example, non-nuclear weapon states want more binding and less conditional assurances that nuclear weapons will not be used against them. But is it really wise to denigrate all progress toward those goals if improvements fall short of a categorical single sentence treaty signed by the five Nuclear Weapon States, or if the improvements fail to run also in favor of non-signers of the NPT?

Perhaps the potentially most serious recent over-burdening of a disarmament project occurred during the end game of the CTBT negotiation. First, a small group of participants decided that a ban on nuclear explosive tests was not sufficient, and that the ban should be extended to cover any experiment or test relating to a nuclear weapon, even a computer simulation of a test. Then, at the eleventh hour, India, with some support, decided that a CTBT was not worthwhile unless it also included within it a binding commitment by the NWS to do further nuclear disarmament under the supervision of, and according to a timetable dictated by, all other parties to the Treaty. The attempt to ban testing with no nuclear yield failed when the Five Powers made it clear that safety and reliability of existing stockpiles were conditions precedent to "Banning the Bang." The Indian determination to "Ban the Bomb" altogether in a Nuclear Test Ban Treaty led to their veto of any CD outcome, and thus to the hijacking of the Treaty text from the CD to New York for direct action in the UN General Assembly.

Rather than overload, the CD should focus more on the art of the possible. It is a treaty-negotiating forum. Broad debate about what might be desirable in the wide realm of arms control and disarmament should be left to public discourse, NGOs, and to New York disarmament forums. This desirable division of labor would not exclude what might be called pre-negotiation debate in the CD, or debate about the scope of the potential treaty. With its rule of consensus, there is much less temptation in non-plenary CD meetings to play to the gallery or to the folks back home, as so many do in non-negotiating multilateral disarmament forums. When the CD is meeting in Committee or Working Group configuration, it can be quite efficient in discovering what is doable in disarmament. When the CD is focused on a recognized problem, its collective expertise and its freedom to concentrate without distraction often help expose and develop ways to solve difficulties that principals in capitals had not thought of.

In 1987-88, during the design phase of what became the Conventional Forces in Europe negotiations (CFE), the issue arose as to how the interests of the European neutral and non-aligned states could be taken into account in what was fundamentally a negotiation between the sixteen members of the North Atlantic Treaty Organization (NATO), on the one hand, and the seven members of the Warsaw Treaty Organization (WTO), on the other. It was agreed that the issues to be negotiated were the aggregate imbalances, or disparities, or asymmetries, between the two alliances in certain key categories of armed forces. The objective was parity at lower levels of confrontation. Only the forces and the land territories of the twenty-three parties were to be on the table. However, all thirty-five (at that time) states of the Conference on Security and Cooperation Europe (CSCE) had interests at play outside of the bloc-to-bloc dynamic. Austria, Finland, Ireland, Sweden, Switzerland, Yugoslavia and six smaller Neutral and Non-Aligned States (NNA) had many concerns,

not the least of which were implications for them of NATO and Warsaw Pact forces being squeezed out of dense concentrations in Central Europe toward the banks of the territories of the two Alliances.

The NNA wanted a role, but nothing that would implicate their forces or their territories. There were other political issues at play in trying to work out a compromise that would keep the CFE an autonomous negotiation among the twenty-three; and, at the same time, have it take place within the framework of the Helsinki (CSCE) Process. The NNA wanted, indeed they insisted upon, a role that would give them access, as a matter of right, to information about what was going on among the twenty-three, and which would also give them the opportunity to ask questions and make observations and recommendations to the twenty-three. Accordingly, an information exchange forum was institutionalized, providing for periodic meetings between the twenty-three and the thirty-five, that is, between two complete entities.

If I had to design a forum for an eventual international approach to nuclear disarmament, I would draw on that Vienna Conventional Armed Forces experience. That suggests that one would begin with informal meetings among the ambassadors of the five NWS Delegations in Geneva (let's call the NWS the "P-5" for the rest of this paper, because they consulted among themselves, and even negotiated a bit from time to time during the CTBT negotiations, calling themselves the P-5). At first, there would only be talks about talks. The US and Russia could brief the others on how START III was shaping up, nuclear confidence-building measures could be worked into the agenda, and verification discussions could begin.

Meanwhile, from the beginning of P-5 consultations on nuclear disarmament, a formal information exchange forum could be set up between the P-5 and the CD. This forum would meet periodically on CD premises. The P-5 would provide briefings and would respond to

questions. The members of the CD would make observations and recommendations to the P-5. When the CD met with the P-5, it would be in a non-public configuration, not in plenary, much like the kind of meetings the CD holds when it is working in committee. Whether or not the CD wanted to call itself an Ad Hoc Committee on Nuclear Disarmament during the information exchanges with the P-5, and whether or not the CD wished to call the diplomat presiding during those information exchanges a Chairman or a Special Coordinator, or some other name, those are not important questions.

If these private information exchange meetings degenerated into nothing but scoldings about a lack of "political will", they would probably peter out and not be renewed the following year. However, if the NNWS used the occasions to probe for more understanding about the national security interests of the P-5, and for ways that the NNWS might take actions that would help improve the overall international security climate, then who knows what might eventually come about?

In sum, if proponents of nuclear disarmament could think more deeply about the value of understanding and dealing with the Nuclear Weapon States' perceptions of their own interests, I think gradual but real progress could be made.

But, if the former put all responsibility on the latter, and offer nothing themselves except shouting and linkages, there will not be much future for multilateral arms control.

Notes

1. See Paragraph 85 of the Document issued at the October 1995 Cartagena Summit Meeting on Non-Aligned Movement Ministers.
2. A list of failures caused by disagreements regarding nuclear disarmament:

- 1986 - Second UNGA Special Session on Disarmament
- 1998 - Third UNGA Special Session on Disarmament
- 1990 - NPT Review Conference
- 1991 - UNDC Study on Nuclear Disarmament
- 1993 - UNDC Study on Nuclear Disarmament
- 1995, 1996 and 1997 - No CD work on Fissile Material Cut-off, although it had been agreed upon
- 1995, 1996 and 1997 - No agreement to schedule a fourth UNGA Special Session

3. To make this point more starkly, let us suppose the US and Russia issued a call for a discussion in some Pan-Asian forum, or even the CD itself, among China and CD members of the G-21 who are militants calling for multilateral nuclear disarmament, and who are also neighbors of China, perhaps India, Pakistan, Mongolia, North Korea, Viet Nam and Myanmar (none of whom ever criticized a Chinese nuclear test explosion in the CD). These neighbors could be asked to come up with recommendations on how to stop the nuclear arms race in South Asia as a first step on the road to nuclear disarmament. China could share with these folks its perceptions of potential threats to its security interests from Russia and the United States. Do not be ridiculous, you say? Then why is it considered perfectly respectable for members of this same group to block entry into force of the CTBT, block commencement of any work on fissile material cut-off, and block universal participation in the NPT? The answer we would get from China's neighbors is that India, Pakistan, etc. have national interests that must be understood and respected, while the United States, Russia, etc. simply lack "political will" to do the right thing.

4. I suppose this does not seem like a serious disparity or a significant obstacle to those who have reasoned to the righteousness of their own presence at the bargaining table, where only the assets of others will be in play, but the Five believe strongly that nuclear disarmament talks among themselves, which are not seen on the horizon, would have to be more advanced before there could be any role for other parties.
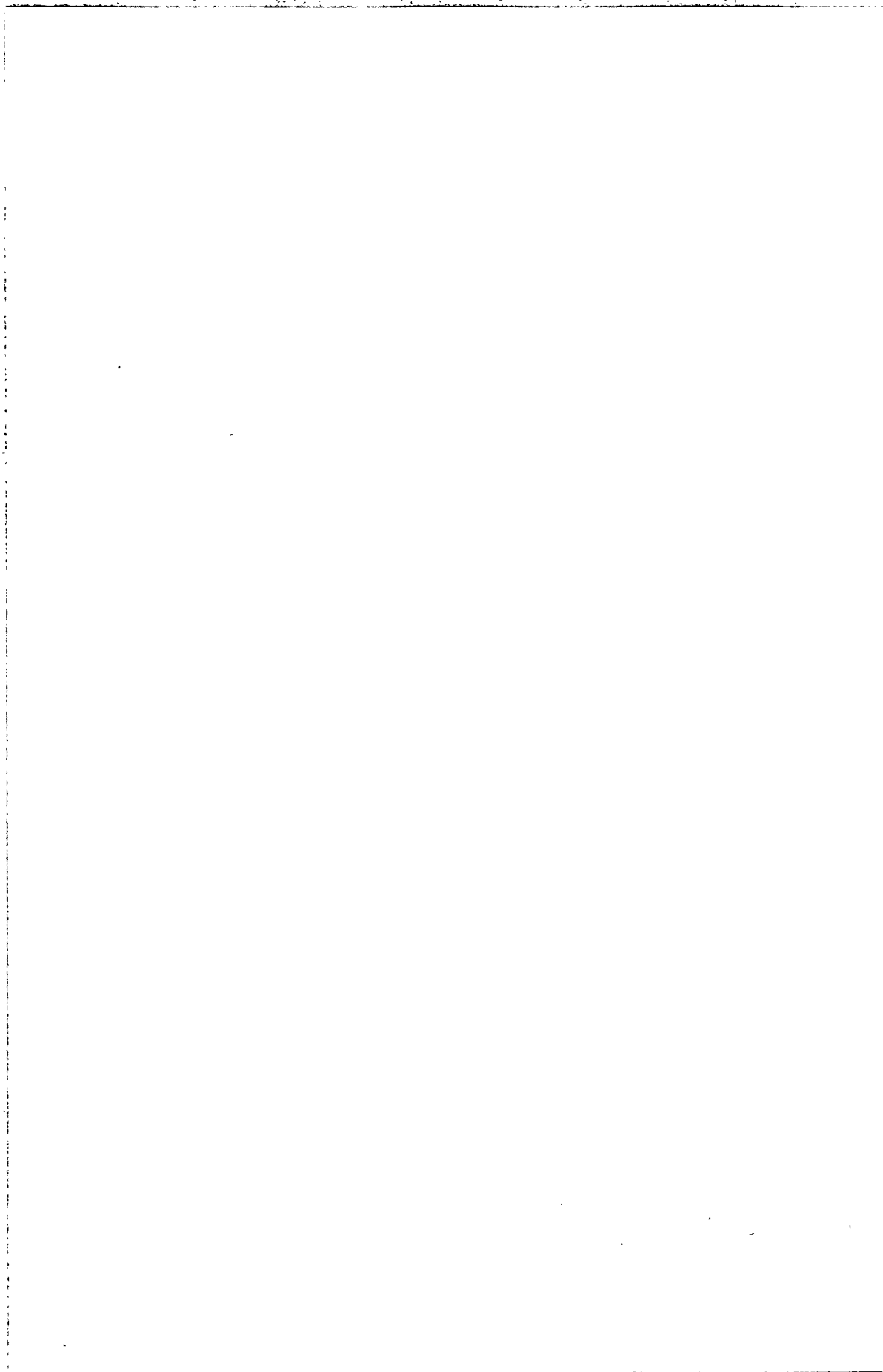
Chapter 10

The Future of Multilateral Arms Control

Sha Zukang

Fundamental changes have taken place in the international arena since the end of the Cold War. The relaxation of international tension has produced an unprecedented opportunity for progress in arms control and disarmament affairs. As a result, a series of significant achievements in multilateral arms control has been made.

After a decade of negotiations, the Chemical Weapons Convention (CWC) was opened for signature in 1993 and later entered into force in April 1997. This has provided a legal basis to eradicate, on a global scale, an entire category of weapons of mass destruction. The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was extended indefinitely in May 1995, giving impetus to the further strengthening of the international regime on non-proliferation. After 40 years of persevering efforts by the international community and, in particular, the painstaking negotiation of almost three years, the Comprehensive Nuclear Test Ban Treaty (CTBT) was concluded in August and opened for signatures in September 1996. The States Parties to the Convention on Certain Conventional Weapons (CCW) unanimously adopted a protocol on blinding laser weapons and a new protocol on anti-personnel landmines in October 1995 and May 1996, respectively, thus re-enforcing the existing legal framework aimed at further regulating the conduct of war and reducing the result of cruelties of war.

In particular, the new landmines protocol is also conducive to reducing civilian casualties caused by the indiscriminate use of anti-personnel landmines. Additionally, in June 1997, after four years of

negotiation, the International Atomic Energy Agency (IAEA) adopted a model agreement aimed at strengthening the effectiveness and improving the efficiency of the safeguards system.

Furthermore, progress has also been made in the bilateral efforts in nuclear arms reduction between the United States and Russia, the two biggest nuclear-weapon states. In 1987, the US and the former Soviet Union signed the treaty on the elimination of Intermediate-Range Nuclear Forces (INF). In 1991 and 1993, the START I and START II negotiations were concluded between these two countries, each undertaking to make deep cuts in their deployed nuclear weapons.

After all of these impressive achievements, multilateral disarmament has recently almost ground to a halt and is now in a state of impasse. This is amply demonstrated by the current situation in the Conference on Disarmament (CD). As a multilateral disarmament negotiating forum, the CD has been in a state of inaction ever since the conclusion of the CTBT in August 1996. During this period of one and a half years, little has been achieved from the endless and sterile debates among the member states over the agenda. Outside the CD, despite the fact that the so-called "Ottawa Process" enjoyed sudden fame and finally culminated with the Ottawa Treaty which banned all anti-personnel landmines (with several major countries opting out of the Treaty), the Ottawa Treaty's effectiveness and significance as a multilateral disarmament treaty have been called into serious question.

In addition, the NPT review process provides the non-nuclear weapons states with a forum to criticize the nuclear weapons states. But, this process is highly unlikely to achieve anything of substance. Recently, some countries have begun to place greater emphasis on the negotiation for a verification protocol for the Biological and Toxin Weapons Convention (BTWC), calling for the conclusion of the

protocol by year's end. However, judging from the current state of negotiations, this ambitious time frame seems unlikely to be realized.

There are many reasons for such a standstill, but the principal ones seem to be the following:

1) Within a matter of a few years after the dissipation of the East-West confrontation, the world witnessed the conclusion of several multilateral disarmament treaties, which contain unprecedented provisions. The Chemical Weapons Convention, for example, carries an intrusive verification regime, including challenge inspections. For a while, the concept of a challenge inspection, based on the principle of "any time, anywhere, with no right of refusal," almost became sacrosanct. Any country that dared to say no to this concept would be accused of either being "unclean" or insincere towards arms control negotiations. The CTBT may be different from the CWC in some specific verification provisions, but the basic principles underlying these provisions are almost identical. What are the implications of these treaties and their provisions? How does the international community go about implementing them? Countries need to have the time to digest these treaties and to see their effects on the implementation phases before plunging into new treaty negotiations.

2) During the Cold War period, the arms control negotiations mainly took place between the Eastern and Western blocs and the US and the former Soviet Union. The few multilateral disarmament treaties that did exist at that time were little more than political statements. After the end of the Cold War, multilateral arms control is becoming more and more substantive, involving more and more countries and touching upon a wide range of interests, including military, political, and economic. This makes many countries more cautious in their attitudes towards disarmament negotiations.

3) Most importantly, even though the Cold War has ended, some countries, especially a few of the major military powers, still persist in their Cold War mentality. On the one hand, they attempt in every

possible way, including through multilateral arms control treaties, to restrain other countries' military capabilities. On the other hand, they spare no effort in developing advanced weapons by using their economic and technological advantages, in order to seek absolute security for themselves. Backed by their overwhelming military strength, they also continue to interfere in other countries' internal affairs, even resorting to the threat of the use of force. This has not only poisoned the atmosphere for international disarmament efforts, but will also gravely impair global security, and impede future progress.

Arms control agreements are the result of a relaxed international environment, and thereby also give impetus to its further relaxation. This point has been fully demonstrated by the contemporary history of international relations. Nowadays, the trend is toward multipolarity. Furthermore, this is a transition period, moving from an old international order to a new one. The efforts at international arms control, especially those of multilateral regimes, provide a powerful momentum for the further relaxation of the international tensions and for the establishment of a fair and just new world order. However, genuine progress in this field can only be made possible if all countries abide by the principle of equality among all states and to seek peaceful solutions to international disputes. Such an environment will help reduce some basic motivations by many countries to acquire armaments. In this respect, some major military powers have an unshirkable responsibility.

In setting the agenda for multilateral arms control, priority should be given to those topics that are really conducive to the maintenance of global strategic stability and to the security of all nations. The targets of multilateral arms control should be those military powers that possess military capabilities exceeding their legitimate defensive needs, instead of the vast number of developing countries. This will assist in preventing multilateral arms control from deteriorating into a

means by which the big and the strong imposing their will on the small and the weak. Based on these principles, it seems appropriate to focus multilateral arms control efforts on the following topics:

1) The international community should continue to urge the US and Russia to make further reductions in their large nuclear arsenals. At present, these two countries continue to maintain a nuclear overkill capability sufficient to destroy mankind several times over. Even after the reductions that are provided for under START I and II, the US and Russia, each, will still have 3,000 to 3,500 deployed strategic nuclear warheads. Efforts should be made to urge the US and Russia to fully implement the existing nuclear reduction agreements and begin, as soon as possible, negotiation on START III. Moreover, in order to ensure the irreversibility of the nuclear disarmament process, the reduced nuclear warheads should be destroyed rather than transferred from a state of deployment to a state of stockpiling, which, in essence, is merely a housekeeping procedure for the nuclear warheads.

2) During the Cold War, the Anti-Ballistic Missile (ABM) Treaty was the cornerstone of the strategic balance between the United States and the former Soviet Union. Even today, it is still playing a unique and stabilizing role for global security. Any attempt to circumvent, misinterpret, amend or even scrap this treaty will inevitably undermine the basis for further progress in nuclear disarmament or may even cause a new round of escalation in an arms race.

In recent years, there has been more and more information regarding the US's research and development in advanced missile defense systems. According to relevant programs released by the US government, some of these systems have potential strategic defense capabilities. This is a view shared by the entire international community, and has been admitted even by US government officials. In addition, the US is engaged in cooperation with its allies in developing and deploying missile defense systems capable of

intercepting strategic missiles. This will inevitably impair regional and global security. Therefore, the international community should take a collective stand against such actions.

3) Outer space is the common property of all humanity. For years, the prevention of an arms race in outer space was a major agenda topic of multilateral arms control. With the disintegration of the Warsaw Pact and dissipation of the East-West confrontation, this argument was, for a while, put on the shelf. Recently, however, it has been receiving increased attention, due to the fact that the United States is devoting resources and a great deal of effort to developing anti-satellite weapons, as suggested by the laser weapon's test conducted recently. Moreover, the US is undertaking research on deploying in the outer space key components of ground-based missile defense systems, including satellite-based missile detecting and tracking sensors. Such activities are intended to consolidate and expand the US's advantage in high technology weaponry and strategic security. These initiatives will have a negative effect on global security and may even touch-off an arms race in outer space. Under such circumstances, it is imperative that the international community concludes a treaty to prevent the weaponization of outer space.

4) It has been a long-standing demand of the non-nuclear weapons states that the nuclear weapons states should forego, in a legally binding form, the use or threatened use of nuclear weapons against non-nuclear weapons states. Such a justified and reasonable demand will be conducive to international efforts against the proliferation of weapons of mass destruction and, thereby, improve global security. In this regard, the UN Security Council adopted a resolution in April 1995 in which the five nuclear weapons states pledged, in varying degrees, not to use nuclear weapons against non-nuclear weapons states. However, it appears that the US presidential decree on nuclear strategy issued at the end of 1997 seems to have backed down from

the US's previously declared position. This presidential decree suggests that the United States will retaliate with nuclear weapons against any chemical and/or biological attack. This policy, if proven to be true, will be in contravention with the publicly stated position of the US government on negative security assurances. Such a policy heightens the necessity and the urgency in securing a legal instrument on negative security assurances at the Conference on Disarmament.

5) It has been the Chinese government's consistent position that the five nuclear weapon states should undertake a mutual commitment of "no-first-use" of nuclear weapons. In January 1994, China presented to the other four nuclear weapons states such a draft treaty. With the relaxation of international tensions and the improvement of relations between the major powers, the nuclear deterrence policy based on "first use" of nuclear weapons has become more and more of an anachronism. In fact, this position is turning into an obstacle for the further improvement of relations between the major powers in their dialogue on issues of nuclear weapons. It is China's hope that the other four nuclear weapons states give serious consideration to this Chinese proposal.

6) The international community is still faced with a grim situation in the field of non-proliferation of weapons of mass destruction. Despite the remarkable enhancement of the universality of the NPT, there are still a few significant nations not subscribing to this Treaty. To accede or not to accede to an international treaty is purely a sovereign decision for a sovereign state to make. No one has the right to interfere in such a decision. While recognizing this basic principle of international law, the international community should still *encourage* the countries concerned to take practical measures to reduce regional tensions and join these relevant international treaties at the earliest date possible for their own political, security and economic interests, as well as for the interests of regional and global peace and security.

7) Finally, while strengthening the non-proliferation regime, efforts should be intensified in enhancing international cooperation in the peaceful use of nuclear, biological, chemical and space technologies. Non-proliferation requires the common efforts of the entire international community. The discriminatory export control groups established by a small number of countries based on their monopoly of technology can not be genuinely effective in non-proliferation. These discriminatory efforts can only deepen the animosity among countries and are likely to be abused by some countries for selfish ends. Therefore, these export control groups should be either modified or abolished altogether, and be replaced by global arrangements conducted on the basis of universal participation.

Chapter 11

Multilateral Arms Control: Its Future

Alexei G. Arbatov

The very term "arms control" is usually associated in the public's mind with the "classic" three decades of arms control endeavors, the SALT/START negotiations and treaties between Moscow and Washington. In some sense, it is well justified, because during the five decades after 1945, the dialogue of the United States and the USSR on nuclear arms was both, the most important on its own terms and crucial for all other disarmament initiatives.

Still, the predominant portion of the world arms control and disarmament efforts with much longer histories and a record of more radical agreements have actually been multilateral. Even without going too far back into history, the 11th century Lateran Congresses' agreements to ban the crossbow (as an exceedingly destructive weapon), or to the London naval and Geneva chemical weapons conventions, the modern post-1945 multilateral arms control agreements may boast of a long list of earlier great historical antecedents. Most prominent among those are several large nuclear-free zones in various regions on the world, the Threshold Test Ban/Limited Test Ban/Comprehensive Test Ban (TTB/LTB/CTB) Treaties, a treaty banning mass destruction weapons in outer space, Nuclear Non-Proliferation Treaty (NPT) and its subsidiary regulations and "clubs", the Biological and Toxin Weapons Convention [(BTWC) with some reservations], the European Confidence Building Measure (CBM) and transparency agreements, the Missile Technology Control Regime, and the Chemical Weapons Convention (MTCR and

CWC), which were finally ratified by the Russian parliament in the fall of 1997.

The Conventional Forces in Europe (CFE) and Open Skies Treaties, initially conceived as basically bilateral (NATO-WTO) agreements, quickly turned into multilateral Agreements with the disintegration of the Warsaw Pact and the Soviet Union in 1990-1991. Regional arms control efforts have recently demonstrated both success (the Balkans) and failure (Middle East and South Asia).

At present, it is almost universally accepted that with the end of the Cold War and bipolarity, multilateral arms control (foremost in the realm of non-proliferation) will supersede bilateral US-Russian nuclear-strategic dialogue in both its importance for international peace and security and its role as a locomotive for the evolution, in the world, of the overall arms control system. The main thesis of this paper is, therefore, that the above notion of multilateral arms control is at least simplified and premature, and quite possibly altogether wrong and counterproductive.

One reason is the fact that, as a result of the first post-Cold War decade, the great powers have found themselves in a very asymmetric security state. Whereas the US, its European allies and China have greatly enhanced their security and relative power, Russia, on the other hand, has become much weaker and vulnerable in economic, military and political terms. No new type of nuclear relationship has been conceived to supersede nuclear deterrence. Russia has not become an ally or even a genuine security partner of the West. Hence, after a few years of euphoria, Moscow is once again mostly interested in traditional and largely bilateral arms control (i.e., vis-à-vis the US and the West).

Simultaneously, Russia's cooperation remains essential in promoting multilateral arms control of the NPT/CTB/CWC/MTCR type treaties. China's cooperation on the latter is also becoming more important, while Beijing is showing an increasing interest in the

progress of US-Russian START/ABM processes. China does not desire either a renewed arms race between the two big nuclear powers, nor a further rise of American strategic preponderance.

Another reason is that not only politically, but also strategically and technically, the classic bilateral START II/III and ABM/TMD arms control dialogue by the US and Russia will be increasingly intertwined with multilateral cooperation on many issues. Actually, for better or for worse, the ABM Treaty has already been transformed into a multilateral agreement. Besides, the US-Russian START/ABM process, in the near future, will be much more tangibly affected by third nuclear weapons states' (TNWS) programs and postures, ballistic missiles and weapons of mass destruction (WMD) proliferation in the world, than the changing conventional forces balance and capabilities.

For their turn, TNMS' nuclear programs and the willingness to join strategic arms control would be largely predicated on the evolution of US-Russian START/ABM dialogue, as well as on the trends in global and regional non-proliferation. In contrast, the latter would hardly be affected by US-Russian strategic arms control efforts. However, TNWS' nuclear postures (foremost that of China's) will matter considerably for regional missile and WMD proliferation.

At the same time, US-Russian relations would be crucial for the activities of the UN Security Council on regional conflict-management and non-proliferation measures. Multilateral arms control, both, global (NPT, CWC, CTB, MTCR) and regional (Europe, Middle East, South Asia, potentially North-East and South-East Asia) will continue to be heavily dependent on the consensus of the permanent members of the UN Security Council, for which US-Russian accord will be necessarily crucial. In most cases, Britain will support the US, France would hardly oppose them if Russia is on board, and, in such cases, China would not want to be isolated.

Reducing, keeping under better control, and eventually doing away with tactical nuclear weapons (TNW), which are the most

dangerous in the sense of proliferation, would largely depend on the evolution of conventional forces, and the relations between Russia and the West, and, in particular, on CFE II, in light of the envisioned NATO expansion to the East.

Beside implementation of the CWC, ratification of the CTB and the signing of CFE II, other issues will be moving to the foreground of multilateral arms control, at least in the short-term and mid-term future (5-10 years). Due to the service cycle of various weapons, and cuts in the defense expenditures of the great powers (except China), the new huge problem will be the safe disposal, utilization and conversion, as well as prevention of leakage and proliferation of the military legacy of the Cold War, both material and intellectual. This relates to nuclear and chemical weapons, withdrawn from service, decommissioned nuclear-powered submarines, fissile materials from nuclear weapons and atomic reactors, liquid missile fuels, bacteriological samples, and huge conventional arms in storage.

Furthermore, this also implies dealing with large accumulated military production capacities, and defense engineers and scientists. The latter individuals should be given alternative purposes and employment to prevent the proliferation of their products and expertise into dangerous regions and organizations of the world. The above non-traditional types of arms control will also greatly depend on the relations of Russia with other post-Soviet states, as well as those with the US and its Western Allies.

All in all, the point of this paper is that, in the foreseeable future, bilateral arms control would not yield its place to the multilateral efforts, but rather both types will become much deeper intertwined with each other and with regional conflict-management and peacekeeping efforts. This would require a lot from the US, Russia and the other great powers; a much better intellectual grasp of such interactions, a deeper understanding of each other's interests and priorities, and, by far, a much more efficient organization of their

policy-making processes and domestic politics in the realm of international security. As of now, in all of these tasks, the American and Russian record leaves a lot of room for improvement, to say the least.

1. The new stage in the US-Russian strategic arms control

As is well known, the fundamental linkage between horizontal nuclear non-proliferation and vertical nuclear arms reduction and limitation was established by Article VI of the NPT, which states: "Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament...".

For all practical purposes, by the late 1990's, the US and Russia have fulfilled their NPT obligation to take "measures relating to cessation of the nuclear arms race." As recently as only ten years ago, the US was simultaneously deploying four new strategic ballistic and cruise missile systems (MX Peacekeeper, Trident-1, ALCM and SLCM), one SSBN and one heavy bomber system (Ohio-class and B-1B), as well as developing and testing four more missile systems (Trident 2, Midgetman, ACM and SRAM-2), and one new bomber type (B-2). The USSR was deploying six ballistic and cruise missile systems (SS-24, SS-25, SS-N-20, SS-N-23, SS-H-21 SLCM and AS-15 ALCM), two new SSBN classes (Typhoon and Delta-IV), and one heavy bomber type (Tu-160 Blackjack), as well as pursuing R&D on at least four other ballistic and cruise missile systems (SS-25M, new SLBM, SLCM and ALCM types). Each side had about 10,000-12,000 nuclear warheads in its strategic forces and 15,000-20,000 tactical nuclear weapons of great variety.

At present, the US is finishing the construction of one last Ohio-class submarine and procuring at a slow pace the remainder of the 20

B-2 bombers. Russia is deploying only one SS-27 single-warhead ICBM system at very small numbers per year. Neither of the two powers has any other high-priority strategic modernization program.

At the same time, in line with the START II Treaty, as adopted at the Helsinki summit of March 1997, the US and Russia are planning to reduce their strategic nuclear forces from the present 6,000 to 3,000-3,500 warheads by the year 2008. By the same date, if the START II Treaty is properly ratified and implemented, the two parties have agreed to undertake still further reductions to about 2,000-2,500 by the time of the START III Treaty. Besides, both parties have reduced their tactical nuclear forces to 1,000-2,000 weapons, and, in ten years, these would probably be counted in the few hundreds.

Nonetheless, the end of the Cold War does not necessarily imply the end of nuclear arms modernization (if only on a very small scale), or nuclear deterrence on the basis of mutual assured destruction (MAD) capability. As long as Russia and the United States retain nuclear weapons, which are technically capable of reaching each other's territories, their relationship will remain that of mutual deterrence. Being enemies is not enough for making mutual deterrence irrelevant. Its irrelevancy will occur when, and until, former opponents become allies. Such a state of relations has been and continues to be the case with the formal relations among the United States, Britain and France, as well as the informal relations which existed between the US and China in the late 1970-mid 1980's, and to some extent exist between Russia and China now in the late 1990's.

In contrast to this, the United States and Russia, up to the present day, have not become allies, although they are no longer enemies or principle opponents. Their "partnership" is quite in an amorphous transitional intermediate state of relations, somewhere between rivalry and alliance. Apparently, such a state of imminent or residual mutual nuclear deterrence, which most of the time is in the far background of

the political relationship, is quite adequate to the present transitional state of US-Russian post-Cold War relations. Depending on strategic force funding and the future of START II/START III Treaties, their force levels in ten years may go down to 1,500-2,000 or even to around 1,000 warheads (with part of forces de-alerted or de-activated) without changing the basic mutual deterrent nature of their strategic relationship. Making a quantum jump to some really different basis would require a further shift to much closer relations, then "partnership", i.e., to a formal or informal alliance. The prospect of this happening will depend on many factors external to the US-Russian strategic nuclear relationship.

The perceptions of the new post-Cold War strategic realities in the US and Russia, up to now, have been quite inconsistent, both at the official level and within the strategic communities. Russia, while declaring the irrelevance of the MAD doctrine and former calculations of the conventional balance, is in fact increasingly concerned about traditional notions of strategic stability, parity and mutual deterrence, as well as the conventional force balance in Europe and in the Far East. These concerns have been greatly exacerbated by the initiation of NATO's extension to the East against official Russian objections and political resistance, as well as by the expanding instability along the Russian southern rim.

In the foreseeable future, for Russia, the major objection to substantial unilateral reductions of nuclear arms, or very deep bilateral cuts together with the US (i.e., below 1,000 warheads), would be Moscow's newly acquired preference for a strong nuclear posture. In times of economic, political, ideological and military weakness and uncertainty, a sufficient nuclear arsenal is perceived by the majority of Russia's new political elite as the only legacy of its former status and influence in the world, making it still formally equal to the US and superior to all other nations.

However, due to the dismemberment of the Soviet strategic force in the early 1990's, a tremendous shortage of funding for nuclear force maintenance and modernization during the rest of the 1990's, as well as a result of some technical failures (in particular with the new SLBM program), Russia is facing a prospect of a steep decline in its strategic force levels and their C^3I systems. Depending on a number of financial and technical assumptions, Russia's strategic force level could be in the range of 1,000-1,500 warheads by the year 2008 and around 500-700 warheads by the year 2015. Ironically, to keep up with the START II levels, Russia would have to embark during the next decade on a crash strategic build-up, comparable with its programs during the Cold War.

With the extension of START II implementation within five years, its reduction and limitation requirements would mostly affect the US and Russian force levels. The only exception is the option to revive the MIRVed ICBM system, which would be closed under START II/III and which might raise Russia's force level up to 2,500 warheads by the year 2008 and to 3,000-3,500 warheads by the year 2015. However, if Russia takes this path by abandoning arms control, the US would be able, by the above dates, to maintain a clear-cut superiority at a level of 5,000-6,000 warheads.

Apparently, such a course of events would hardly be conducive to Russia's security and nuclear status. Neither would it be consistent with its emphasis on enhanced nuclear deterrence, at least with regards to the US and NATO. Huge Western superiority in most parameters of conventional force balance in Europe on land, in the air, and in the surrounding seas would still be greater with NATO extension to the East. However, Russia's ability to make-up for that by emulating NATO nuclear first use/flexible response doctrine of the Cold War period would be handicapped by Russia's projected nuclear inferiority, which is considerable under the START II/III framework, but even larger without it.

In light of these circumstances, Moscow's preferred course should be (and it is) to downsize together with the US to much lower strategic force levels: 1,000-1,300 warheads by the year 2008 and still lower (600-800) by the year 2015. Nonetheless, besides American ambivalence on this issue, there are several other obstacles to this option of radical nuclear force reductions: the third nuclear powers' arsenals, strategic defenses, tactical nuclear weapons, conventional force balance and, in particular, conventional counterforce capabilities of the new generation long-range precision-guided weapons. All of these would require multilateral agreements and all would be transforming bilateral arms control into multilateral endeavors.

The United States has been quite inconsistent in addressing traditional and new security threats. When dealing with the prospect of the elimination of Russia's remaining heavy SS-18 ICBMs, the START II provision for the banning of all future MIRVed ICBMs, Russia's cooperation with Belarus on joint air defenses, or Moscow's (barely alive) submarine shipbuilding program, the US is operating largely within traditional strategic frames of references. The same is true of the US's attitude to much deeper cuts envisioned by START III in strategic force reductions or the revised US nuclear posture.

In contrast to these, when dealing with the issue of national ballistic missile defense, NATO extension, CFE II conventional force reductions and limitations, the US official position and views of its strategic community assume that traditional concepts no longer apply (at least as they are perceived from Moscow's perspective). Most of all this applies to the problem of tactical and strategic missile defenses, which are quite likely to affect not only bilateral, but multilateral arms control developments.

2. Ballistic missile defenses

After the end of the Cold War, in the early 1990's, the threat perceptions of the US and West European governments and publics were rechannelled from the East-West geopolitical rivalry and arms race to regional conflicts and weapons proliferation. Within this context of proliferation (i.e., besides Russia and China), among US potential adversaries with ballistic missiles of various ranges, are Iran, Iraq, Libya, North Korea, Syria, and Yemen. Under worst case scenarios, these adversaries may be supplemented by Afghanistan, Argentina, Egypt, India, Saudi Arabia, and Pakistan, if domestic and regional instability brings anti-Western regimes to power in these countries.

Ten states have indigenous missile development and manufacturing capabilities (Argentina, Egypt, India, Iran, Iraq, Israel, Libya, North Korea, Pakistan, and South Korea). This suggests that further enhancement of the Missile Technology Control Regime (MTCR) would hardly affect these states, and even if they joined the MTCR, it would only curtail their missile exports. Some of the above states are also suspected of having developed, or are developing, nuclear arms, and most of them have stockpiles of (or production capacity for) chemical weapons, and several are believed to posses, or to be working on, biological weapons.

Although all of these countries' missiles are out of range of the continental United States, they might present a threat to American allies in Europe and the Far East, as well as to US power projection forces operating overseas.

As for the Russian Federation, all of the above missile-possessing states, plus Israel, Taiwan and South Korea, hypothetically might become Moscow's adversaries. Technically, they could implement missile strikes at Moscow's Commonwealth allies or at Russian troops abroad operating as part of UN mandated multinational forces. On

top of that, various parts of Russia's own territory are already within range of the missiles of India, Iran, Israel, North Korea, and Saudi Arabia.

In response to the above contingencies, and relying on the experience of the Gulf War, the Clinton Administration has initiated a major arms development effort to provide US armed forces with effective theater ballistic missile defense (TMD) capabilities. In Russia, there are a number of competing TMD systems, which are greatly handicapped in their development by the shortage of defense budget appropriations.

The renewed US and Russian interest in anti-missile defense systems, this time at the theater level, has once again harassed the ABM Treaty, which was "besieged" in the 1980's by US attempts to justify its Strategic Defense Initiative (SDI) program. In the SCC, in November 1993, US-Russian negotiations began with the goal to establish a demarcation line between strategic and theater ballistic missile defenses.

These discussions have led to an agreement, signed in New York in September 1997. In particular, TMD land-based and air-based interceptors' speed is to be limited to 5.5 km/sec and sea-based interceptors to 4.5 km/sec. It was also agreed upon that these systems would not be tested before 1999 or against reentry vehicles with speeds in excess of 5 km/sec and with a range of 3,500 km, and neither against any strategic missile warheads or MIRVs.

However, protecting the territories of Russia from the US and its allies, from limited strikes by intermediate range and intercontinental ballistic missiles with nuclear warheads is not feasible with the assistance of theater missile defenses, however permissively these missiles' parameters are formulated. Because of the asymmetric threat perceptions, and the defense requirements of the US and Russia, it would be extremely difficult to incorporate such systems into the ABM Treaty. Hence, this Treaty may have to be fundamentally

revised. The Republican majority in the US Congress is pushing for a fundamental revision or unilateral withdrawal from the ABM Treaty in order to deploy a national strategic missile defense system in the United States.

No doubt, unilateral decisions on the ABM Treaty, on advanced defensive systems and their testing and deployment, would be detrimental to further nuclear arms reductions by the great powers and, eventually, to non-proliferation restraints among the non-nuclear states.

First of all, unilateral revision or abrogation of the ABM Treaty by the United States would undercut implementation of the START II Treaty, to say nothing of START III or more radical force reductions (below 1,000 warheads). Russia would have to double or triple its strategic force funding to sustain much high force levels and enhance ABM penetration capabilities, including the development and deployment of a new-generation MIRVed ICBM.

No doubt, China would also react to the United States ABM system and to Russian offensive/defensive programs with accelerated strategic missile modernization of its own, including introduction of MIRVed ICBMs and SLBMs. This, in turn, would provoke India to embark on a larger scale nuclear/missile program of its own, which would also trigger a Pakistani reaction, which would then be followed by Iran, Iraq, Israel, and possibly Libya. Japan and Taiwan would be placed in a difficult dilemma in deciding whether to acquire nuclear capabilities. France and Great Britain would most probably respond by larger-scale offensive MIRVed missile systems deployments in view of the Russian programs and nuclear proliferation in Asia and Northern Africa.

3. Multilateralization of strategic arms control

In case of an ABM Treaty disruption, the prospects of TNWS joining in the process of nuclear arms control would be hindered for a long time, thus affecting the willingness of the United States and Russia to contemplate deeper strategic forces reductions. On the other hand, even if the US and Russian defenses are kept limited and offensive forces further reduced, expanding strategic arms control and making it multilateral would present a formidable task indeed.

At present, British nuclear forces with strategic weapons characteristics comprise around 200 warheads on SLBMs. French forces account for 400 warheads on SLBMs and MRBMs. China has about 120 warheads on land-based and sea-based missiles and about 150 weapons on medium-range bombers. Of these, only 20 warheads are deployed on ICBMs and SLBMs. China's modernization program, in particular, would seriously affect US decisions on ABM deployment, which would influence US-Russian START talks and proliferation, as discussed above.

Indirectly, and in the longer perspective, the willingness of Great Britain, France and China to join strategic arms limitation and reduction regimes will be decisive for the US and Russian decisions to cut below the 1,000 warhead levels and to undertake deep measures of de-alerting and de-activating their nuclear forces, thus radically reducing tactical nuclear weapons and eventually going for the so called "virtual nuclear arsenals." In this case, the transitional stage of US-Russian post-Cold War relations would be transformed into a genuine partnership or alliance and nuclear deterrence would be superseded by joint management, and in command and control of the remaining weapons, storage sites and nuclear materials.

It is presently difficult to foresee the forms that will take place of a third nuclear power joining in the process of strategic arms control. France and Britain might be the first to do this in ten years, if Russia

and the US go for deeper cuts under START III, as now unofficially being proposed by Moscow (down to 1,300-1,500 warheads). In this case, for instance, France and Great Britain might reach an agreement with Russia to cap SLBM forces of Europe and Russia at a ceiling of 500-600 warheads.

China might join later, in 15 years, depending on the evolution of its relations with Russia and the United States. For example, all three powers could agree to limit their silo-based ICBM forces to a ceiling of 300-500 warheads.

Another option might be limiting combat ready strategic forces of all five nuclear powers to an equal ceiling of 300-500 warheads, regardless of their different force structures or weapon systems. This might be acceptable to the United States and Russia if their talks on de-alerting and/or de-activation moved forward in parallel with actual arms cuts. Thus, the US and Russia, in 10-15 years, could reduce their forces to 1,000-1,500 warheads, while only 300-500 warheads were kept "combat ready," and the rest were counted as de-alerted systems and stored separately from them under mutual control.

Of course, the TNWS might object to this arrangement as unfair, since the reconstitution capacity of the "big two" would remain superior to their own force expansion capabilities. Still, under such an agreement, they would retain the option to build more weapons and to de-alert them, although they most likely would not do so. On the other hand, TNWS's reward would consist of deep reductions and de-alerting by the US and Russia, as well as the right to participate in monitoring and inspecting of US and Russian de-alerting and de-activation procedures.

4. Other avenues of multilateralization

The deep reductions and limitations of nuclear forces that were discussed above would be infeasible without some other arms control agreements, involving all nuclear weapons' states or even a broader community of nations.

One issue is the control, accounting, and then reducing and stringently limiting (if not banning altogether) tactical nuclear weapons and sub-strategic systems like SLCMs. These systems, up to now, have been largely out of the scope of arms control agreements. They have been a subject of unilateral or parallel reductions and withdrawal commitments with very loose verification procedures, if any. This would not be acceptable under multilateral deep strategic cuts and de-alerting regimes, which implies involving a substantial part of the conventional or dual purpose naval, air and ground forces and the systems of the nuclear powers, and their weapon storage facilities, operations, and support infrastructures, into a regime of monitoring and verification. The main problem might be in dealing with China. However, if tactical nuclear weapons of other nuclear powers were limited by low numbers (for instance, 200-300 each) at designated storage facilities, such a multilateral agreement might be confined to four rather than five parties.

Another serious issue is the projected vulnerability of strategic forces to conventional counterforce strikes with precision-guided air-launched and sea-launched weapons. It is a matter of growing concern to the Russian military and an issue that is almost totally neglected by the US strategists. According to some military forecasts, in 5 to 10 years, all Russian fixed and mobile missile bases would be within range of US converted heavy bombers and about 40-50% of the bases within the range of NATO's tactical strike aircraft. By the year 2008, after implementation of START II reductions and planned strategic force modernization, NATO aircraft would be capable of

destroying about 60% of the fixed and 35% of the Russian mobile ICBM launchers. Conventional strikes on command and control centers, communication systems, air bases, naval bases, nuclear weapon storage facilities, and support infrastructures could inflict even larger damage. Obviously, NATO's extension to the East would be still further enhancing this threat.

Conventional counterforce capability is the area of greatest asymmetry in favor of the United States, since Russia virtually lacks any conventional, let alone counterforce, strike capability against the US homeland. While a conventional counterforce threat still may seem dubious when both sides have large combat ready strategic forces, it would appear quite differently with a much smaller and de-alerted nuclear force. In fact, conventional attacks may effectively deny Russia reconstitution capabilities.

Hence, for achieving deep multilateral cuts in nuclear forces and in de-alerting these forces, something should be done to remove the preponderant conventional counterforce capability of NATO. However, this would not be easy, since the CFE Treaty (even if new NATO members are subsumed with their forces under its ceilings) would leave NATO with thousands of strike aircraft. Therefore, it would be very difficult to limit improvements in precision guided weapons and command, control, and information assets. Nonetheless, if CFE II should envision much deeper cuts in conventional force levels in Europe (50% or more), it would require more stringent limitations on redeployment and reinforcements, comprehensive confidence-building measures, and the perception of this threat would be correspondingly alleviated. Cooperation through Partners for Peace programs and joint military projects (like tactical aircraft and tactical ballistic missile defenses) would sufficiently transform the strategic relationships in Europe so as to make such concerns no longer relevant.

Other multilateral regimes, like NPT/CTB/CWC/MTCR, besides the reaction of the nuclear powers, would be strongly affected by the regional politics and conflicts. India's stance on its missile and nuclear program, and the NPT and CTB, (apart from domestic political factors) is mostly related to nuclear modernization and conventional forces build-up by China. Pakistan's missile and nuclear policy is motivated by fear of India's conventional predominance and nuclear activities. Israel's clandestine nuclear potential is designed as an insurance policy against superior conventional forces of the surrounding Arab states and as a "virtual" deterrent to potential nuclear or chemical threat from Iran, Iraq, Libya, and other hostile neighbors.

Of "suspected" states, Iraq has been recently neutralized by the United Nations actions and by the inspections and elimination of its ballistic missile technologies and production capacities. North Korea has ceased to be an acute threat after its agreement with Washington in 1994, although this remains a controversial issue in the United States. Still, in the future, UN sanctions may be eventually removed, the deal with North Korea may be canceled, and these countries could once again become a problem, or it is possible that some other states might follow their example. Iran has been under strong suspicion of developing long-range missiles, or violating the NPT and evading IAEA inspections, although the IAEA has failed to produce any hard evidence of Iranian deviations.

However, suspected activities of such states are not directly related to the superpowers' nuclear disarmament. They are determined much more by regional relationships (Iran-Iraq) and regional proliferation issues (Iran-Iraq-Israel). If there is any connection to the great powers in the aftermath of the Gulf War, nuclear activities of countries like Iran, Iraq, and North Korea would be more designed as a deterrent to superior Western conventional power projection capabilities, than their nuclear potential.

In the foreseeable future, the interaction between the US and Russia is vertical nuclear disarmament and horizontal non-proliferation, and most probably will become much less direct and clear, and much more complicated than was or was assumed to be in the past and was implied by NPT's Article VI. In the future, these two processes may affect each other through intermediate factors: the policies of third world nuclear powers, theater and strategic defense systems deployments, the balances of conventional forces and capabilities, and most of all, by regional political relations, and military and nuclear proliferation issues.

Further, US and Russian nuclear disarmament efforts, however desirable on their own terms, would not be sufficient or even essential for the enhancement of non-proliferation regimes. However, Russia's cooperative policy would be essential for this, as well as for enhancing the conflict-management and peacekeeping activities of the UN Security Council. Apart from general political and economic relations, Moscow's policy would be deeply affected by the progress of the US-Russian bilateral strategic arms control, by TNWS's joining in the process in one or other form, and by dealing, in mutually acceptable ways, with the issue of NATO extension and the growing conventional force imbalance in Europe.

Bilateral and multilateral arms control and regional peacekeeping will be much more closely and intricately intertwined in the next ten to twenty years. This probably will be the sign of the future and this will largely determine the nature of the next phase of international security politics, which are taking place in the transitional post-Cold War decade of the 1990's.

Chapter 12

Reflections on the Arms Control and Regional Security Process in the Middle East

*Nabil Fahmy**

The conflict in the Middle East is, beyond a doubt, political in essence and thus requires a political solution. It will not be resolved by technical measures, be they social, economic or military. Nevertheless, one would have to be deaf and blind not to realize, after so many destructive wars in the region, that the Middle East is over-armed, both quantitatively and qualitatively.

No Arab or Israeli truly committed to peace in the Middle East argues that the immense arsenal of weapons in the region has provided real security for any side, or even that it has enabled them to completely achieve their immediate political goals. On the contrary, there is widespread agreement among peace-loving Arabs and Israelis, that arms control and regional security measures are necessary to finally put to rest the acute sense of insecurity that prevails in the Middle East and, to allow real peace to reign in the region. Furthermore, many today share the view that the level of armaments in the area has in itself become a security risk for the international community.

1. Arms control and regional security, a common objective

Approximately six years ago, pursuant to the Madrid Peace Conference, Arabs and Israelis first embarked on a collective search for enhanced security through disarmament in the Middle East,

establishing for that purpose the Arms Control and Regional Security (ACRS) Working Group. Being present at the Madrid Conference, I can assert that the choice of the title "Arms Control and Regional Security" was neither coincidental in content, nor haphazard in the sequence of the words used. This is a point of paramount significance, because by the very establishment of the ACRS working group, arms control and regional security was finally designated as common requirements and objectives for both Arabs and Israelis. This, in itself, is a momentous achievement.

2. ACRS, the state of play

ACRS did get-off to a reasonably good start, engaging in interesting discussions on a number of issues. Active regional participants went on to individually set forth their long-term objectives in this area. An attempt was even briefly made to crystallize the common elements in each of these positions. Yet, the truth remains, after a strong beginning, with a burst of intensive energy, ACRS continued to tread water for an inordinate period of time. Ultimately, it shut down operations completely over two years ago. What did ACRS actually achieve? Why did it hit a stone wall? These are important questions to answer before examining the future.

As the ACRS process developed its activities, it divided its work into conceptual and operational baskets. A series of official conceptual seminars were held, within the context of the former, to orient and educate the regional participants in the arms control techniques and, to assist them to learn from worldwide experiences. An additional important objective of these seminars was to develop people-to-people contacts between the military and strategic personnel of the region, in order to establish a level of confidence that would facilitate pushing negotiations forward.

In light of substantive differences on several arms control issues which are dealt with later, the ACRS process quickly slowed down and, the "seminar circuit" within the context of the conceptual basket gradually gave way to the emergence of a "second track" of unofficial seminars on ACRS related subjects. Albeit, these seminars were often held with the participation of individuals from many ACRS members and, even occasionally, with the outright participation of some of the ACRS negotiators themselves. Ultimately, with ACRS "dead in the water," the "second track" became the only game in town. Gradually, as the political environment in the Middle East worsened, even these Track II activities were drastically limited.

As important and as interesting as these Track II activities may have been, they were a limited achievement, not at all commensurate with the high expectations originally raised by this track, as the Middle Eastern, equivalent, of the historic "walk in the woods" between the US and the USSR strategic negotiators in Geneva during the 1980's. These activities did not even measure up to the politically expedient reduced expectations of being "an effective orientation forum" because, two years into the process, the fraternization phase had been exhausted for all effective purposes. Today, as this fraternization phase continues endlessly, without any concrete results, Track II is showing symptoms of seminar fatigue.

What remains of these activities are two separate unofficial efforts, one by the University of California in Los Angeles, focusing on military-to-military contacts and, the other by the Stockholm International Peace Research Institute, concentrating on weapons of mass destruction and their means of delivery. These endeavors are being pursued in good faith; and, they will host interesting discussions. The most recent event was a military-to-military seminar, held at the Center for Middle East Studies in Cairo during the last part of March 1998. However, if the peace process continues its downward slide and any realistic prospects for arms control dissipate, efforts like

these, which are naively being lauded as alternatives for ACRS, will, in my view, soon lose their political expediency. Consequently, the initially abundant funding for this process will vanish. When this occurs, these unofficial seminars risk losing their only useful purpose, that of "keeping the faith" in Middle East Regional Arms Control.

3. ACRS: an assessment

Needless to say, the negative political environment that has clouded the Middle East peace process over the last twenty months has been a complicating factor and, under this dark cloud, today the prospects are not very bright for the resumption of ACRS activities. One should not however quickly jump to the conclusion that the prevailing political ill winds in the region are the source of all the problems in ACRS. The deadlock in the peace process is only part of the problem. The most glaring evidence of this is that it does not explain why, even when the peace process was in better shape, ACRS lagged behind the other multilateral working groups on Economic Cooperation, Environment, Water and Refugees.

It is of utmost importance that the participants involved in ACRS take a step back and try to understand why it did not fulfill its true potential, or more candidly why ACRS failed. The participants to this process must seriously reflect on what *truly* happened in ACRS itself, in order to completely understand why it failed to move forward. This is imperative, if we are to put the pieces together once the political circumstances allow.

As I mentioned, the greatest achievement was the very fact that an ACRS working group was established, which, in essence, meant that the participants in ACRS shared a common need for arms control and regional security. For a while, ACRS was able to build on the momentum provided by the peace process and on the respective

individual's instinctive desires for peace and security. In breaking new ground, in coming together and discussing issues which, if contemplated years ago, would have raised doubts about the ACRS participant's sanity and allegiance. They established symbols and dreamt about security in peace. Nobody should belittle these achievements.

The effects of ground breaking ceremonial steps and symbolic gestures do however, like almost everything else, have a finite life span, with quickly diminishing returns if not rigorously followed-up with foundation building agreements. Notwithstanding our common needs or good intentions, an in-depth analysis of the achievements in ACRS, will conclude that, in spite of an inspired beginning, the following rather stark conclusions can be drawn:

3.1 *ACRS focused essentially on measures of a non-military nature.*

There was considerable discussion of humanitarian and confidence-building measures such as search-and-rescue maritime procedures and the prevention of incidents at sea. There were also numerous suggestions for other such activities, including seminars on military medicine and the peaceful uses of nuclear energy. These were, however, never pursued actively, as Arab parties in particular, started feeling frustrated that the seminars were unstructured and, did not serve a purpose because disarmament measures were not being made any easier.

3.2 *Arms control and disarmament measures of a military nature were essentially not being dealt with, and the few exceptions had not been completely thought through, or were shelved very quickly once they were completed.*

However, discussions on pre-notification of military activities actually reached a successful conclusion. Participants immediately shelved the results and did not implement them because the timing was not correct politically. An effort to establish a list of military activities and weapons systems where there could be an exchange of information also quickly turned into a charade, when the highest common denominator possible turned out to be the names of the chiefs of staff and of some very senior military officers. In reality, what was agreed upon, was much less than what was already available publicly.

Arabs and Israelis were both culprits. Under the guise of participation in activities being "voluntary," many Arab states allowed the discussions on pre-notification measures to sail through, not realizing that it would be relatively easy to agree on a primary list of very limited pre-notification measures. They deluded themselves in thinking that because these activities were voluntary they would not have to take a political decision on implementation.

On the other hand, Israelis, assuming that the Arabs would try to shroud their military capabilities in an all-encompassing cape of secrecy and ambiguity, raised the banner of transparency and called for an exchange of information on military matters. They were unpleasantly shocked by ambitious and wide-ranging proposals on the part of the some Arab countries, especially Egypt and Jordan. Ultimately, in the absence of peace treaties with some Arab countries, like Syria that does not participate in the multilateral talks, Israel itself indicated it could not go beyond an exchange of publicly published military periodicals and the names in military leadership.

3.3 *Operational activities have been very few and sporadic because the political will to implement them was nonexistent, even with respect to humanitarian issues.*

Some ACRS members did agree to establish limited communications links, in which participation would be optional. Initially, even these limited links would mirror the Organization for Security and Cooperation in Europe (OSCE) network in Vienna. The idea was to eventually have a system similar to that between members of the OSCE. The goal for the future was to develop a region-specific network with the dual function of transmitting general Arms Control and Regional Security information, and serving as a hotline between the regional members. Although Israel, Egypt, Jordan and possibly Oman actually established communication links, participants have exchanged very few transmissions because of the souring environment in ACRS itself, and in the peace process in general. The Egyptian communications terminal is today unmanned and inoperable.

Another case in point is the abrupt cancellation of the joint search-and-rescue operations agreed upon at the very last ACRS meeting in December 1995. These operations were envisaged to take place off Tunisian territorial waters, a proposal that was technically interesting but politically naive, given the state of play of the peace process and of Maghreb politics.

3.4 *With respect to regional institutions, ACRS has been on a roller coaster ride, reaching a high point in the discussions of structure, and then stagnating as the decision-making process came closer.*

Effervescent enthusiasm abounded for about three ACRS meetings. After the members were heavily indoctrinated in the

experiences of other regions, particularly Europe, ACRS' participants tendered a deluge of proposals for the establishment of regional organizations. Jordan, and then Tunisia and Qatar, offered to host regional security organizations. Egypt offered to host an independent interregional communication early warning hub, which was to encompass the limited communication links established, and for these to expand. Work on the structure of the first, and the technical requirements of the second, was quite advanced. However, once again, these efforts were abruptly terminated as political realism prevailed.

4. ACRS, what went wrong?

It would be an understatement to say that the increasing tensions in the peace process had negative ramifications on the results of ACRS as the players became more antagonistic towards each offer. However, as I mentioned earlier, it would be misleading, even erroneous to place the blame for ACRS' failures solely on the dismal politics of conflict resolution in the Middle East. The primordial difficulty actually related to the work of ACRS itself. The essential problems were in its *modus operandi* on the one hand and, in the reticence of its members to deal seriously with arms control and regional security issues relevant to a Middle East at peace.

In dividing its work into conceptual and operational baskets, ACRS was attempting to establish an efficient division of labor. ACRS was, however, mistaken in not preserving a functional relationship between the conceptual and operational baskets. This was especially true because it determined, on an arbitrary basis, where an issue would be dealt with, rather than establishing a natural progression for moving issues, or their extrapolations, from one basket to the other. Furthermore, ACRS failed to ensure that each of these baskets kept pace with the other.

As it pursued its work, the baskets became more and more out of synchronization with each other, as well as with the political reality reflecting the level of regional security consensus that existed in the region. As a result, ACRS members lost control, allowing the system to run amok without heart, soul, or direction. New ideas did continue to proliferate with each meeting. The search was out for anything that worked. However, efforts focused on making proposals rather than bridging the gaps. This phenomenon was bound to come to a halt once the natural enthusiasm of the search for security was quelled by political reality.

When the gap between the conceptual and operational baskets widened to the point where ACRS was stretching the political envelope beyond its capacity, the bubble burst. This happened because respective parties reached conflicting conclusions on whether ACRS was moving too quickly or, too slowly and selectively. Ironically, while their perceptions of pace differed categorically, these parties did share a common view that their main concerns were not being addressed appropriately.

The more serious problem, however, was not form but substance. The naked truth was that the parties were not yet ready to deal with concrete arms control measures. Admittedly, ACRS courageously attempted to develop regional networks and institutions. However, courage and good intentions alone could not sustain these efforts for long. It quickly became evident that establishing collective security and cooperative institutions, presupposed, at least, a minimum of understanding, if not agreement, between the parties of region on the meaning and new basis for security in the Middle East.

Simply put, ACRS valiantly tried to put the best face on its work. Regrettably, this gave the false impression that more of an agreement existed than there actually was. Arms control and collective security is a political process generated or curtailed by the readiness of its participants to be open and transparent in military affairs. The

enthusiasm of the ACRS participants and their eloquence in presenting their cases far exceeded what their political and security systems would actually entertain in this regard.

In making these points, I am not questioning the sincerity of efforts in the context of ACRS, but rather the wisdom of its highly inflated expectations and its rambunctious attempts at institution building. Was it really realistic to expect measures to be agreed upon before they were clearly thought out both nationally and regionally? Was it logical to develop schemes or institutions for regional security, ones that would imply collective measures between the parties, without having a basic common understanding of what security meant for all involved?

Naturally, the debate was not completely void of intellectual foundation, however, the exercise was image rather than result oriented. For example, the ACRS parties did appear to put together the basic structure of a "Statement on Arms Control and Regional Security in the Middle East." At first glance, the statement seems impressive and agreement seemed close on that document. A closer perusal, however, suggests that no new groundbreaking was attempted, except in form. There exists a false impression that the statement's Achilles heel was the nuclear issue. This was a major stumbling block; but then the rest of the content of the statement was simply a laconic rendition of past commitments or standard arms control lexicon, skirting around, except in a oratorical manner, anything that was region specific to the Middle East.

5. Major problems, real or imaginary

Two salient questions have prevailed throughout the ongoing ACRS debate. More often than not, it is argued erroneously, those were the issues that broke the camel's back. One question is whether

arms control or confidence-building measures come first. Experience has shown us that these measures must come in tandem, be well timed and synchronized in context, balanced, and effective in content. In reality, however, this was a moot point in ACRS. Regional parties simply were not ready to deal directly with sensitive security and military issues, even in the form of confidence-building measures.

The other question relates to the difficulties we have had in dealing, or, more precisely, not dealing with the nuclear issue in the Middle East. This is a crucial highly sensitive matter between the Arabs and Israelis. The reasons for its sensitivity are numerous. The most important of these reasons is that it is a litmus test for whether Israel perceives security in a state of peace through collective measures, or through a sustained deterrence. Since the nuclear weapons option can only be used -- God forbid -- as a deterrent, in response to major threats to security, their continued acquisition by any party belays expectations of grave future conflicts. In the name of reciprocity, these perceptions or misperceptions are reason enough to fuel an arms race in the region.

The nuclear issue was a serious fundamental problem. However, the overriding issue was, and remains, that Arabs and Israelis have not reached a common view on what provides security in the region. That is why they have shied away from any serious arms control measures. That is why they have not been able to agree on regional security arrangements and, that is why they have not been able to entertain a discussion on an issue as serious as nuclear disarmament and nuclear non-proliferation. The malaise surrounding the nuclear issue is a symptom, not the cause, for the problems ACRS faced.

6. ACRS, suggestions for the future

ACRS has now been dormant for over two years. Is there any hope left for multilateral arms control measures in the Middle East? That is a question that is repeatedly posed in recent months, and I am pessimistic regarding the prospects for formally resuming its activities. A difficult process from the outset, ACRS is today also encumbered by the prevailing tenuous political environment which is not conducive to multilateral activities and, in particular, those related to arms control and regional security.

Nevertheless, I believe that the inherent need for greater security, real security, remains stronger than the negative forces of fear and political expediency. Therefore, the resumption of activities should be expected, provided the political situation clears-up. That, however, is not the real question, because if ACRS resumes as it has in the past, it will ultimately founder once again.

A second failure for ACRS would result in the "kiss of death" for regional security in the Middle East, provoking reactions with dangerous military ramifications. I feel duty bound to share with you some suggestions as to how to surmount the obstacles faced by ACRS, because Egypt, and I personally, are truly committed to the success of ACRS, in order to provide an enhanced state of security in the Middle East for all the peoples of the region, Arabs and Israelis.

6.1 Defining "security in peace"

My first suggestion is that the Middle Eastern parties should have an intensive discussion of what security means in "a Middle East which is in a state of peace between Arabs and Israelis." The deliberations of ACRS so far indicate that the conceptual thought process in the domain of security has not yet matured.

As a prelude to the resumption of ACRS, a series of two- or three-day official meetings should be held between regional players to discuss the meaning and requirements of security in "a Middle East at peace." The suggested meetings should be staggered over a period of time, to allow all of the respective military institutions and security establishments to digest these deliberations. Ultimately, these institutions must determine whether they are technically more comfortable with security through reciprocal deterrence, a qualitative military balance, and/or collective security measures. It would also be useful during these deliberations to discuss the time frame, stages, and prerequisites for attaining this enhanced state of security.

The objective of these discussions is to allow ·all the parties to better understand each other, and also to give time for these understandings to effect the long-standing perceptions and positions of the respective military establishments. Having established the groundwork, the burden will then fall on the shoulders of regional politicians to show leadership, and pursue arms control measures under the banner of "trust but verify."

On the other hand, I would suggest that ACRS not immediately reestablish an operational basket before it has reached a consensus in the conceptual basket on the meaning of security and, on how to provide it. In this case, it would be better to slow-down rather than stop the operational basket. Additionally, a closer link should be created between the conceptual and operational baskets, to prevent the reoccurrence of the rudderless, directionless escapades of the past.

To effect this, a number of meetings for the conceptual basket should be held first in order to establish a better understanding among the parties. A progressive process of discussing issues first in the conceptual basket, then, as they became ripe, in the operational basket, should be agreed upon. I am not suggesting that the operational basket be scrapped, but simply that it be delayed a bit, thus expediting and intensifying the conceptual basket.

In the same vein, let me emphasize the importance of person-to-person contacts between those dealing with the security issues as portrayed by the present Track II operations, as opposed to the official seminar circuit which existed before. On the contrary, contacts should be intensified and deepened. However, this should be done in a more structured official manner, thus building greater confidence between the security body politics in the countries involved. This will evolve in a wider understanding between the parties directly concerned on fears, intentions, and objectives, rather than engaging in a fruitless debate that will ultimately fall on deaf ears.

6.2 *The nuclear issue, the value of wishful thinking*

With respect to the very sensitive issue of how to deal with nuclear disarmament, let me venture to suggest that a solution is possible.

In the different long-term goal papers presented by Arabs and Israelis, all sides affirmed their commitment to a nuclear weapons-free Middle East. The differences evident in their formal presentations relate to timing and circumstance. If one doubts the veracity of these papers, then one has to immediately conclude that there is no potential for any serious work in ACRS. Arabs, and Egypt in particular, cannot envisage a secure Middle East where the nuclear dimension remains an option. For the sake of a constructive outlook, let us, therefore, assume that the submissions made by the different countries truly reflect their positions, and that a nuclear weapons-free Middle East is a possibility, with differences among the participants being on timing and the prerequisites or circumstances required for its establishment.

More often than not, Israel's objections to dealing with the nuclear issue has been based on its refusal to forego the element of ambiguity in its policy, arguing that a discussion of this matter will lead Israel down a slippery slope. Egypt and the Arabs, on the other hand, argue that they have no assurances it will ever be effectively dealt with, or

that the nuclear dimension will be removed from the region completely, if it is postponed indefinitely. This is an especially thorny and unacceptable situation, especially now that all Arab states are members of the NPT, which treaty has been extended indefinitely. The concerns of the Arabs are further heightened by Israel's refusal to seriously discuss the issue in any concerted manner. The Arab countries complain that Israel continuously moves back the goal posts and is deliberately procrastinating on this matter because it has no intention of dealing with it at all.

Let me suggest, first of all, in response to Israeli concerns, that the Arabs agree, for the time being, to leave reality aside. In other words, without dwelling on who has what, let us discuss what a nuclear weapons-free Middle East should look like and, what conditions are necessary to establish such a region. By doing so, without embracing it, we would be implicitly preserving the essence of ambiguity, until circumstances allow for an establishment of a zone.

In fact, discussions can take place on what are the necessary conditions to embark on systematic negotiations which gradually would develop into politically, and then legally binding understandings and agreements. In these discussions, and from the conclusions we would draw from them, we should aim to develop a phased-process that will inherently and reciprocally establish assurances for Israel; that it will not be led down a slippery slope; and, for the Arabs, that they are not entering into an endless tunnel of nuclear ambiguity or will one day be awakened from their stupor to face a nuclear *fait accompli*. Needless to say, a more proactive role by the two cosponsors such as convening preparatory consultations between a limited number of parties could be useful to facilitate this process. The parties could be chosen functionally, Israel and its neighboring Arabs states participating in ACRS, or geographically, Israel, Egypt, and one country from the Magheb, Mashreg, and the

Gulf region. The latter would probably be more appropriate since the nuclear dimension does impinge upon Gulf security concerns.

The virtue of this "Double Assurance" approach is that by embarking on such a process, it assures Israel that it is not being cajoled into making commitments in the nuclear field at this stage, and that its semblance of "nuclear ambiguity" remains intact. This approach reflects a seriousness of purpose in dealing with the issue at hand, and, it also suggests moving forward this objective in concrete, although measured, steps. This serves to assure the Arab states that a nuclear weapons-free Middle East is truly a common objective.

This approach also helps diffuse the problem that has the Arabs and Israelis at political loggerheads. It has become politically volatile domestically in the major Middle Eastern states, as well as extremely complex and complicated in the politico-military sense. Yet, another virtue of this approach is that it permits a gradual confidence-building process, that enables all parties to deal with this issue, in its proper context, that of a security concern.

These suggestions are being made, not because I believe that this is a propitious moment to do so, or that ACRS will resume again, but because of my strong conviction that for the ACRS process to bear fruition, a much more serious in-depth commitment by the parties to deal with the real issues will have to be shown. ACRS can not succeed otherwise. All the Middle Eastern players should dwell on these issues, first of all internally, within their own establishments, to facilitate the resolution of the problems that will remain an obstacle to the resumption of ACRS, or, which will quickly reemerge once ACRS is reconvened.

It is imperative to establish a solid foundation for future ACRS activity, in order to help develop a rational, coherent, and applicable culture of arms control and regional security in the Middle East. On this basis, all parties must find security to be assured that their interests will be addressed. This is the real task ahead of us. If we tackle it

seriously, the prospects for multilateral arms control measures in the Middle East are not dead, although, admittedly, they are now gasping heavily for air.

Note

*The author was a participant at the outset of the Madrid peace process, and had been part of this process as the political advisor to the Egyptian Foreign Minister until September 1997.
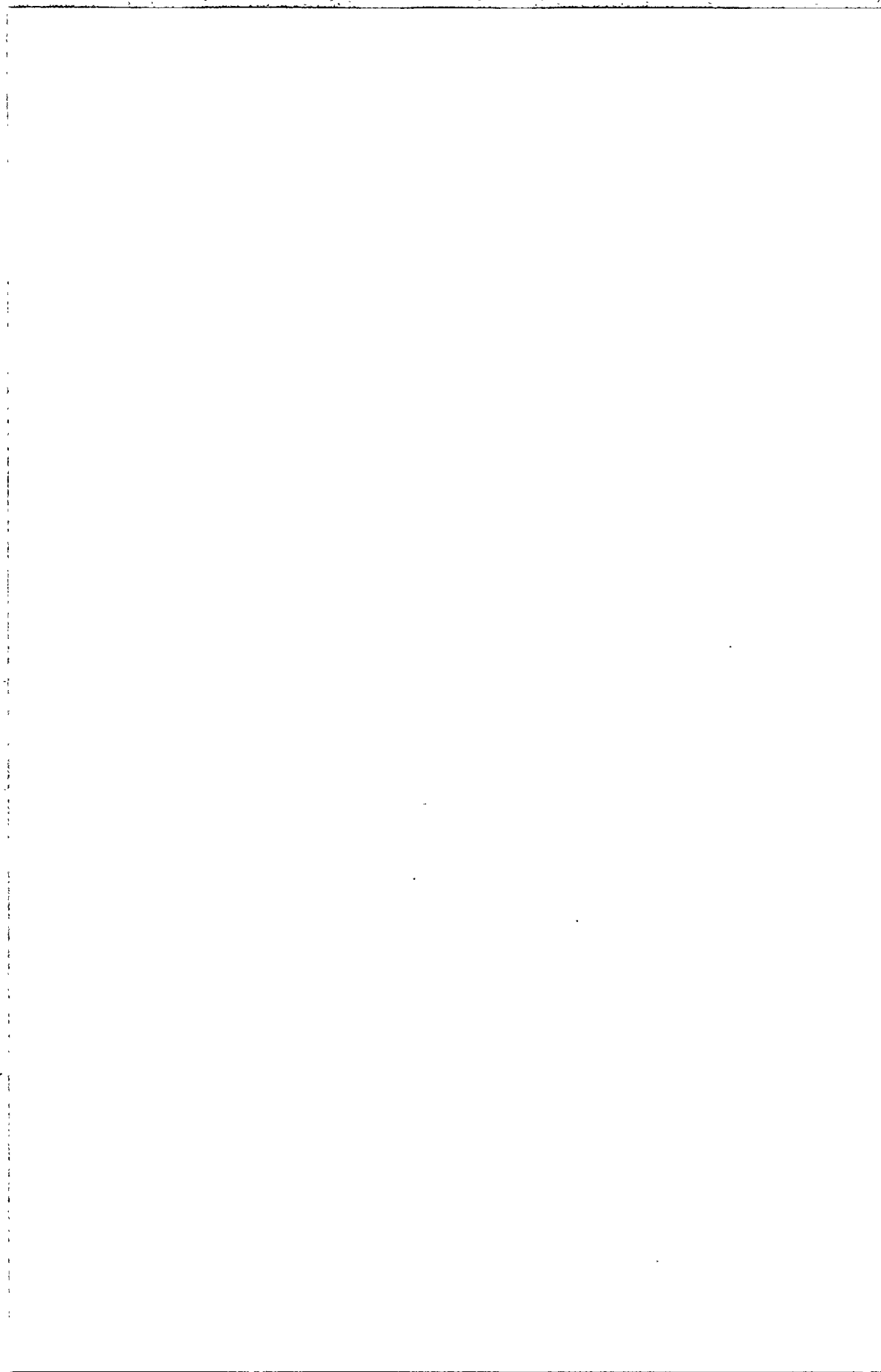
Part IV

Terrorism: Domestic and International Ramifications
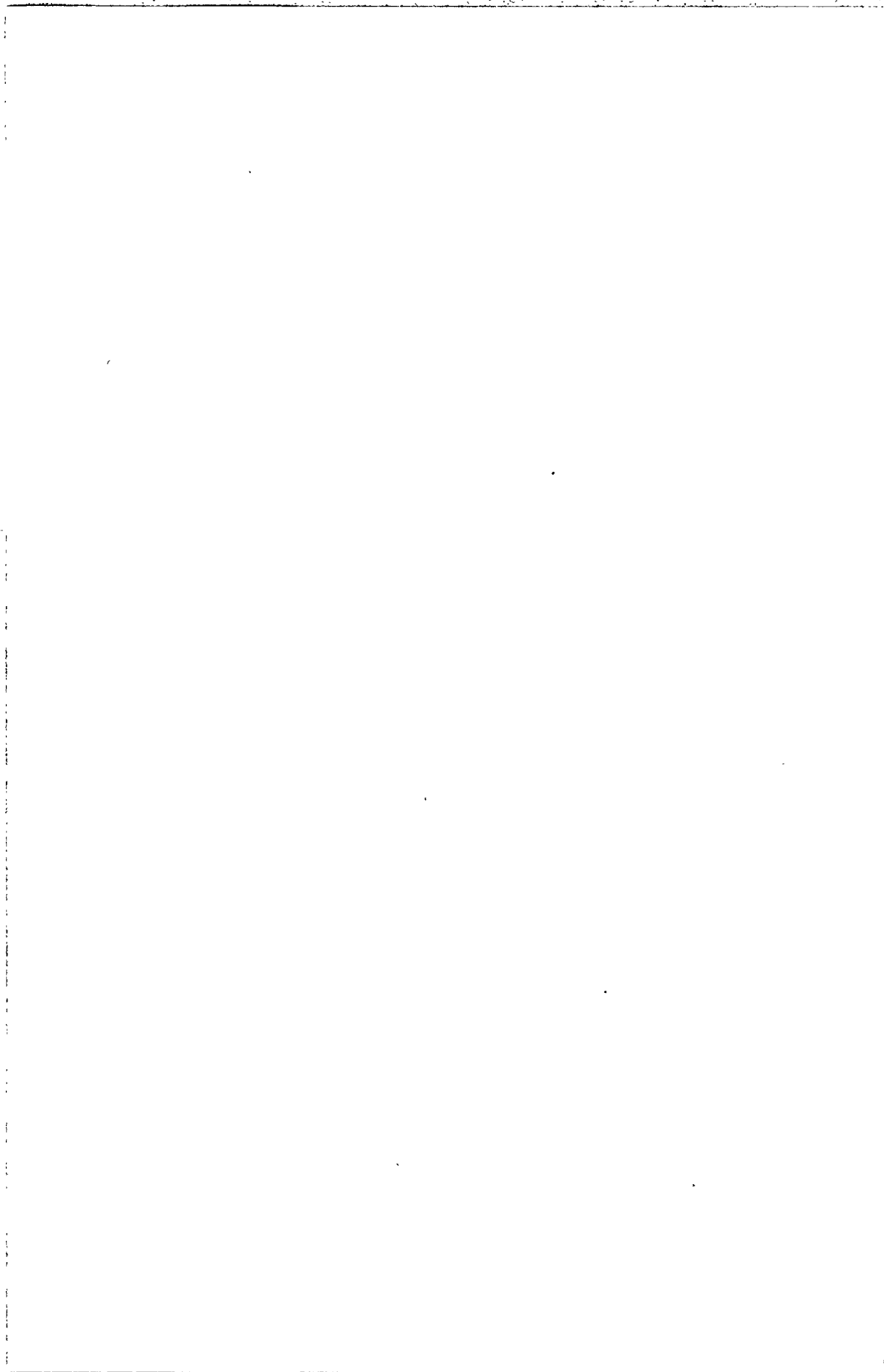
Chapter 13

Nuclear, Biological, and Chemical Terrorism: Understanding the Threat

*Richard A. Falkenrath**

The level of security and prosperity enjoyed by today's advanced democracies is virtually unprecedented in history. Internally, the basic political order of these states is not seriously contested. There are only a handful of external military threats, none truly global in reach. The world's many civil wars and internal conflicts are largely confined to specific regions, and their effects can be prevented from spilling over into the protected nations of the West. There are, of course, many serious long-term foreign policy challenges -- China's rise, Russia's decline, stability of the Persian Gulf, energy, environmental problems, and widening economic inequality come to mind -- but the advanced democracies face few mortal vulnerabilities. Indeed, in a remarkable historical departure, the survival of the citizenry has nearly ceased to be a major preoccupation of national security policy.

All modern societies, however, are vulnerable to massive loss of life from an attack involving a weapon of mass destruction -- nuclear, biological, or chemical (NBC). This vulnerability has existed for many years: it is a simple function of accessible weapons, porous borders, free and open societies, and high population densities in cities. Yet, while national security leaders have generally recognized the *military* threat

posed by NBC weapons, they have tended to downplay or disregard the possibility that these weapons might be used by a non-state or transnational actor in a campaign of mass-destruction terrorism. The threat of NBC terrorism had always had its aficionados, and remains an inspiration for novelists and scriptwriters, but serious policymakers have traditionally had other things to worry about.

Since the early 1990s, something of a paradigm shift now appears underway, evident particularly in the United States. Senior US officials, Congressional leaders, and respected non-governmental experts now routinely call attention to the threat of weapons of mass destruction terrorism -- particularly biological weapons -- and rank it among the most serious challenges to the security of the nation.[1] Literally dozens of federal, state, and local government agencies have created new programs, or augmented existing ones, that seek to address the threat in some way. The media have taken their cue from these authorities, producing countless stories and segments on the subject, often with a sensationalist spin.

This article addresses one basic question: How serious is the threat of NBC terrorism to the national security of the modern liberal democracies? More specifically, where should combating the threat of NBC terrorism lie within a country's national security priorities as it allocates resources for new capabilities, organizes its existing capabilities, and declares its policies and threat assessments to the public? To help answer this question, I make four arguments.

First, increased concern with the possibility of NBC terrorism is justified. All states have a vital national interest in preventing massively destructive attacks against their citizens and property. Advanced liberal

democracies in the 1990s are fortunate to face few threats to this vital national interest, but an act (or campaign) of terrorism involving weapons of mass destruction is one. Much, of course, depends on whose security one is trying to protect. If an *individual* were to rank the likely causes of death in terms of probability, it is quite unlikely that death from a covert nuclear, biological, or chemical attack would make the top 100. He should quite rightly be more concerned with cancer and automobile accidents, even murder and natural disasters. However, if a *nation* were to rank the single, purposeful events that could kill thousands or tens of thousands of its citizens, a covert NBC attack would have to be in the top three. The focus of this article is on threat to the nation or the society, not on individual safety or well being. Societal vulnerability to this form of attack is extremely high, and no state has the civil defense capabilities that would allow it to claim to be "prepared" in any meaningful sense. Thus, the traditional paradigm about weapons of mass destruction should shift, or at least expand, to recognize the threat of NBC terrorism as one of the most serious national security challenges of the modern era.

Second, NBC terrorism is a low-probability, high-consequence threat. Many assessments of this threat fixate on one or the other of these characteristics, resulting in quite polarized conclusions. The principal reason one should be concerned with this threat is that even a single act of NBC terrorism could have devastating effect on the targeted society. But this concern must be tempered with a sober appreciation of the fact that NBC terrorism has been exceedingly rare in the past, and that there are good reasons to believe it will remain rare in the future.

Third, the effect of even one successful act of NBC terrorism in a major city would be profound -- and not only in terms of lives lost.

Literally, thousands to hundreds of thousands of people could be killed or injured in even a single such an attack, but these casualties would be but the first in a series of consequences that could result from such an attack. Panic, economic damage, and environmental contamination could follow in the near term. Over the longer term, the nation would have to address deep social-psychological questions about the standards of internal security it is willing to live with, and the costs -- in terms of curtailed civil liberties or foreign commitments -- it is willing to bear to maintain these standards.

Fourth, the likelihood of acts of NBC terrorism in the future is low, but it is not zero, and it is rising with time. Future acts of NBC terrorism are by no means inevitable. However, there is no logical reason to believe that future acts of NBC terrorism are any less likely than other forms of NBC attack, such as a ballistic missile strike. The threat of NBC terrorism is present now, is not confined to a few technologically sophisticated proliferators with long-range ballistic missiles, and is very hard to detect and defend against. The bottom line is that, given the severity of the potential consequences, future acts of NBC terrorism should be regarded as *likely enough* to place this threat among the most serious national security challenges faced by modern liberal democracies, and should command the sustained attention of senior national security officials.

This article develops these arguments. The first section below provides a brief description of nuclear, biological, and chemical weapons, and assesses the extent to which they can be acquired and used by non-state actors.[2] The potential consequences of acts of NBC terrorism are explained further in the second section. The third section

below presents a more detailed analysis of the likelihood of acts of NBC terrorism in the future, focusing particularly on the argument that this likelihood is low but growing with time. The concluding section offers an overview of the ways in which a nation can act to reduce its vulnerability to NBC terrorism, as well as a few thoughts on how this policy response can be kept properly calibrated, particularly as regards civil liberties.

1. Weapons characteristics and accessibility

Nuclear, biological, and chemical weapons are largely unfamiliar devices. Few people have ever actually laid eyes upon one, much less built one, and a comparably small number have actually seen their effects on human beings. A basic understanding of the nature of the three weapon types is important for understanding the nature of the threat of NBC terrorism, and for fashioning an appropriate strategy against it.[3]

The difficulty of obtaining and using nuclear, biological, and chemical weapons varies widely, both between and within the weapon types. Many factors are relevant: the size, sophistication, and type of the weapon being sought; the availability of the technical information needed to design the weapon; the accessibility of essential precursor materials and equipment; the difficulty of weapon design and construction; the extent to which the peculiarities of the weapon complicate the organization of a clandestine acquisition effort; and the existence of externally observable signatures that increase the likelihood of discovery.

1.1 *Nuclear weapons*

Nuclear weapons release vast amounts of energy through one of two types of nuclear reaction, fission and fusion.[4]   Fusion weapons are far more destructive than fission weapons, but can be produced only by technologically advanced states and at great cost. Fission weapons are less powerful than fusion weapons, but are considerably more accessible. A first-generation fission weapon, like those used on Hiroshima and Nagasaki, would have an explosive yield of around 10,000 tons of TNT.[5] Depending on population density, weapon yield, and the severity of subsequent fires, a nuclear fission detonation in a city would kill over one hundred thousand people and devastate an area extending a mile or more from ground zero. Unless the weapon can be found and disabled, evacuation is the only real possibility for damage limitation prior to the detonation of a nuclear weapon.

Nuclear weapons are presently found in the arsenals of only eight states: the United States, Russia, Great Britain, France, China, India, Pakistan, and Israel. South Africa built six fission weapons, but dismantled them before the transfer of power to the African National Congress (ANC)-led government.   Iraq sought to obtain nuclear weapons, but its program was rolled back by the post-Gulf War inspection and disarmament measures imposed by the United Nations. North Korea is believed to have produced and separated a small amount of plutonium, perhaps enough for one or two weapons, but further production appears to have been suspended and the weapons program is being rolled back under a negotiated agreement. Iran is believed to be seeking nuclear weapons, but is thought to be at least several years from

developing them. Other states, including several European states, Japan, South Korea, Taiwan, Brazil, Argentina, and others, have a well-developed scientific and industrial base that would allow them to build nuclear weapons relatively easily, if they chose to do so.

The only absolute technical barrier to nuclear weapons acquisition is access to a sufficient quantity of fissile material, either plutonium or highly enriched uranium (HEU). If this obstacle were removed through the theft or purchase of fissile material, almost any state with a reasonable technical and industrial infrastructure could fabricate an improvised nuclear weapon. Some exceptionally capable non-state actors could also design and build a nuclear weapon, particularly if they had access to a substantial quantity of HEU metal, which allows an inefficient but simple weapon design to be used. The collapse of the Soviet Union, which has exposed large stockpiles of fissile material to an unprecedented risk of theft and diversion, has significantly heightened the risk of risk of nuclear weapons acquisition by non-state actors and states without an indigenous fissile material production capability.[6]

1.2 *Biological weapons*

Biological weapons disseminate pathogenic micro-organisms or biologically produced toxins to cause illness or death in human, animal, or plant populations.[7] Whereas normal diseases begin in small pockets and spread through natural processes of contagion, biological weapons using microbial agents deliberately release large quantities of infectious organisms, against a target population. The result is a massive, largely simultaneous outbreak of disease after an incubation period of a few days, depending on the agent and the dose inhaled. Because of their

ability to multiply inside the host, pathogenic microorganisms can be lethal in minute quantities: an invisible speck of disease-causing microbes can kill or incapacitate a grown man, and a few kilograms of effectively disseminated concentrated agent could cause tens to hundreds of thousands of casualties. Biological warfare agents without a system for aerosol dissemination cannot easily cause casualties on this scale, and should therefore be considered potentially dangerous contaminants rather than weapons of mass destruction.

Toxin weapons disseminate poisonous substances produced by living organisms, and are therefore commonly classified as biological weapons. Like biological agents, toxins generally need to be delivered as an aerosol to be effective as anything more than a contaminant or an assassination weapon. Toxins differ from microbial biological warfare agents, such as bacteria, in that they are non-living, like man-made chemical poisons. Gram for gram, toxins are less deadly than certain living pathogens, since the latter reproduce in the victim. Toxins are not contagious, and thus cannot spread beyond the population directly attacked.

Aerosols of toxins and pathogenic microorganisms, in low concentrations, are generally odorless, tasteless, and invisible. Unless the agent-dissemination device (e.g., an aerosol sprayer) is noticed and identified, it is entirely possible that a covert biological weapons attack could go undetected until the infected population begins to show symptoms of disease or poisoning. Once a surreptitious biological attack is identified, it may be too late to limit its geographic extent or control its medical consequences. In addition, dispersal devices could be gone, perpetrators could be nowhere near the scene of the attack, and

responsibility for the attack could be very difficult to attribute to a particular state or non-state actor. This combination of factors makes biological weapons especially suitable for covert delivery. Also, depending on the type of agent used and the nature of the disease outbreak, a surreptitious biological attack on a civilian population could initially be mistaken for a natural epidemic. Detection time, therefore, may depend on the nature of the attack and the quality of the public health system.

Biological weapons have come to be regarded with almost unique opprobrium by the international community. Despite the minimal technical obstacles to biological weapons acquisition, actual use of biological weapons has been exceedingly rare. The United States officially ended its offensive biological weapons program in 1969, and biological weapons are formally banned by the 1972 Biological and Toxin Weapons Convention, an agreement that has been ratified by 140 nations but which lacks verification provisions. However, it is now known that both the Soviet Union and Iraq had large-scale illegal biological weapons programs, the former continued for some time by Russia. The US government and outside experts further suspect another eight countries -- Libya, North Korea, Taiwan, Syria, Israel, Iran, China, and Egypt -- of possessing some form of offensive biological weapons program.[8]

Many states and moderately sophisticated non-state actors could construct improvised but effective biological weapons. Quite detailed information on the relevant science and technology is available from open sources. Culturing the required microorganisms, or growing and purifying toxins, is inexpensive and could be accomplished by

individuals with college-level training in biology and a sound knowledge of laboratory technique. Acquiring the seed stocks for pathogenic microorganisms is also not particularly difficult, but the easiest acquisition option -- placing an order with a biological supply service -- has been made somewhat more difficult by regulations enacted in 1995. The most significant technical challenge in fabricating a biological weapon is effectively disseminating bulk biological agent as a respirable aerosol. The most efficient aerosolization systems, which could produce extremely high casualties over wide areas, would require considerable technological sophistication, and remain beyond the reach of most states and most conceivable non-state actors. However, less efficient aerosolization techniques are available, and could be mastered by many states and some highly capable non-state actors. The effects of biological attacks could vary greatly, but a single biological weapon could kill or incapacitate thousands to tens of thousands of people even with an inefficient delivery system, especially if directed against large indoor targets.

1.3 Chemical weapons

Chemical weapons are extremely lethal man-made poisons that can be disseminated as gases, liquids, or aerosols. There are four basic types of chemical weapons: 1) choking agents, such as chlorine and phosgene that damage lung tissue; 2) blood gases, such as hydrogen cyanide, that block the transport or use of oxygen; 3) vesicants, such as mustard gas, that cause burns and tissue damage to the skin, inside the lungs, and to tissues throughout the body; and 4) nerve agents, such as tabun, sarin, and VX, that kill by disabling crucial enzymes in the nervous system.

Chemical warfare agents are highly toxic, but must be delivered in large doses to affect large open areas. For open-air targets, the mass of agent required -- even highly toxic ones, such as sarin -- rapidly reaches hundreds to thousands of kilograms per square kilometer, depending on weather conditions, even if the agent is efficiently dispersed. A simple outdoor attack, involving no more planning and execution than a large truck bomb attack, is thus likely to kill at most a few hundred people even at high population densities. An attack on a crowded indoor area might kill a few thousand people. Some chemical warfare agents are highly persistent, and could render large areas uninhabitable for extended periods of time, requiring costly decontamination and clean-up efforts.

Chemical weapons have been used or stockpiled by many militaries for most of this century, beginning with their first large-scale use in the First World War. Immense quantities of chemical weapons were produced by the United States and the Soviet Union during the Second World War and Cold War.[9] Most other major states with chemical weapons arsenals have pledged to destroy these stocks under the Chemical Weapons Convention, but several states have either boycotted the CWC or are suspected of harboring clandestine chemical warfare programs. These states include Libya, Iran, Syria, Egypt, Israel, China, North Korea, Taiwan, Myanmar, and Vietnam. No non-state actor is currently known to possess chemical weapons, though the Japanese cult Aum Shinrikyo did succeed in manufacturing significant quantities of the nerve gas sarin in 1994-95.

Chemical weapons suitable for mass-casualty attacks can be acquired by virtually all states and by non-state actors with moderate technical skills. Certain very deadly chemical warfare agents can quite literally be

manufactured in a kitchen or basement in quantities sufficient for mass-casualty attacks. Production procedures for some agents are simple, are accurately described in publicly available sources, and require only common laboratory glassware, good ventilation, and commercially available precursor chemicals. Greater expertise and some specialized equipment are required to fabricate the most toxic chemical warfare agents, but the acquisition of quantities sufficient for mass-casualty attacks would still be within the reach of some technically capable non-state actors. The Japanese cult Aum Shinrikyo produced tens of kilograms of the nerve gas sarin, demonstrating the technical feasibility chemical weapons acquisition by capable non-state actors. The actual use of a highly toxic chemical agent as a weapon of mass destruction is not especially difficult in principle.[10]

2. Consequences of covert NBC attack

The defining element of a terrorist NBC attack is that the weapon is delivered against its target in a manner that cannot be readily distinguished from the normal background of traffic and activity. A wide variety of terrorist NBC delivery methods are available, ranging from the simple to the sophisticated. This attack technique can be used by anyone with access to an appropriate weapon, be it a state with advanced delivery systems at its disposal or a terrorist group with no other delivery option. Any potential aggressors competent enough to acquire a weapon of mass destruction in the first place would be able to deliver the weapon covertly against high-value targets in open societies with a very high chance of success.

In a real covert NBC attack, the target may not initially know if the perpetrator is a state or non-state actor, and the issue will not make much difference to the immediate operational response to the incident. A covert NBC attack could target civilians, military forces, or infrastructure; could occur in peacetime or during war; and could be a single event or part of a larger campaign. The physical and social consequences of even one attack of this kind against a population center could be catastrophic. Every reader can imagine a gruesome hypothetical attack, with casualties mounting from the thousands to hundreds of thousands. For years, these nightmarish scenarios have been depicted in Hollywood films and classified briefings, often numbing the audience into passivity.

The effects of a successful covert attack with a nuclear, biological, or chemical weapon would vary widely depending on the weapon, the target, and the effectiveness of the delivery means. The consequences of a major NBC attack would come in waves, played out over a period of months or years. The first effect would be immediate physical damage, but covert NBC attacks would also have broad repercussions for the economy, for the nation's strategic position in world affairs, and perhaps even for its ability to sustain itself as a strong and democratic polity. These effects could be compounded by an organized campaign of launched multiple attacks, used in conjunction with a range of different weapon types, including conventional weapons. At least seven general types of consequences are likely.

2.1 *Massive casualties*

The first and most obvious effect of an NBC attack would be its destruction of human life. The Tokyo subway attack killed twelve and injured about 5,000, but this is low on the scale of NBC weapons effects.[11] If Aum Shinrikyo had been more proficient in its delivery of the nerve gas, fatalities would have climbed into the thousands. A well-executed chemical weapon attack against a crowded civilian target could kill several thousand people. Biological weapons effects are even more variable, but fatalities in the low tens of thousands are feasible even with unsophisticated weapons. And, a single nuclear weapon could easily kill over a hundred thousand people if detonated in a densely populated urban area. Only wars and plagues have produced casualties on such a scale in the past -- never a single attack from within.

2.2 *Contamination*

Second, an NBC attack could contaminate a large area. Depending on the type of weapon used, the area immediately affected by the attack could be rendered uninhabitable for extended periods of time, requiring a costly and perhaps dangerous clean-up operation. A nuclear weapon would also spew radioactive waste into the atmosphere, killing and sickening people downwind. NBC contamination could raise the disease rates and reduce the quality of life for a much larger population than that which suffered the immediate effects of the weapon.

2.3 *Panic*

Third, an NBC attack against a civilian population would, in all likelihood, trigger a panic incommensurate with the real effects of the weapons. After the World Trade Center bombing, many more people reported to hospitals claiming ill effects than were actually injured in the incident. In a chemical or biological attack, hospitals are likely to be overwhelmed by people fearing contamination or infection. A nuclear attack -- or even a limited radiological incident -- is likely to stimulate uncontrolled movement away from the affected area, given the public's deep-seated fear of all things radioactive.

2.4 *Degraded response capabilities*

Fourth, the government personnel needed to conduct an effective operational response to a real NBC threat may themselves panic, flee, or refuse to carry out their responsibilities as required, compounding the effects of any attack. Active-duty military personnel will generally have the training and discipline needed to conduct operations in an extremely hazardous environment. But without appropriate equipment and training, emergency response personnel such as police, firefighters, and paramedics may well end up among the first casualties of an NBC incident. Those who arrive at the scene later might decide that the risks are too high. Congested roads and airspace are also likely to complicate whatever operational response the government is able to mount.

2.5 *Economic damage*

Fifth, an NBC attack could cause major economic damage to the affected area. A large attack or a series of attacks could damage the

national economy, perhaps even precipitating a recession. Likely effects include death of and injury to workers, the destruction of physical plant, and the contamination of workplaces. An attack could also trigger a run on international financial and equity markets, especially if the target has unusual economic significance. The loss of plant and productivity from even a single, moderately damaging NBC attack could easily climb to the tens or hundreds of millions or billions of dollars.

2.6 *Loss of strategic position*

Sixth, an NBC attack or campaign of attacks could do great damage to the strategic position of the United States. The United States could be deterred from entering a regional crisis in which its national interests are threatened. Key US institutions and political leaders might be attacked directly, or US forces and force-projection capabilities might be damaged, in an effort to prevent an effective US response. A US led coalition might collapse, or an essential ally might request the withdrawal of US forces from its territory, under threat of NBC attack. The precise nature of these strategic effects is impossible to predict, but they could seriously complicate US efforts to deal with a foreign adversary or crisis.

2.7 *Social-psychological damage and political change*

Seventh, actual mass-casualty attacks, and the prospect of their continuance, could have a profound psychological effect on the target population, and an equally profound effect on the nation's politics and law. Public terror in the aftermath of a domestic NBC incident would likely be at least as intense as the abstract Cold War fear of nuclear war.

Powerful, conflicting forces, including xenophobia, isolationism, and vengeful fury, would struggle for control of foreign policy. Domestically, the inability to prevent covert NBC attacks, or to respond to them effectively, could cause the citizenry to lose confidence in its government, and initiate a chain of political and legal reactions leading to a fundamental shift in the relationship between citizen and state. A society that comes to fear massively destructive terrorist attacks is likely to demand action from its government. In the case of the covert NBC threat, that action is quite likely to involve a curtailment of the civil liberties that lie at the core of the American system of limited, democratic governance.

3.   The likelihood of NBC terrorism in the future

Only one non-state actor has successfully acquired and used a weapon of mass destruction: the Japanese cult Aum Shinrikyo. In June 1994, this fanatical Japanese cult carried out a terrorist nerve gas attack in the town of Matsumoto, Japan, which killed four people and injured 150, but went unnoticed by Western intelligence. The cult conducted a second attack in the Tokyo subway in March 1995, killing twelve and injuring over 5,000.

Still, the Aum attacks might go down in history as unique. If threat assessment were a simple extrapolation of past trends, right now one would probably conclude that modern societies have little to fear from the prospect of covert NBC aggression. But threat assessment must also consider the changing capabilities, motives, and strategic options of potential adversaries. The capacity to conduct covert NBC attacks is

growing among states and non-state actors alike. It also appears that the motivation to conduct attacks of this kind is increasing as well. For these reasons, the likelihood of terrorist NBC attacks should be regarded as appreciably increasing in possibility.

The ability to acquire and use NBC weapons is quite distinct from interest in causing mass casualties, which, in turn, is distinct from wanting to use weapons of mass destruction. A specific threat of NBC terrorism arises when a group emerges that falls into three categories simultaneously: capable of NBC weapons acquisition and use; interested in causing mass casualties; and, interested in using NBC weapons to this end. The threat of NBC terrorism is growing more serious with time because of a widening convergence of non-state actors that are simultaneously NBC-capable and interested in causing mass casualties. At a minimum, these two trends suggest that conventional non-state violence is likely to become more deadly; at the other extreme, however, these two trends suggest that violent non-state actors are moving into position for more frequent and more effective forays into the largely uncharted territory of NBC terrorism. It is possible that none of these capable, bloodthirsty groups will choose to resort to NBC weapons, but considering the consequences which would result from such a decision, it would be imprudent in the extreme to continue to assume that the threat of NBC terrorism will lie dormant indefinitely.

3.1 *NBC terrorism is historically rare, and likely to remain so*

A review of the history of non-state actor involvement with weapons of mass destruction yields five basic conclusions. First, there is little

evidence that any established terrorist organization is or has been interested in acquiring, much less using, weapons of mass destruction. There are virtually no reports, much less solid evidence, linking established terrorist groups -- the Irish Republican Army, the Basque ETA, the Fatah faction of the PLO, Hizballah, Jewish extremists, the Italian Red Brigade, the many different Latin American terrorist and revolutionary groups, the Japanese United Red Army, or the various Turkish and Armenian terrorist organizations -- to any serious interest in weapons of mass destruction. A possible exception is West Germany's Red Army Faction (RAF), which may have tried to produce botulinum toxin in Paris in the early 1980s, but it is not at all certain that the RAF had a clear delivery concept in mind for the toxin, much less the determination to use it.[12]

Second, with the important exception of the Aum Shinrikyo nerve gas attacks, no non-state actor has ever conducted, or attempted to conduct, an attack with a functional nuclear, biological, or chemical weapon, that is, by a device that can produce a nuclear yield or disseminate significant quantities of biological or chemical agent over a wide area in effective form.

Third, dozens of cases have been documented in which a non-state actor is known to have used, or attempted to use, lethal chemicals or harmful biological agents in indiscriminate poisonings, as have countless more individual assassinations and assassination attempts involving poisons. These incidents should not be confused with mass destruction attacks, which require effective means for wide-area airborne dissemination and generally far more lethal agents. Murdering a few people with poison is a relatively simple matter, but there are logistical

limits to the number of people who can be killed through product tampering.[13]   Perhaps the best known such incident occurred in September 1984, when two members of an Oregon cult led by the Bhagwan Shree Rajneesh cultivated *Salmonella* bacteria and used them to contaminate salad bars in restaurants to influence a local election; an estimated 750 people became ill.[14]   Biological and chemical agents should not be considered weapons of mass destruction unless they are mated with an effective technical system for large-scale dissemination, such as an aerosol sprayer.[15]   Poisoning, product tampering, and assassination, whether by chemical or biological means, is a separate and altogether less worrisome phenomenon than the threat of terrorist attack involving biological or chemical weapons of mass destruction, or nuclear weapons, since the number of possible casualties is far more limited.

Fourth, many cases have been reported, including several in the mid-1990s, in which ostensibly hostile non-state actors have been caught in possession of lethal chemicals, dangerous biological agents, or radioactive material. In April 1993, for example, Canadian border police confiscated 130 grams of ricin from Thomas Lewis Lavy, an Arkansas resident with reported links to survivalist groups, as he tried to enter Canada from Alaska. After a two-year investigation by the FBI, Lavy was arrested and charged under the 1989 Biological Weapons Anti-Terrorism Act with possession of a biological toxin with intent to kill. He was never tried, because he hanged himself in his cell shortly after arraignment. In August 1994, Douglas Allen Baker and Leroy Charles Wheeler, both associated with the Minnesota Patriots Council, a right-wing militia group, were arrested for possession of ricin and planning to murder law enforcement personnel; their intended delivery technique

was to smear the toxin on the doorknobs of their intended victims.[16] In 1995, Larry Wayne Harris, a member of the white supremacist organization Aryan Nation, was arrested for mail fraud after ordering three vials of freeze-dried bubonic plague bacteria from American Type Culture Collection. These are not the only cases in which non-state actors have acquired some quantity of biological warfare agents, but they are the most recent. Although these cases indicate a worrying fascination with chemical and biological agents among some disaffected Americans, all of these cases have lacked evidence of serious intent or technical capacity to use the agent as an effective weapon of mass destruction.

Finally, countless threats and extortion attempts have been made involving nuclear, biological, or chemical weapons attack by non-state actors, but virtually all of these have been hoaxes, often perpetrated by mentally unstable individuals, and most have been easy to dismiss as not credible.

The most basic reason for the historical rarity of NBC terrorism is that, except for Aum Shinrikyo, no non-state actor has yet emerged with both the technical ability and the will to acquire and use nuclear, biological, or chemical weapons. Clearly, there are non-state actors, including many of unambiguous hostility, such as terrorist organizations, that possess the technical ability to acquire and use nuclear, biological, or chemical weapons, but the historical evidence suggests that virtually none of these groups have entertained a serious interest in carrying out NBC attacks. Conversely, with the exception of Aum Shinrikyo, non-state actors that have wanted to commit acts of NBC terrorism have not, so far, been able to bring-it-off.

There are at least four reasons that capable non-state actors have not been interested conducting mass-destruction attacks with NBC weapons. First and most importantly, inflicting massive human casualties generally does not serve the objectives of terrorist groups and other hostile non-state actors. The fundamental purpose of acquiring weapons of mass destruction is to kill a large number of people. Yet, "mass casualty" terrorist events with 100 or more dead are quite rare in modern times. There are only about one dozen known incidents. Undoubtedly, other terrorist attempts to inflict mass casualties have been made, the World Trade Center bombers and Aum Shinrikyo are examples, but even so, the available data strongly suggest that there has been a general aversion to mass casualties among most violent non-state actors.[17] This aversion has not resulted from a technical incapacity or lack of opportunity to kill large numbers of people; instead, terrorist organizations have made conscious decisions to kill fewer people than they could. The reasons for this general aversion have been that mass casualties undermine political support;[18] they raise the risk of unfettered government reprisal;[19] they do not reduce the difficulty of terrorist coercion;[20] and they can increase internal dissension.[21]

The second reason for the rarity of NBC terrorism is that mass destruction, to the extent it is desired, is possible without weapons of mass destruction. The overwhelming majority of organized violence undertaken by terrorist groups and other hostile non-state actors has involved only conventional weapons: chemical explosives, guns, and knives. Chemical explosives, ranging from the simplest, such as ammonium nitrate mixed with fuel oil, to the most advanced military high explosives, such as C4 and Semtex, can be used to kill up to a few

hundred people in a shocking, highly destructive manner. In other words, mass killings do not require exotic weapons and thus no particular demand has been created for NBC weapons among murderous non-state actors.

Third, the acquisition and use of NBC weapons would entail additional risks and challenges to a terrorist organization beyond those associated with conventional weapons. Holding other factors constant, a rational attacker will employ the simplest, least costly, and most reliable means of attack available to him. There are, of course, costs, risks, and challenges associated with acquiring conventional weapons as well, but these are, on the whole, less severe than those associated with weapons of mass destruction. With respect to acquisition, NBC weapons are clearly more technologically challenging than conventional weapons, and also generally more expensive. Moreover, work on weapons of mass destruction inevitably involves a certain heightened hazard to health. Attempts to acquire NBC weapons also raise the risk that the group would be found out and crushed by authorities, especially if individuals with special expertise must be recruited for the NBC acquisition effort. With respect to the actual use of the device, NBC weapons again present risks and challenges beyond those of their conventional counterparts. Terrorists, in particular, are believed to prefer highly predictable and reliable forms of attack.[22] The immediate and long-term effects of a nuclear, biological, or chemical weapon will generally be less predictable than a conventional weapon. NBC weapons may also have a harmful physical or psychological effect on the human operatives charged with handling or delivering them: these individuals may, for instance, be

contaminated by the weapon's emissions, or simply "spooked" by holding the device in the hands.

The final and most controversial explanation for lack of interest in NBC weapons, evident among groups capable of acquiring and using them, is that group leaders and members may hold moral objections to their use.[23] This may seem counterintuitive, given the willingness of most terrorist groups and many states to kill innocent people in order to achieve their political goals. NBC weapons, however, have a special stigma, and to be willing to use them against innocents clearly is to possess an uncommon level of wickedness. This norm against NBC use probably is strongest in the case of biological weapons. In a species that has spent its existence battling against the predations of microbial disease, it is certainly possible that a norm against biological weapons, which, after all, amount to the deliberate use of disease to kill or harm an adversary, has taken hold. While it will never be possible to separate the causal impact of self-interest (including group preservation) from that of morality on decisions not to launch NBC weapons attacks, the notion should not be ignored.

Explaining the constraints on "interested" groups is more difficult than explaining the lack of interest of "capable" groups. This category of non-state actor presents a far murkier picture, since it is virtually impossible to untangle technical inability from genuine lack of motive. Nonetheless, the known cases suggest that most non-state actors with an interest in NBC weapons or materials would have trouble acquiring or using them successfully. Two reasons appear to explain this. The first is that the psychological makeup of an individual or group that wishes to conduct mass casualty attacks is likely to be incompatible with the

technical and organizational requirements for acquiring and using nuclear, biological, or chemical weapons. This argument applies most obviously to deranged individuals who are motivated to kill not by a clear, rational purpose but by mental illness.[24] A second possible explanation has a far narrower scope, applying only to terrorist groups that benefit from the sponsorship of a state. In the unlikely event that a state-sponsored terrorist organization decided to obtain or use a weapon of mass destruction, it is quite likely that the state sponsor would actively oppose its efforts because of the extreme risks involved.

Many of the factors described above that have discouraged NBC terrorism in the past will continue. However, it is becoming increasingly apparent that some of these factors are beginning to operate with diminishing force. In particular, a growing body of evidence suggests that increasing numbers of terrorist groups in the future will be capable of acquiring and using NBC weapons, and motivated to cause mass casualties.

3.2 *Latent NBC potential of non-state actors is rising*

The latent ability of non-state actors to master the challenges associated with NBC attack is rising in all modern societies. This gradual increase in NBC potential is a by-product of economic, educational, and technological progress. This trend also results from the fact that in most modern societies the ability of the state to monitor and counter illegal or threatening activities is being outpaced by the increasing efficiency, complexity, technological sophistication, and geographic span of the activities, legal or illegal, of non-state actors.

3.2.1 *The impact of economic, educational, and technological progress.*

The technological and scientific challenges associated with covert NBC acquisition and use are significant but they are also not getting any harder. The amount of HEU needed to produce a nuclear explosion is the same today as it was in 1945; the particle size necessary to create a stable, respirable aerosol of anthrax spores is the same today as it has always been; and the chemical structure of sarin has been the same since 1939, when the substance was discovered by a German chemist trying to produce a better pesticide. Meanwhile, non-state actors are growing more capable, primarily as a consequence of the economic, educational, and technological progress of their societies. As a result, the number and range of non-state actors with NBC potential is expanding. Since the fundamental cause is social progress, this expansion of latent non-state actor NBC potential is inexorable, and is not reversible by governments.

How and why is the underlying capacity of non-state actors to master the technical challenges of NBC acquisition and use increasing? The first reason is that the basic science behind these weapons is being learned by more people, better than ever before. In the United States alone, the number of people receiving bachelor's, master's, and doctoral degrees in science and engineering fields each year more than doubled between 1966 and 1994. Education data on other countries suggest similar trends. An even more important gauge of the ability of non-state actors to build and use weapons of mass destruction, however, is the increasing level of knowledge available in even high school science courses, not to mention in undergraduate- or graduate-level courses, as

well as the sophistication of the laboratory and analytical tools, from computers to laboratory-scale fermentation equipment, that are now routinely available. The new physics that the Manhattan Project scientists had to discover to make nuclear weapons possible is now standard textbook fare for young physicists and engineers.

Nowhere is this phenomenon more pronounced than in biology. The advance of the biological sciences is creating a situation in which a sophisticated offensive program can more easily produce advanced biological weapons with heightened resistance to prophylaxis or treatment, increased virulence, controllable incubation periods and agent longevity, and conceivably even a selectivity that targets groups of people according to their genetic makeup.[25] The second effect of the biotechnology revolution is to increase the number of people with the knowledge to use such agents, and to make the agents easier to produce and use. The biotechnology industry's growth is causing a steady increase in the number of people who understand how simple biological processes (such as growing bacteria) can be used in a practical way, and who are capable of manipulating these processes for their own ends. As the biotechnology sector becomes entrenched in the global economy, the number of people with the skills necessary to undertake a basic biological weapons program will inevitably grow. Just as important, the industry's growth has made available a wide range of tools and supplies -- such as efficient fermenters for producing large amounts of bacteria in small facilities, and increasingly sophisticated tools for measuring aerosols -- that would ease a basic biological weapons procurement effort.

Finally, even apart from rising education levels and growing familiarity with relevant technologies, the latent NBC potential of non-state actors is growing because the ability to acquire information of all kinds, quickly and with ease, is increasing. The Internet contains a vast amount of information relevant to the planning and execution of complex violent acts, ranging from information on specific targets to detailed accounts of previous terrorist incidents and tactics, and sometimes even basic technical information for nuclear, biological, and chemical weapons. Much of this information has been present in libraries for years, but access to it has never been easier. Today's violent non-state actors are able to start substantially higher on the terrorist learning curve, compared to their predecessors of even a decade ago, if they can conduct even a modest computerized search for information.

3.2.2 *Non-state efficiency and flexibility is outpacing the state*

Most countries will seek to suppress non-state efforts to acquire weapons of mass destruction on their territory. The difficulty of clandestine NBC acquisition, therefore, depends in part on the interested non-state actor's effectiveness at eluding the surveillance and enforcement efforts of state agencies. The relationship between any particular non-state actor and its pursuers is likely to be idiosyncratic, but as a general matter it appears that the efficiency of non-state operations is outpacing the efficiency of state operations, at least in the United States, and probably everywhere in the developed world.

A complex, illegal activity like clandestine NBC weapons acquisition has several different constituent parts, any of which may be

vulnerable to law enforcement surveillance. A team of like-minded, appropriately skilled individuals must be assembled; places must be found for them to work; they must be able to communicate with one another, possibly over great distances; information, materials, and equipment must be gathered, possibly from abroad; and a dangerous weapon must be assembled and delivered without misstep. This is a challenging set of tasks, and entails risk of detection in any state able to provide for its internal security. The rapid development of increasingly . pervasive communications and transportation systems makes several of these tasks easier, however, at the same time, the explosion of legitimate use of such systems makes criminal usage harder to spot.

Fundamentally, this phenomenon results from advances in the private sector's ability to communicate. Whereas non-state actors once had access to little more than analog phone lines and the mail, today they can communicate by fax, cellular or satellite telephone, teleconference, alpha-numeric pagers, e-mail, computer modem, and computer bulletin boards. They can quickly transport at least certain kinds of weapons and supplies via Federal Express, the United Parcel Service, DHL, and numerous other highly efficient shipping services. Telecommunications traffic has increased dramatically in both volume and variety over the last decades, easily outpacing the state's ability keep track of it all.[26] The communications systems available to non-state actors also now have the potential to be more secure than ever. Strong encryption systems were once "the exclusive domain of governments,"[27] but today virtually unbreakable encryption software is now readily available on the global software market, and easily downloaded off the Internet.[28] The benefits to legitimate users are considerable, but the implications of this trend for

ability of law enforcement cope with increasingly sophisticated non-state actors are profound. According to FBI Director Louis Freeh:

> Law enforcement is in unanimous agreement that the widespread use of robust unbreakable encryption ultimately will devastate our ability to fight crime and prevent terrorism. Unbreakable encryption will allow drug lords, spies, terrorists and even violent gangs to communicate about their crimes and their conspiracies with impunity. We will lose one of the few remaining vulnerabilities for the worst criminals and terrorists upon which law enforcement depends to successfully investigate and prevent the worst crimes.[29]

The US government's efforts to control the availability of unbreakable encryption software have failed, and the nature of the technology makes them unlikely to succeed in the future.[30]

Before the information age, this situation was markedly different: state agencies had clear technological dominance over their non-state challengers, in areas ranging from sophisticated eavesdropping equipment to advanced surveillance cameras. Law enforcement and intelligence gathering continue to benefit from improving technology, but generally cannot increase their effectiveness at detecting hidden illegal activities at the same rate because of the constraints of law, manpower, financial resources, and technology. As one study has put it, "power is migrating to actors who are skilled at developing networks, and at operating in a world of networks.... Non-state adversaries -- from warriors to criminals, especially those that are transnational -- are currently ahead of government actors at using, and being able to use, this mode of organization and related doctrines and strategies."[31] In this competition between a centralized process, in which the state seeks the

needle of criminal activity in the haystack of an increasingly complex society, and decentralized criminal processes where effectiveness is limited only by human competence, resources, and ever-advancing technology, the state is clearly at a disadvantage.[32]

3.3 *Propensity toward mass-casualty violence appears to be rising*

There is a growing body of evidence that non-state actors are becoming more interested in causing human casualties on a massive scale. This is a relatively new development, and it remains poorly understood. The classic conceptual model of a terrorist organization -- that of an established group with limited political aims, a strategy of controlled violence for achieving them, and an interest in self-preservation -- appears to be breaking down. New groups are emerging with hazier objectives, shorter life spans, and a more direct interest in violence for its own sake, often for reasons rooted in religious fundamentalism or political radicalism. And the ascendance of Western culture and US power in the post-Cold War international system is making the United States and its allies increasingly attractive targets of terrorism. In short, the nature of terrorism is changing in a way that points toward an expanding range of groups that are simultaneously NBC-capable and interested in inflicting human casualties at levels well beyond the terrorist norms of the previous decades.

What evidence supports this claim of rising lethality? According to the US State Department, "while the incidence of international terrorism has dropped sharply in the last decade, the overall threat of terrorism remains very serious. The death toll from acts of international terrorism

rose from 163 in 1995 to 311 in 1996, as the trend continued toward more ruthless attacks on mass civilian targets and the use of more powerful bombs."[33] The 1995 FBI report on terrorism noted that "large-scale attacks designed to inflict mass casualties appear to be a new terrorist method in the United States.[34] Based on the most detailed database of terrorism incidents in the public domain, the RAND-St. Andrews Chronology of International Terrorist Incidents, Bruce Hoffman similarly concluded that "while terrorists were becoming less active, they were also becoming more lethal."[35]

In other words, it appears that the number of groups interested in killing large numbers of people is growing, and that the level of killing that violent non-state actors believe necessary to achieve their objectives is rising.

Four trends, often tightly interrelated, suggest that the past disincentives to mass-casualty attacks will have diminishing force in the future. First, violence and terrorism motivated by religion is becoming more common and more lethal. Religious terrorism has undergone something of renaissance in the last two decades, as the number of known terrorist groups believed to be motivated primarily by religious causes has grown markedly.[36] Many of the reasons why secular, politically motivated non-state actors have tended to refrain from causing mass casualties apply with limited force or not at all to terrorists motivated by religious beliefs.[37] Most violent non-state actors of the past have been politically motivated, and have sought either to extract specific concessions from a state, or to foment or block social and political change -- purposes not often served by causing mass casualties. Religious violence follows a different logic. For religious terrorists,

violence can become a sacramental act, dictated and legitimized by theology. The primary purpose of violent acts is not to coerce particular concessions, but to fulfill a spiritual requirement.[38] Loss of popular support is of little concern to the religious terrorist, since the act is done for God, or God's clerical proxy, not public opinion.[39] Group cohesion is threatened less by practical matters, such as disagreements over the tactically and morally appropriate level of violence, than by the possibility of appearing unfaithful to the belief system that binds the group together. Harsh countermeasures by secular authorities are expected, but the deterrent effects of this prospect are relatively modest for religious terrorists: in their own minds, zealots are already locked in a life-and-death struggle with their opponents, and heightened oppression serves mainly to reinforce the teachings of fanatical spiritual leaders. For all these reasons, the inhibitions on mass-casualty violence are markedly lower in religiously inspired terrorism than in secular, political terrorism. As a result, as religiously inspired terrorism becomes more prevalent, terrorism in general will become more lethal.

Second, local opposition to US influence and military presence appears to be intensifying in the moderate, pro-American sheikdoms of the Persian Gulf region, resulting in increasingly frequent and damaging anti-American terrorist attacks. Religious and political motives for terrorism clearly reinforce one another in the Middle East, especially the Persian Gulf, and they do so in a manner that suggests that this is the region where the risks of mass casualty terrorism against American and other Western targets are growing most rapidly. This risk has become visible as a result of two major bombings in Saudi Arabia: the first at the offices of the US program manager for security assistance with the Saudi

Arabia National Guard (OPM-SANG) in Riyadh on November 13, 1995, killing seven and wounding 40; the second at the Khobar Towers housing complex for US Air Force personnel in Dhahran on June 25, 1996, killing 19 Americans and injuring more than 500.[40] Exactly who was responsible for the two bombings remains somewhat mysterious, but the rationale behind the attack is fairly clear. Certain strands of Islam, particularly some elements of radical Shi'ism, are profoundly hostile to what they perceive as the dominance of Muslim lands by foreign powers, especially the United States. Radicalized by a long colonial history, the Arab-Israeli conflict, and the Gulf War, significant numbers of Muslims see the US regional presence and influence as fundamentally incompatible with Islamic faith, primarily because America abets secular governance and transmits a Western culture some Muslims consider depraved. In the Gulf region, this religious hostility is magnified by the *realpolitik* of Iran and Iraq, whose aspirations toward regional hegemony are blocked by the forward US presence, and by the anti-Americanism of many ordinary Arabs and Muslims, some of whom hold the United States responsible for their own poverty and political powerlessness. Because of this combination of religious, geopolitical, and social factors, the risk of mass-casualty terrorist attacks against US interests in the Persian Gulf appears to be rising, and this possibility jeopardizes the precarious political foundations on which the American presence in the region rests.

Third, right-wing terrorism appears to be growing both more prevalent and more lethal. In the United States, this was seen most clearly in the 1995 bombing of the federal building in Oklahoma City. Internationally, an escalation in right-wing violence and fringe political

agitation has been seen in England, Germany, France, Israel, Russia, and several other states of the former Soviet Union, manifested most often in racially motivated attacks on foreign residents.[41] The important characteristic of right-wing violence for present purposes is that it is chauvinistic and hateful. Opponents are seen not just as politically or ideologically mistaken but as inferior, sub-human, and by right, subordinate, usually for reasons of race, religion, or sexual orientation.[42] The groups of the far right are by no means uniformly dangerous or effective. A handful have well-developed organizations, considerable resources, and an active membership, but others are little more than a single extremist with a photocopier and a mailing list. In both organization and ideology, the radical right is exceptionally fluid and eclectic: groups form and disband frequently, and individuals move from group to group frequently and with ease. There is rising concern among US law enforcement officials that right-wing extremists may seek to carry out mass-casualty attacks in the future, and may use exotic weapons in doing so. This concerns stems both from precedent set by the Oklahoma City bombing (the deadliest terrorist attack ever on US soil) and from the handful of recent incidents in the 1990s involving right-wing individuals caught in possession of biological warfare agents.

Fourth, it now appears that more and more non-state violence is committed by ad hoc collections of like-minded individuals who come together for specific purposes, sometimes to commit a single attack.[43] While these "amateur" terrorists probably have a somewhat lower capacity to carry out mass-casualty attacks, the motivational restraints on their ability to do so are also likely to be lower. Unlike traditional terrorist organizations, amateur terrorists groups are quite different, since

they have no political organization to worry about, and form only to commit a limited number of violent acts. Amateur groups, especially those pursuing a goal they believe is ordained by God, or motivated by a political ideology that is more a justification for violence than a political blueprint, are likely to be less averse to causing mass casualties since they have less of a stake in group preservation.

4. Conclusion

Until Aum Shinrikyo, the non-state actors that have been capable of acquiring and using NBC weapons have been uninterested in doing so, and those that may have been interested in employing weapons of mass destruction have been unable to do so. Now, however, both parts of this statement are becoming questionable.

First of all, the range of non-state actors that possess the technical capacity to obtain and use weapons of mass destruction is increasing. This process, which results both from growing non-state capabilities and from shrinking NBC acquisition hurdles, is adding new motivational diversity to the set of non-state actors with NBC potential. The increasing diffusion of increasingly sophisticated knowledge of the nuclear, biological, and chemical sciences is broadening the range of individuals who understand that NBC weapons acquisition is technically feasible and who, if called upon, would be able contribute materially to a non-state actor's attempt at secretly acquiring or fabricating an improvised weapon of mass destruction. As more groups and individuals become capable of NBC acquisition and use, the odds that one or more

will actually wish to use these weapons in a massively destructive attack will rise inexorably.

Terrorist groups and most other non-state actors have historically had little interest in killing large numbers of people with their attacks, and for many non-state actors, the reasons for this aversion will remain compelling. Nonetheless, non-state violence appears to be growing more lethal: mass-casualty terrorist events are becoming more frequent, and the percentage of terrorist attacks that result in fatalities is increasing. The best explanation for this trend is that there are increasing numbers of violent non-state actors for whom the logic of limited lethality applies only weakly, such as fanatical religious groups and cults, anti-American Islamic extremists in the Middle East, right-wing chauvinists, and loosely affiliated terrorists who lack the traditional concern with group preservation.

The net effect of these two trends is that the number of NBC-capable non-state actors with an interest in causing mass casualties will continue to grow in the years ahead. However, conventional weapons have been seen as adequate for virtually all non-state violence in the past, so an increase in the use of NBC weapons does not necessarily follow from an increasing interest in mass casualties. The disincentives to NBC weapons acquisition and use will continue to exist, but at the same time the number of groups that might switch to NBC terrorism will continue to grow.

At the moment, there is only the most fragmentary evidence that any specific non-state actor has a current, serious interest in weapons of mass destruction. If such information were found, the law enforcement and national security agencies of the American and many other governments

would move with dispatch to extinguish the threat. It is possible, however, to suggest elements of the likely "profile" of non-state actors with the capacity, motive, and intention to acquire and use NBC weapons. The most likely candidates for future acts of non-state NBC violence are:

- religious extremists, particularly those who have goals coinciding with a political terrorist agenda or an apocalyptic theology;

- Shi'ite terrorists operating in the Persian Gulf against US forces and the moderate sheikdoms, with or without state sponsorship;

- groups that wish to mimic the trappings and functions of a state, such as secessionist guerrilla movements and survivalist compounds;

- "extreme" terrorists and revolutionaries, who are willing to run the great risks associated with massive casualties and NBC weapons use;[44]

- weapons fanatics, possibly from the radical right, and technophiles for whom the acquisition of an exotic weapon has intrinsic value;

- groups that have themselves been the victim of NBC attacks (e.g., Kurdish terrorist); and

- "copy cats," who wish to imitate an incident that has already occurred.

Groups in these categories are by no means certain to make the fateful step of using a weapon of mass destruction. However, if another incident of NBC terrorism does occur, those responsible for the attack will likely fall under one or more of the headings above. Given the severity of the consequences that would result from even one successful act of NBC terrorism, the threat should be regarded as high enough to

rank among the most serious national security challenges faced by the modern liberal democracies.

Notes

*For a more complete treatment of these issues, see Richard A. Falkenrath, Robert D. Newman, and Bradley Thayer, *America's Achilles Heel: Nuclear, Biological, and Chemical Terrorism and Covert Attack* (Cambridge, Mass.: The MIT Press, 1998). The author thanks his collaborator, Robert Newman, for his input on these issues.

1. Several important recent studies have drawn attention to different aspects of the problem, and have made cogent recommendations. These include: Brad Roberts, (ed.), *Terrorism with Chemical and Biological Weapons: Calibrating Risks and Responses* (Alexandria, Va.: Chemical and Biological Arms Control Institute, 1997); Jonathan Tucker, "Chemical/Biological Terrorism: Coping with a New Threat," *Politics and the Life Sciences*, Vol. 15, No. 2 (September 1996), pp. 167-183; Defense Science Board, *Report of the 1997 DSB Summer Study on DoD Responses to Transnational Threats*, Vol. I (Washington, D.C.: Office of the Undersecretary of Defense for Acquisition and Technology, December 1997); National Defense Panel, *Transforming Defense: National Security in the 21st Century* (Washington, D.C.: US Department of Defense, 1997); John Deutch, "Terrorism," *Foreign Policy*, No. 108, (Fall 1997), pp. 10-21; Bruce Hoffmann, "Terrorism and WMD: Some Preliminary Hypotheses," *Non-proliferation Review*, Vol. 4, No. 3 (Spring-Summer 1997), pp. 45-53; and the forthcoming report of the

Universities Faculty Study Group on Grand Terrorism, led by Ashton B. Carter and John Deutch. For a broad literature review, see Ron Purver, *Chemical and Biological Terrorism: The Threat according to the Open Literature*, Canadian Security Intelligence Service (unclassified), June 1995.

2 . The term "non-state actors" includes traditional terrorist organizations that have grown familiar to us by providing a regular stream of newsworthy violence. Other pertinent non-state actors include paramilitary guerrilla groups fighting for the control of territory; cults and other religious organizations; militias or other geographically fixed paramilitary groups; organized crime syndicates; mercenary groups; breakaway units of a state's military, intelligence, or security services; corrupt multinational corporations; and lone individuals. This is, of course, a heterogeneous category, but all the types of non-state actors have at least one common element that is relevant to an assessment of both the covert NBC threat and the design and implementation of countermeasures: unlike states, they lack sovereignty over a piece of territory. Whereas states can freely develop, produce, and stockpile weapons of mass destruction on their own territory (albeit against the efforts of the international community), non-state actors operate in a much less permissive environment, one in which the slightest mistake or indiscretion can result in the termination of the specific NBC acquisition program and even in the elimination of the group itself.

3. Much conventional wisdom on the difficulty of acquiring weapons of mass destruction is based on the lessons learned from the weapons programs of the United States and, to a lesser extent, the programs of

other states. However, acquiring a small number of usable improvised weapons of any type is considerably easier than building and maintaining a militarily usable arsenal of weapons. Weapons for military use are needed in bulk, must be deliverable by normal military means, must be effective against properly equipped military forces on the battlefield, must be rugged and reliable, and must have adequate shelf life and predictable effects. These requirements increase the cost and difficulty of acquiring weapons of mass destruction for military use. In contrast, weapons of mass destruction intended for terrorist use can be produced inefficiently and in small quantities.

4. Sometimes confused with nuclear weapons are radiological weapons, which disperse radioactive substances but do not produce nuclear yield. The simplest radiological weapon would consist of a conventional explosive surrounded by a quantity of any radioactive material. Although a radiological weapon could contaminate an area and be costly to clean up, the health effects of the radiation would play out over a period of months or years, and would be fatal mainly at very high exposures. In its immediate physical effects, a radiological weapon is unlikely to produce mass casualties. In most cases, large quantities of highly radioactive material would be needed to produce strong effects over even a moderate area, and obtaining and working with large amounts of such materials would be challenging because of the high radiation levels involved. A radiological attack might, however, trigger panic out of proportion with its real destructiveness. Radiological weapons are far more accessible than nuclear weapons, and are therefore more likely to be

used by non-state actors. Although some of the recommendations directed at the covert NBC threat are also relevant to radiological threats, because of the low lethality of radiological weapons, they are not a focus of this article.

5. By comparison, the Oklahoma city bomb was equal to about 2 tons of TNT, about five thousand times less powerful than a small nuclear weapon.

6. See Graham T. Allison, Owen R. Coté, Jr., Richard A. Falkenrath, and Steven E. Miller, *Avoiding Nuclear Anarchy: Containing the Threat of Loose Russian Nuclear Weapons and Fissile Material* (Cambridge, Mass.: The MIT Press, 1996).

7. Living biological warfare agents include bacteria, viruses, rickettsia, and fungi.

8 . US Congress, Office of Technology Assessment (OTA), *Proliferation of Weapons of Mass Destruction: Assessing the Risks*, OTA-ISC-559 (Washington, D.C.: Government Printing Office, August 1993), p. 83.

9. The United States stockpiled some 30,000 tons of chemical agent, which it is now in the process of incinerating at eight sites in the United States as well as on Johnston Atoll in the Pacific. Russia has declared a chemical weapons stockpile of 40,000 tons, but some estimates of the true size of the stockpile range as high as 200,000 tons. Russia has pledged to destroy the chemical weapons stockpile it inherited from the Soviet Union, but its program to do so has been delayed by financial difficulties.

10. It is worth noting that Aum Shinrikyo failed at this aspect of the problem in the Tokyo attack, delivering the sarin ineffectively and

causing only a fraction of the potential fatalities, but the failings of a particular terrorist group cannot be taken as a guarantee of public safety.

11. On Aum Shinrikyo, see a report by US Senate investigators, "Staff Statement, Global Proliferation of Weapons of Mass Destruction: A Case Study on Aum Shinrikyo", in *Global Proliferation of Weapons of Mass Destruction*, Part I, Hearings before the Permanent Subcommittee on Investigations of the Committee on Governmental Affairs, US Senate, 104th Cong., 1st Sess. (Washington, D.C.: US Government Printing Office, 1996), Chap. 22, pp. 47-102; Murray Sayle, "Nerve Gas and the Four Noble Truths," *The New Yorker*, April 1, 1996, pp. 56-71; David E. Kaplan and Andrew Marshall, *The Cult at the End of the World: The Incredible Story of Aum* (London: Arrow Books, 1996); and Sheryl Wu Dunn, Judith Miller, and William J. Broad, "How Japan Germ Terror Alerted World," *The New York Times*, May 26, 1998, pp. A1 & A10.

12. See "W. German Terrorists Said to Test Bacteria," *International Herald Tribune*, November 8–9, 1980, p. 2.

13. Outside of the Nazi gas chambers, the most lethal chemical poisoning ever appears to be the arsenic poisoning of several thousand captive German SS soldiers in April 1946 by the Jewish reprisal organization Nakam. This attack was carried out by a group of European Jews, many of whom had survived the war as guerrilla fighters, who banded together after the war to carry out vengeance attacks against Germans. They called their group "Nakam," after the Hebrew word for vengeance. In addition to tracking down and killing individual Nazis, Nakam planned but did not carry out an

operation to poison the water supplies of a few German cities. The group's most successful operation was made against German prisoners in a US prisoner-of-war camp outside Nuremburg in April 1946. Members of the group infiltrated the bakery that supplied bread to the camp, and spread an arsenic-based poison on the loaves before they were delivered. Despite being forced to flee before they had finished, the group is estimated to have killed hundreds of prisoners, and sickened thousands. See Michael Bar-Zohar, *The Avengers*, trans. Len Ortzen (London: Arthur Barker, 1968), pp. 43-58.

14. See Thomas J. Török, *et. al.*, "A Large Community Outbreak of Salmonellosis Caused by Intentional Contamination of Restaurant Salad Bars," *JAMA*, Vol. 278, No. 5 (August 6, 1997), pp. 389–95.

15. One possible exception to this generalization would be a contagious biological warfare agent, which could disseminate itself through a large population by human-to-human contact.

16. The two had 0.7 grams of ricin in their possession. In February 1995, the two were convicted under the Biological Weapons Antiterrorism Act of 1989.

17. The principal exception to this general rule are ruthless guerrilla groups animated by a particular ethnic hatred or extreme ideology, such as the Bosnian Serbs, Algerian Islamic radicals, Rwandan militias, and Viet Cong.

18. See Martha Crenshaw, "Transnational Terrorism and World Politics," *Jerusalem Journal of International Relations*, Vol. 1, No. 2 (Winter 1975), p. 127; Jerrold M. Post, "Superterrorism: Biological, Chemical, and Nuclear," *Terrorism*, Vol. 13, No. 2 (1990), p. 166;

Bruce Hoffman, "Terrorist Targeting," *Terrorism and Political Violence*, Vol. 5, No. 2 (Summer 1993), pp. 12–29; Walter Laqueur, *The Age of Terrorism*, (Boston: Little, Brown, 1987), pp. 312–21; and Brian M. Jenkins, *International Terrorism: The Other World War*, RAND Report R-3302-AF (Santa Monica, Calif.: RAND, November 1985), p. 23.

19. Terrorism experts generally believe that "terrorists fear provoking widespread public revulsion because that can be exploited by the government and used against them." The quote is from Jenkins, *International Terrorism*, p. 24. See also B. David, "The Capability and Motivation of Terrorist Organizations to Use Mass-Destruction Weapons," in Ariel Merari, ed., *On Terrorism and Combating Terrorism*, (Frederick, Md.: University Publications of America, 1985), pp. 150–51; and Hoffman, "Terrorist Targeting," p. 23.

20. See Thomas C. Schelling, *The Strategy of Conflict*, (Cambridge, Mass.: Harvard University Press, 1960), pp. 195–99; Schelling, "What Purposes Can 'International Terrorism' Serve?" in R.G. Frey and Christopher W. Morris, (eds.), *Violence, Terrorism, and Justice* (Cambridge: Cambridge University Press, 1991), pp. 25–26; and Walter Laqueur, "The Futility of Terrorism," in Charles W. Kegley, Jr., (ed.), *International Terrorism: Characteristics, Causes, Controls* (New York: St. Martin's, 1990), pp. 69–73.

21. Martha Crenshaw, "An Organizational Approach to the Analysis of Political Terrorism," *Orbis*, Vol. 29, No. 3 (Fall 1985), pp. 473–487; Laqueur, *The Age of Terrorism*, pp. 93–96; and Jenkins, "Understanding the Link between Motives and Methods," in

Roberts, *Terrorism with Chemical and Biological Weapons: Calibrating Risks and Responses*, pp. 46–47.

22. See Brian M. Jenkins and Alfred P. Rubin, "New Vulnerabilities and the Acquisition of New Weapons by Nongovernmental Groups," in Alona E. Evans and John F. Murphy, (eds.), *Legal Aspects of International Terrorism* (Lexington, Mass.: Lexington Books, 1978), p. 225; Jeffrey D. Simon, "Terrorists and the Potential Use of Biological Weapons: A Discussion of Possibilities," R-3771-AFMIC (Santa Monica: RAND, 1989), p. 12; and Purver, *Chemical and Biological Terrorism*, pp. 40–41.

23. See Brian Jenkins, "Understanding the Link between Motives and Methods," in Roberts, *Terrorism with Chemical and Biological Weapons: Calibrating Risks and Responses*, p. 46. Hoffman argues that this observation applies mainly to "secular political" terrorists, not "religious political" ones. Bruce Hoffman, "The Contrasting Ethical Foundations of Terrorism in the 1980s," *Terrorism and Political Violence*, Vol. 1, No. 3 (July 1989), p. 363.

24. Jerrold M. Post, "Prospects for Nuclear Terrorism: Psychological Motivations and Constraints," in Paul Leventhal and Yonah Alexander, (eds.), *Preventing Nuclear Terrorism: The Report and Papers of the International Task Force on Prevention of Nuclear Terrorism*, (Lexington, Mass.: Lexington Books, 1978) pp. 92-93.

25. See Erhard Geissler, "Implications of Genetic Engineering for Chemical and Biological Warfare," in Stockholm International Peace Research Institute (SIPRI), *World Armaments and Disarmament SIPRI Yearbook 1984* (London: Taylor & Francis, 1984), pp. 421-451; US Congress, Office of Technology Assessment (OTA),

Technologies Underlying Weapons of Mass Destruction (Washington, D.C.: US GPO, December 1993), pp. 113-117; Jonathan B. Tucker, "Gene Wars," *Foreign Policy*, No. 57 (Winter 1984-85), pp. 58-79. Malcom Dando, "'Discriminating' Bio-Weapons Could Target Ethnic Groups," *Jane's International Defense Review*, March 1977, pp. 77-78; and US Department of Defense, *Advances in Biotechnology and Genetic Engineering: Implications for the Development of New Biological Warfare Agents* (Washington, D.C.: US Department of Defense, June 1996), <www.acq.osd.mil/cp/biotech96.htm>.

26. Likewise, with respect to physical traffic, "huge increases in the volume of goods and people crossing borders and competitive pressures to speed the flow of trade by easing inspections and reducing paperwork make it easier to hide contraband." Jessica T. Matthews, "Power Shift," *Foreign Affairs*, Vol. 76, No. 1 (January/February 1997), pp. 50-66.

27. Richard C. Barth and Clint N. Smith, "International Regulation of Encryption: Technology Will Drive Policy," in Brian Kahin and Charles Nesson, (eds.), *Borders in Cyberspace: Information Policy and the Global Information Infrastructure* (Cambridge, Mass.: The MIT Press, 1997), p. 263.

28. For an authoritative overview, see National Research Council, *Cryptography's Role in Securing the Information Society* (Washington, D.C.: National Research Council, 1996).

29. Louis J. Freeh, "The Impact of Encryption on Public Safety," Statement before the Permanent Select Committee on Intelligence,

US House of Representatives, September 9, 1997, available at
<www.fbi.gov/congress>.

30. For a useful description of the technical issues associated with
government control over encryption technology, see Hal Abelson,
Ross Anderson, Steven M. Bellovin, *et al*, *The Risks of Key
Recovery, Key Escrow, and Trusted Third Party Encryption: A
Report by an Ad Hoc Group of Cryptographers and Computer
Scientists*, May 1997, <www.crypto.com/ key_ study>.

31. John Arquilla and David Ronfeldt, *The Advent of Netwar* (Santa
Monica, Calif.: RAND, 1996), pp. 15-16, 43, and 81-82.

32. As Eugene Skolnikoff has put it, "It is therefore a reasonable, though
qualitative, conclusion that the introduction of information
technologies (and other technologies that play a synergistic role)
tend, on balance, to have consequences that are biased in the
direction of increased limitations on the centralization of political
power and toward greater openness within a society." Skolnikoff,
*The Elusive Transformation: Science, Technology and the Evolution
of International Politics* (Princeton: Princeton University Press,
1993), p. 101.

33. Department of State, *Patterns of Global Terrorism 1996*
(Washington, D.C.: US Department of State, April 1997), p. 1,
available at <www.state.gov/www/global/terrorism>. The overall
drop in the incidence of terrorism noted by the State Department
results from the post-Cold War decline in left-wing, ideologically
motivated terrorism (e.g., the Red Army Faction in Germany, the
Italian Red Brigades, Japan's United Red Army), and a marked drop
in state-sponsored international terrorism.

34. Department of Justice, Federal Bureau of Investigation, *Terror in the United States 1995* (Washington, D.C.: FBI, 1996); <www.fbi.gov>.

35. Bruce Hoffman, "Terrorism and WMD: Some Preliminary Hypotheses," *Non-proliferation Review*, Vol. 4, No. 3 (Spring-Summer 1997), p. 47. See also Hoffman, "Terrorist Targeting," pp. 14-19.

36. In 1968, none of the eleven identified international terrorist groups was religiously motivated; in 1980, two of 64 were; in 1992, eleven of approximately fifty. Data from the RAND-St. Andrews University Chronology of International Terrorist Incidents, Centre for the Study of Terrorism, St. Andrews University, St. Andrews, Scotland.

37. This argument has been developed in greatest detail by Bruce Hoffman. See Bruce Hoffman, *'Holy Terror': The Implications of Terrorism Motivated by a Religious Imperative*, P-7834 (Santa Monica, Calif.: RAND, 1993) pp. 11-14; Bruce Hoffman, "Contrasting Ethical Foundations of Terrorism in the 1980s," *Terrorism and Political Violence*, Vol. 1, No. 3 (July 1989), pp. 368-375; Hoffman, "Terrorist Targeting," pp. 22-24; and Hoffman, "Terrorism and WMD: Some Preliminary Hypotheses," pp. 48-50.

38. This thesis is developed and applied to Sikh religious violence in Mark Juergensmeyer, "The Logic of Religious Violence," in David Rapoport, (ed.), *Inside Terrorist Organizations* (New York: Columbia University Press, 1988), pp. 185-190.

39. See Hoffman, "Terrorism and WMD: Some Preliminary Hypotheses," pp. 48-49; Hoffman, "Contrasting Ethical

Foundations," pp. 361-377; and Jenkins, "Understanding the Link between Motives and Methods," p. 48.

40. On the Khobar bombing, see US Department of State, Bureau of Diplomatic Security, *Significant Incidents of Political Violence against Americans 1996* (Washington, D.C.: US Department of State, July 1997); US Congress, *Bomb Attack in Saudi Arabia*, Hearings before the Committee on Armed Services, US Senate, 104th Cong., 2nd sess. (Washington, D.C.: US Government Printing Office, 1997); and US Congress, *Terrorist Attack against United States Military Forces in Dhahran, Saudi Arabia*, Hearings before the Committee on National Security, US House of Representatives, 104th Cong., 2nd sess. (Washington, D.C.: US Government Printing Office, 1997).

41. See Stan Taylor, "The Radical Right in Britain," in Peter H. Merkl and Leonard Weinberg, (eds.), *Encounters with the Contemporary Radical Right* (Boulder, Colo.: Westview Press, 1993), pp. 165-184. Ekkart Zimmermann and Thomas Saalfeld, "The Three Waves of West German Right-Wing Extremism," in Merkl and Weinberg, *Encounters with the Contemporary Radical Right*, pp. 50-74. William Safran, "The National Front in France: From Lunatic Fringe to Limited Respectability," in Merkl and Weinberg, *Encounters with the Contemporary Radical Right*, pp. 19-49; Ehud Sprinzak, "The Israeli Radical Right: History, Culture, and Politics," in Merkl and Weinberg, *Encounters with the Contemporary Radical Right*, pp. 132-161; Vladislav Krasnov, "Pamiat: Russian Right-Wing Radicalism," in Merkl and Weinberg, *Encounters with the Contemporary Radical Right*, pp. 111-131; and Paul Wilkinson,

"Violence and Terror and the Extreme Right," *Terrorism and Political Violence*, Vol. 7, No. 4 (Winter 1995), pp. 82-93.

42. See Wilkinson, "Violence and Terror and the Extreme Right," p. 83; and Ehud Sprinzak, "Right Wing Terrorism in a Comparative Perspective: The Case of Split Delegitimization," *Terrorism and Political Violence*, Vol. 7, No. 1 (Spring 1995), pp. 17-43.

43. Bruce Hoffman has termed this phenomenon the rise of "amateur" terrorism, a phase which refers more to the spontaneity of the group's formation than to the skill level of its members. See Bruce Hoffman, "Terrorism and WMD," p. 50.

44. On this possibility, see Fred Iklé, "The Next Lenin," *The National Interest*, No. 47 (Spring 1997), pp. 9-19.
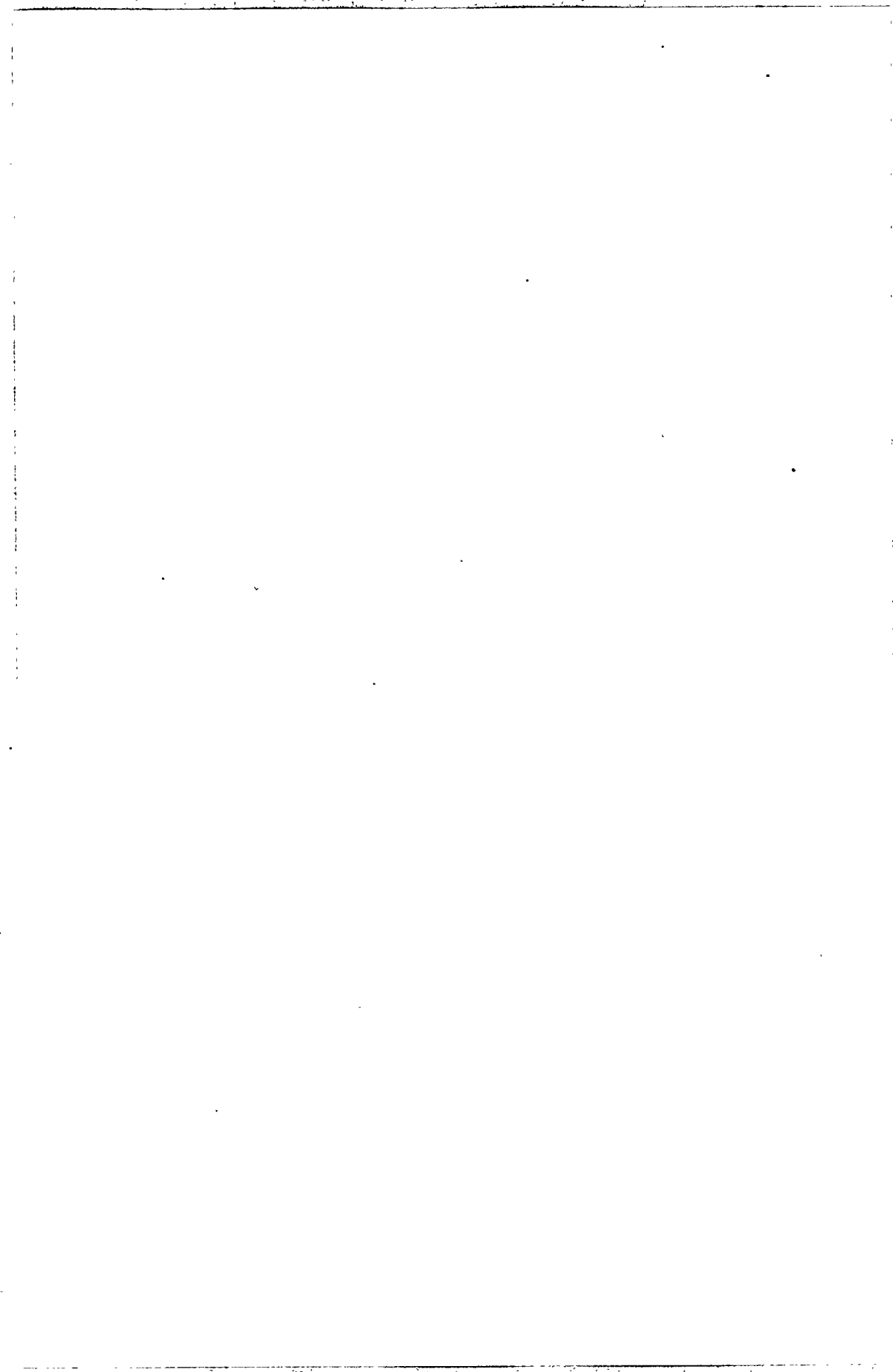
Chapter 14

Terrorism: Domestic and International Ramifications: A European Perspective

Alessandro Politi

This paper will attempt to provide a European perspective on the problem of international terrorism. In the first two sections, the question of definitions will be discussed followed by an explanation as to why terrorism has a legitimate place in the international security agenda. The fourth section deals with the fact that international terrorism has been viewed, until now, as a security risk, but not as a major threat, by utilizing the data of the US Department of State. The final two sections, will analyze the new characteristics of international terrorism and how serious is the potential threat of terrorist groups using weapons of mass destruction (WMD) and cybernetic means.

1. The problem of definitions

Since the beginning of this phenomenon, the definition of terrorism has been beset by the inherent ambivalence that it holds in the eyes of attackers as well as victims. The perpetrator's view of terrorism is often considered as the first possible armed answer against an oppressive power. For the victims, it is a vicious, illegal form of warfare, for centuries equated squarely with brigands or a seditious revolt. By the year 1 AD, the Zealots in Palestine thought that it was the only possible way to expel the Roman forces of occupation and to topple the local, impious puppet regimes. During the same period, Roman authorities and local political and religious elites considered

these opponents as dangerous, fanatic outlaws that had to be repressed with all available means. In a nutshell, "The freedom fighter for one side, is the terrorist for the other." After two millennia, the fundamentals of this controversy have hardly changed, even geographically.[1] Probably the best known definitions of terrorism are those employed by the US Department of State,[2] which are worthwhile quoting because they are used in their yearly public assessment of global terrorism:

- "The term 'terrorism' means premeditated, politically motivated violence perpetrated against noncombatant[3] targets by sub-national groups or clandestine agents, usually intended to influence an audience."
- "The term 'international terrorism' means terrorism involving citizens or the territory of more than one country."
- "The term 'terrorist group' means any group practicing, or that has significant subgroups that practice, international terrorism."

However, the above-mentioned definitions are not satisfactory, both for historical and political reasons. First, if we examine Tito's resistance in Yugoslavia against the Axis Powers, or the national wars of independence in Vietnam or Afghanistan's liberation from Soviet occupation, these efforts would have been impossible to sustain if one would have attacked only the military forces of the opponent. If one of the parties has no conventional forces to oppose, guerrilla warfare is, in most cases, the only alternative. This implies attacking all aspects of the enemy's political order. Second, not all political violence can be morally condemned in the same way. Toppling colonial rule or a dictatorial regime is generally considered a noble goal in the wider interest of freedom and democracy. That is also why, since 1972, that the United Nations has been incapable of defining the term terrorism.

Nevertheless, the actual effort of the international community is to limit, as much as possible, the effects of any form of warfare on civilian populations, be it bombings or guerrilla operations.

The definition that this paper will utilize in defining terrorism is that of L. R. Beres, who utilizes twin criteria of just cause and just means, thus distinguishing between rightful recourse to insurgent force and unlawful terrorism.[4] Both are politically motivated. The just cause of political violence can always be argued, but the just means are quite clearly defined by international law both for regular and irregular forces.[5]

Therefore, terrorism is unlawful because the means used fail to satisfy the criterion of just means (i.e., whenever the use of force is indiscriminate, disproportionate and/or beyond the codified boundaries of military necessity). As a result, the group or organization that violates these norms would be guilty of war crimes and possibly even of crimes against humanity.

2. Wide and narrow definitions of international terrorism

The notion of international terrorism, as presented by the US Department of State, has, on the one hand, the advantage of simplicity, but, on the other, it covers situations that are too different to be summed-up by a geographic or citizenship criteria. The consequence is that statistical facts risk being biased, and that some events are included, despite not being terrorist actions. Unfortunately, in the wider debate, the concept of international terrorism becomes quite muddled and propagandistic.

This paper proposes to distinguish, in a series of concentric circles, between different degrees of international terrorism and the implications of politically motivated violent acts. The aim is to propose a narrower, more precise definition of international terrorism

and to avoid confusion with other clandestine operations or state sponsored violence in general.

To distinguish better the various international dimensions of terrorism, one must begin to examine its domestic origins and then look at its international aspects. Seven types of terrorist and terrorist-like situations are set forth:

- domestic terrorism, endemic terrorism and civil war;[6]
- international implications of domestic/endemic terrorism and civil war;[7]
- international spillovers of domestic/endemic terrorism/civil war;[8]
- international support to domestic/endemic terrorism or civil war;[9]
- state sponsored domestic/endemic terrorism or civil war;[10]
- international terrorism proper (In this case, citizens of one country are undertaking attacks in countries other than the theater of civil confrontation and/or against citizens who are neither within the mentioned theater nor in countries adjacent to it.);[11] and
- covert operations. Under this aspect is included state-sponsored assassinations of selected individuals whose political or military research activities are considered dangerous or because they are selected as retaliatory targets.[12]

In the international arena of political debate, there is also another category called "state terrorism." This term is defined as the situation in which a state lends its legitimacy to terrorism or lends its own organs to indulge in acts of terrorism. It appears that this concept, although repeatedly employed, is not particularly helpful in pinpointing the nature of international terrorism. In the case of the legitimization of terrorism *per se*, it may be a political position that is condemnable, but it is not a terrorist act. In the case of using state organs for terrorist operations, it falls either in the category of state-sponsored acts, or that of covert operations. It seems that it is only in the context of endemic terrorism that one can envisage state terrorism

as the method by which a government (or a part of it) establishes clandestine groups, whose selected or indiscriminate killings are officially disavowed.[13] In all cases, state terrorism either weakens the rule of law within a given country,[14] or creates in the medium term heavy friction with the remainder of the international community.

Finally, there are situations in which internecine conflicts begin within terrorist groups and develop either in a country plagued by domestic terrorism or in a foreign one. A broader definition would include these acts as terrorist, yet, as long as these killings do not involve bystanders, it is difficult to treat them as such. They are politically motivated and remain a criminal offense, but they are more similar to gang warfare than to a terrorist attack. In fact, they are neither indiscriminate, nor target a wider audience. They are, in the eyes of terrorist leaders, the only credible disciplinary sanction they can take in a group that is outside the law.

In the fourth section of this paper, it will be noted that the use of these categories will provide a fairly different picture of international terrorism and help contribute in assessing more precisely the political stakes involved in this issue.

3. **The conceptual importance of terrorism in international security**

In the politics of European integration, the issues of so called "new risks" include international terrorism. This issue is indeed one of the areas where the Treaty of Amsterdam has achieved the most significant progress. Fifteen countries have, in fact, agreed in principle to transfer in due time a number of judicial and law enforcement responsibilities to the European Commission. Domestic security, just as financial currencies, will become a matter of concern for the whole of the European Union. For the time being, however,

law enforcement belongs to the specific area of European intergovernmental cooperation called Justice and Home Affairs (JHA) or the "third pillar,"[15] but the steps taken in Amsterdam point to a direction where the link between external and domestic security will constantly increase.[16]

One could suggest that this political choice, implying a wider concept of security, could entail an approach to terrorism that will be less focused on political and social solutions and possibly more in the direction of indiscriminately repressive, quasi-military actions. Some specialists point out the risk involved of "concept inflation," whereby the progressive widening of security itself, endangers its coherence.

A first response, at a political level, is to suggest that the risk of a "militarized" approach to terrorism cannot be discounted, but also cannot be overstated. A wider, multidimensional security concept, combining domestic, international and transnational aspects, will be able to provide the conceptual and political framework for more tailored responses. This will be even more so since the consensus among counter-terrorism experts is that any effective response must also address the social and political roots underlying terrorism.

A second answer is that only in the Northern Hemisphere during the Cold War did the distinction and the separation exist between domestic and international security, and this was clear cut. Elsewhere, and in other historical periods, multidimensional security was *de facto* the prescribed approach. Today, the multidimensional nature of security can be included once again within the fold of grand strategy, the broad interface between high politics and military strategy.[17] An important stimulus was the fact that after 1989, West European nation-states saw their effective capabilities, and ultimately their very sovereignty increasingly weakened by a reduction of their own resources and a diffusion of power toward other political actors.

Thirdly, international terrorism exploits the lack of collaboration among different governmental bodies both at the national and

international level. Therefore, a wider, multidimensional concept of security helps to overcome self-imposed operational limitations.

Finally, concerning the fear of a "concept inflation" of security, it should be recalled that political choices are the foundation on which security is defined and implemented. If the political priorities change, the nature and the means of security will inevitably follow and adapt, even if some political choices, for a number of reasons, might fail.[18]

4. How important is international terrorism as a security threat?

Once international terrorism has been more precisely defined, it is useful to assess the risks involved beginning with some quantitative data. These data are derived from those supplied by the US Department of State for the last three years,[19] but the author has elaborated on this data according to the previously mentioned seven categories and has further taken into consideration only the data applicable to human casualties involving the twenty-eight countries "members" of the Western European Union.[20] In this way, one may have a first cut at the political effects of international terrorism on European countries, beyond the sphere of the fifteen nations that make up the European Union.

4.1 *International implications of domestic/endemic terrorism and civil war*

	1995	1996	1997
Killed	14[21]	41[26]	31
Injured	8	13[27]	18[32]
Abducted	19[22]	22[28]	20[33]

4.2 *International terrorism proper*

	1995	1996
Killed	12[23]	3[29]
Injured	131[24]	2[30]
Hostages	0	10[31]

4.3 *Covert Operations*

	1995	1996
Killed	2[25]	6

To sum up, in these three years of terrorist activity, the data examined suggests that the casualties inflicted by international terrorism are: 15 people killed, 133 injured and 10 abducted. Even taking into account that the numbers of individuals injured and abducted to be a bit higher, these data do not suggest a high threat from terrorism.

Instead, the data argues that domestic terrorism is a relatively larger problem, not only for the local populations, but also for foreigners traveling in these countries: 86 killed, 39 injured and 61 abducted.[34] The victims came mostly from countries torn with civil strife, e.g., Algeria, Cambodia, Colombia, Egypt, Israel, Rwanda, Sri Lanka.

Ambassador Philip Wilcox, former Coordinator for Counter-terrorism stated the issue quite aptly during a press conference.

> "...we shouldn't place too much emphasis on statistics as a measure of terrorism, ...whether it's domestic or international, it's a very dangerous thing and affects US interests... ."[35]

If one simply compares these numbers with the estimated 30,000 dead in Algeria from 1990 to 1995, one can more precisely compare the weight of the different risks.[36] The same reasoning applies when comparing international terrorism with the casualties associated with drug trafficking and organized crime: in the US, 20,000 are killed yearly.[37]

Thus, international terrorism presents a paradox: from a political perspective it is perceived as a global issue, but its physical effects are limited and its psychological ones are quickly removed to the wider international public opinion arena. On the other hand, domestic or endemic terrorism, despite being more lethal and socio-politically more damaging in the medium to long term, does not arouse immediate international support for the victim's country. Not even when limited, defensive measures are applied, do they make a difference.

This paradox can only be reconciled if one considers that international terrorism is not important today. Its direct effect, or its occurrence frequency, matters because the indirect effects of domestic terrorism at the regional level impinge upon global security.

5. The new characteristics of international terrorism

When reviewing the main terrorist events through May 1998, one can note that domestic and endemic terrorism continues to plague, with different intensity, a limited number of countries, among these

are Algeria, Colombia, Egypt, Georgia, Israel, Philippines, Peru, Sri Lanka, Spain, Russia, Tajikistan, Turkey.[38]

State sponsoring and covert operations are still a feature of domestic and endemic terrorism. Iran continues to assassinate exiled opposition leaders, and the debate between the US-Saudi Arabia on the alleged role of Iran in the bomb attacks against US forces deployed in Saudi Arabia, continues. Additionally, attention to international terrorism was very much focused on prevention in order to protect the World Cup soccer events held in France. Several multilateral operations against GIA's (Islamic Armed Group) logistics were carried out throughout Europe, involving the police forces from Algeria, Belgium, France, Germany, Italy and Switzerland.

Before describing the developments concerning international terrorism and non-conventional weapons, it is necessary to sum up the new characteristics of this phenomenon. The two main factors influencing its evolution are the relationship with national governments and the effects of globalization.

During the Cold War, international terrorism continued to have its own political and social causes. It received support, mainly from the governments of the Soviet Bloc. The demise of the German Democratic Republic, the retirement of its top intelligence officer, Misha Wolf, and the possible ending of terrorism in Northern Ireland has helped to expose connections of the State players, such as the link of the GDR and Palestinian terrorists and between Syria and the Irish Republican Army.

As a result of the demise of the USSR, and the changing attitudes of several governments, this has led to a deregulation and a privatization of terrorism.

The privatization of terrorism is epitomized by the figure of millionaire Osama bin Laden, a former CIA collaborator in Afghanistan, turned Islamist extremist (deprived of Saudi Arabian citizenship). His $300 million fortune has created several terrorist

training camps in Afghanistan, Pakistan, Yemen and Somalia. He is suspected of being the mastermind of the Saudi Arabian (Dahran) bomb attack.[39]

One should hasten to add that private initiatives, despite having succeeded in putting together most of the means necessary for international terrorist campaigns, appear not to be effectively capable of mounting terrorist attacks like those in the Sixties and Seventies. One can argue that it was only through the systematic support, provided by States, which allowed, during the Cold War, such campaigns. Several intelligence evaluations indicate that the French terrorist Kelkal Group had to resort to using rudimentary production initiatives instead of relying on an effective logistic network abroad.

Less spectacular, but not less important, is the network of private or religious charities that are capable of supporting low-cost terrorist networks, which groups, in turn, accept State support but do not depend upon it.[40]

The deregulation of international terrorism is a result of privatization. The fact that the so-called "rogue states" are less numerous and less inclined to sponsor, systematically, international terrorism means that it is much more difficult to have some control over terrorist groups. Terrorist organizations are more fluid, more elusive and more influenced by internal group dynamics than by the external world.

In other sectors of criminal life, international terrorism is experiencing the effects of globalization. Transnational terrorists benefit from modern communications and transportation, have global sources of funding, are knowledgeable concerning explosives and weapons (widely available on the black market), and are more difficult to track and apprehend than members of the old established groups or those groups sponsored by States.[41]

Another aspect is that, in a global system, local responses to regional social crises and political disorders can be exported across great distances, sometimes with worldwide effect.

Immigration is a traditional cause of these crises; and transportation is more readily available and is increasingly exploited by terrorist groups to recruit, find cover and support. The consequences of these changes are that:

- new links are forged between terrorists and criminal groups, resulting, for example, in the frontiers between Islamist militants and criminals becoming hazy, thus increasing the inter-penetration of both environments by each group;[42]

- criminal organizations tend to adopt, more extensively, terrorist methods;[43] and,

- organized crime manipulates and directly hires terrorist groups or creates criminal multi-service agencies, which enrich crime syndicates through criminal and terrorist activities.[44]

Potentially, a much more serious problem is the increasing use by insurgent and terrorist movements of drug trafficking as a means to strengthen their financial and operational capabilities. In fact, the end of governmental control and manipulation of guerrilla movements has produced, as in other areas of politics and economy, a deregulation of guerrillas and a de-localization of their logistical support. Drugs are being used, for example, to finance the operations of Sendero Luminoso (Peru), LTTE (Sri Lanka), the PKK (Turkey) and the KLA (Federal Republic of Yugoslavia).

6. The possible new frontiers of international terrorism

Any attempt to think about developments in the area of international terrorism and nonconventional threats must consider the case of Japan. On 20 March 1995, members of the Japanese cult Aum Shinrikyo (Supreme Truth) carried out a Sarin chemical attack in Tokyo's subway.[45] This attack, on the one hand, demonstrates that weapons of mass destruction have fallen in the hand of actors much more unacceptable than rogue states: a local para-religious, non-political, non-rational sect.

On the other, this attack indicates the extraordinary complacency of local authorities coupled with the will and the means of a rich, religious sect willing to perpetrate such an event.

The US counter-terrorist community, even before this criminal act, had already speculated on such an attack.[46] Afterwards, a major exercise was undertaken by the Pentagon featuring a hypothetical biological and chemical terrorist attack, while some Russian specialists speculate that a biological terrorist attack is more likely. The general evaluation by all of these groups appears to be that NBC terrorism is still a low probability, although an actual attack cannot simply be ignored.[47] Specifically, the idea of nuclear terrorism itself can not be discarded.[48] Moreover, in May 1998, Russian judicial sources indicated that several thefts of radiological materials, like Cesium-137, had taken place. This material could be effectively used to build a crude radiological dispersal device.

Since capabilities are one component of risk assessment, the first question to consider is what international terrorist groups would be interested in launching such an attack. Any possible radical group is a likely candidate for NBC terrorism. Some logical steps, outlined below, might provide a first cut as to possible perpetrators.

A first step is to acknowledge that the overwhelming majority of terrorist groups have, until now, displayed a consistent logic in their

use of violence. Using WMDs would provide a major political firestorm, inviting, in turn, for a sustained and violent anti-terrorist campaign. Their use, even today, is still fraught with operational uncertainties. There is also a lesson to be learned from the Aum Shinrikyo case. Since the value of life between terrorists and victims' country is asymmetrical, low technology means, coupled with the skilled manipulation of media, is still sufficient to terrorize a nation.

A second logical step might be to examine local terrorist groups whose ideology features a combination of global purification and of isolation from the world. Concrete knowledge of the leaders of each group can provide important insights, but it is also not unreasonable to assume that the more a group is immersed in the international community, the less incentives exist for it to focus on the view of total destruction. On the other hand, political situations considered totally desperate by some extremist groups (for instance, the situation in Palestine) might invite extreme, irreversible measures.

Cyber-terrorism could be another non-conventional form of warfare. A first such precedent were the attacks by the Japanese Leftist group Chukaku-ha against the Japanese railway system in the "Eighties." The latest such attack of May 1998 concerned the cybernetic attacks by the LTTE against Sri-Lankan governmental sites and e-mail systems. No consensus to date exists as to how vulnerable civil and military networks are, although the latter seem, in principle, to be better protected. The Year 2000 computer bug might be an opportunity for cyber-terrorism against sensitive targets, such as US nuclear weapons, command and control centers, and the GPS satellite systems. Cyber-terrorism could appear to be a fascinating and ideally suited option for international terrorist groups, under the condition that a sufficiently disruptive attack would receive the same, if not more media attention and public opinion reaction when compared to a conventional bomb attack.

7. Conclusions

The term terrorism has always benefited from the disagreement that exists among experts on its definition. It appears that when experts focus on the illegitimacy of the act, this garners more consensus than disputing the act on just cause.

In order to combat more effectively international terrorism and other so called "new risk" threats, a wider, multidimensional security concept must be adopted. Such a concept would recognize that the old, rigid divisions that exists between external, military security and domestic capabilities have been overcome by the present diffusion of power from states to non-state actors.

This paper has attempted to demonstrate that broad definitions of international terrorism risk inflating statistics and in obscuring the fact that, beneath superficial political consensus, underlying differences exist to this phenomenon. Therefore, seven different terrorist situations were proposed, leading to a much narrower and realistic definition of international terrorism. This concept of state terrorism loses its propagandistic label when used to describe more narrowly and precisely terrorist groups by governments in cases of civil wars of endemic terrorism.

International terrorism is a serious risk to governments. It must be put into the wider context of more devastating endemic terrorism, and the more powerful and ruthless infiltration of organized crime.

In the post-Cold War period, international terrorism is a privatized, deregulated and globalized effort possessing mobility, flexibility, and elusiveness. Moreover, terrorists are increasingly supported by drug money, and some criminal elements are adopting terrorist tactics to subdue governments and undermine public opinions.

Finally, the use of WMD and cybernetic means by international terrorist elements should not be complacently dismissed. A closer

analysis on the possible profiles of would-be NBC terrorists is a priority for effective prevention.

Notes

*The opinions of the author are his personal ones. They do not necessarily reflect those of the Italian government or of its various organs and agencies.

1. For an essential survey of definitions of terrorism, see Louis René Beres, "The Meaning of Terrorism for the Military Commander," *Comparative Strategy*, Vol. 14, No. 3, July-September 1995 (Basingstoke: Taylor & Francis, 1995), pp. 287-99; Paul Wilkinson, "Terrorist Targets and Tactics: New Risks to World Order," in Alison Jamieson (ed.), *Terrorism and Drug Trafficking in the 1990s* (Aldershot: Dartmouth Publishing Co., 1994), p. 179; Alain Joxe, "Un concept fourre-tout: le terrorisme," in *Le Monde Diplomatique*, Avril 1996, pp. 6-7; Vittorfranco S. Pisano, "Contemporary Terrorism and the West," *Occidente*, April 8, 1994, p. 28-29.

2. US Department of State, *Patterns of Global Terrorism: 1995*, Office of the Coordinator for Counterterrorism, Washington, April 1996 (Ambassador Philip C. Wilcox, Jr., Coordinator for Counterterrorism). The definition itself is drawn from Title 22 of the United States Code, Section 2656f(d) and has been used for statistical and analytical purposes since 1983.

3. The US Department of State specifies that the term "noncombatant" be interpreted to include, in addition to civilians, military personnel who at the time of the incident are unarmed and/or not on duty. Acts of terrorism are also considered attacks on military installations or on armed military personnel

when a state of military hostilities does not exist at the site.

4. See L. R. Beres, *op. cit..* The principle of just cause maintains that an insurgency may exercise law enforcing measures under international law. This argument is deduced from the existence of an authoritative human rights regime in international law and from the corollary absence of a central enforcement mechanism for this regime. It is codified *inter alia* in the Report of the Ad Hoc Committee on International Terrorism, United Nations General Assembly, 29th Sess., Supp. No. 28, at 1, UN Doc. A/9028 (1973); see also Article 7 of the UN General Assembly's 1974 Definition of Aggression. Article 7 refers to the 24 October 1970 Declaration on Principles of International Law Concerning Friendly Relations and Cooperation Among States. The standard of just means has been brought to bear on non-state actors in world politics by Article 3, common to the four Geneva Conventions of 12 August 1949, and by the two protocols to these conventions. Protocol I applies humanitarian international law to conflicts fought for self-determination. All armed conflicts are not covered by Protocol I; see the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in *Armed Conflicts*, 10 June 1977. The protocol brings irregular forces within the full scope of law. Protocol II, additional to the Geneva Conventions, concerns protection of victims of non-international armed conflicts. This protocol thus applies within the territory of a state between its armed forces and dissident armed forces.

5. It should be noted that the international community has chosen this approach, although the practical method is to specify a number of criminal acts associated with terrorism instead of defining the illegal nature of it.

6. For example, where indigenous attackers constantly target people within the same country (e.g., endemic terrorism might be found

in Northern Ireland, Spain, and the civil war that is ongoing in Algeria, in 1998).

7. Citizens of another country when attacked in an area plagued by local, usually endemic terrorism (e.g., if a European dies in a bomb attack against a bus in Tel Aviv).

8. Citizens of another country when attacked in an area adjacent to that plagued by endemic terrorism (e.g., Tunisian border guards are attacked by Algerian terrorists).

9. Occasional support of different kinds by non-state actors by governments and to armed/terrorist groups or to their front political organizations, acting in the theater where endemic terrorism or civil war is ongoing (e.g., Islamic charities' networks or pro-IRA fund raising actions in the United States).

10. Continuous and/or decisive support by governments to armed/terrorist groups, acting in a theater where there is confrontation, as, for instance, the support of Syria and Iran to the Hezb'allah in Lebanon. If a group is based in a particular country, this amounts to sponsorship of that group by that country.

11. A terrorist group can also receive international support or state sponsorship. This form of terrorism can be perpetrated in support of an endemic terrorist confrontation (e.g., attacks by the PKK in Western Europe); in support of a wider political confrontation at a political, ideological or religious level (e.g., the bomb detonated on 23 December 1995 at the office of the Peruvian Honorary Consulate, which attack was later claimed by the Anti-Imperialist Cells (AIZ), the successor organization to the RAF); and as a proxy group for indirect confrontation between governments.

12. Covert operations on a narrower scope can take the form of the French retaliation after the bomb attack in Beirut in 1986, the Iranian-sponsored killings of dissidents in Germany, or the foiled Israeli operation in Jordan in 1998.

13. For example, the alleged "death squadrons" in Latin America during the Cold War, or the spate of bomb attacks in Italy in the late Sixties, mid-Seventies, or the GAL (Group of Antiterrorist Liberation) in Spain.

14. Even within a non-democratic country, the creation of clandestine terrorist groups muddles the existing chains of command and political power constellations.

15. In diplomatic parlance, the European integration process rests on three pillars: the European Commission, the Common and Foreign Security Policy (CFSP) and the Justice and Home Affairs Ministry.

16. This linkage rests on several documents in several different European political fora. First, the declaration at the Madrid WEU's Ministerial Meeting, "A Common Security Concept for the 27 Countries of the WEU," June 1995, followed by the Reflection Group's Report, or Westendorp Report (Messina, June 2, 1995; Brussels, December 5, 1995).

17. See also http://europa.eu.int/en/agenda/igc-home/eu-doc/reflect/final.html, June 6, 1997, then the OSCE "Lisbon Declaration On A Common and Comprehensive Security Model for Europe for the Twenty-first Century," (paragraph 2), December 1996 and, finally, the Barcelona Declaration adopted at the Euro-Mediterranean Conference, November 28, 1995, p. 5, 3rd-4th tiret; Terrorism, Drug Trafficking, Organized Crime. See Trevor N. Dupuy et al, *International Military and Defense Encyclopedia,* (Washington, D.C.; Brassey's, 1993), p. 27; Edward N. Luttwak, Strategy, *The Logic of War and Peace,* (Cambridge, Mass.: Harvard University Press, 1987), p. 180. For purposes of this paper, the definitions by Henry H. Kissinger (strategy as the manner by which a society secures its future); by Basil H. Liddell-Hart (grand strategy as guide and coordination of all the resources of a nation or an alliance to attain the political objectives

established); Edward Luttwak ("grand strategy is the highest level of interaction between any parties capable to use unregulated force against one another"); and Helmuth Schmidt (grand strategy as the harmonization of national economic and security policies among Western countries, since no one individually can achieve security) are used.

18. See also Barry Buzan, "Rethinking Security After the Cold War," *Cooperation and Conflict*, Sage Publications, Vol. 32 (1), pp. 5-28 for an analytical point of view.

19. *US Department of State, Patterns of Global Terrorism*: 1995, Office of the Coordinator for Counter-terrorism, Washington, April 1996; *US Department of State, Patterns of Global Terrorism*: 1996, Office of the Coordinator for Counter-terrorism, Washington, April 1997; *US Department of State, Patterns of Global Terrorism*: 1997, Office of the Coordinator for Counter-terrorism, Washington, April 1998.

20. The WEU, as a type of a European security organization, includes Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Turkey, and the United Kingdom.

21. To this total, could be added 1 killed. It could result from an international state-sponsored domestic/endemic terrorist act or civil war. Most of the victims, twelve, were killed in Algeria.

22. Of which 14 were freed by security forces and 5 are still missing.

23. To these statistics can be added: 1 killed, which case is unclear; 3, who might have been either victims of international terrorism or of racketeering and 3 others who might have been either victims of international terrorism or of covert operations. Most of the victims (7) were killed in France by the Kelkal extremist Islamist group.

24. Of which, 103 in France by the Kelkal group and 20 in Germany by PKK actions.

25. To this could be added a dubious case of 1 killed in a covert operation.

26. Apart from these, there are 3 other killings whose political motivation is dubious, and which might be ascribed to ordinary crime.

27. The Department of State publications speak of an additional unspecified number of injured in a bomb attack affecting some Europeans.

28. In this total, 8 hostages were missing, 7 were freed by police forces and the rest released by their captors. To this total were not added 18 people abducted by different Yemeni tribes since this violence was not politically motivated. All these hostages were released.

29. The total includes 1 killed by faction rivalry.

30. The total includes 1 injured by faction rivalry. To the total should be added an unspecified number of injured in one of the last bomb attacks by the Kelkal group in France.

31. Of which 6 were freed by police forces and 4 released by the terrorists. An unspecified number of Turkish hostages were also freed from a ferry hijacked by some Turks of Chechen origin.

32. An unspecified number of European injured in Sri Lanka by a bomb attack carried out by the LTTE.

33. Of which 8 were missing, 2 freed by security forces and 10 released. In this total, 37 abducted by Yemeni tribes are not counted, since the violence was not politically motivated.

34. Numbers of injured could be somewhat higher.

35. See special briefing *Patterns of Global Terrorism, 1996*, Washington, D.C., April 30, 1997.   See also http://www.state.gov/ and www/global/terrorism/1996report/, March 24, 1998.

36. For example, 6,000 were killed per year. See Aaron Karp, "The Demise of the Middle East Arms Race," in *The Washington*

Quarterly, Vol. 18, No. 4, Autumn 1995, Center for Strategic and International Studies, Washington, 1995, pp. 45-51.

37. See Jim Fuller, "Global Cooperation Vital in Addressing Drug Concerns," in *Global Issues*, Vol. 1, No. 7, United States Information Service, July 1996, pp. 1-5.

38. Greece could also experience a renewed wave of attacks from extreme Leftist groups, while the UK could succeed in terminating the IRA and its loyalists in Northern Ireland. Russia is facing an increase of neo-Nazi terrorism, in addition to the use by these groups of terrorist tactics by organized criminal groups.

39. See Magdi Allam, "Il miliardario di Allah e l'esercito del terrorismo," in *La Repubblica*, June 27, 1996, p. 4, and "Guido Olimpio, L'impazienza di Sonny e la tela di ragno," in *Il Corriere della Sera*, August 6, 1996, p. 7.

40. See Aaron Karp, op. cit.

41. It seems to have happened, for example, with the bomb attack against the World Trade Center and with an attempted bombing of a US civil aircraft in the Pacific by the Ramzi Yousef group.

42. The French cases since 1994 are particularly significant. See Hervé Gattegno and Erich Inciyan, Depuis 1994, "La Frontière Entre Militants Islamistes et Délinquants est Devenue Incertaine et Perméable," in *Le Monde*, April 4, 1996, p. 11. The Shalabi group, dismantled in 1994, mixed intimately organized crime, drug trafficking and extremist Islamism.

43. For example, in Colombia, the Cali and Medellin drug cartels have employed car bombs. This is also the case of the Cosa Nostra in Italy. In France, the Corsican independentist groups have transformed themselves into a collection of organized criminal syndicates as in Russia.

44. As shown by cases in India and Italy. See *CHEAR*, *op. cit.*, p. 36-37, and Giuseppe D'Avanzo, "Nicoletti e i 'ragazzi' della Magliana," in *La Repubblica*, May 30, 1996, p. 17.

45. Since 1989, this sect has a long record of both individual and mass attempted assassinations using potassium chloride, hydrogen cyanide, Sarin, VX, anthrax spores, botulinum toxin and germ-infected meals. The relative failure of the Tokyo attack (12 killed, 5,000 injured) was due mainly to the crude methods employed by the Aum Shinrikyo to release the agent by puncturing its container. See Ron Purver, "Chemical and Biological Terrorism," RISCT, *Conflict Studies* 295, London, December 1996/January 1997, pp. 15-16, and pp. 10-15 for an extensive list of actual or alleged uses of CB weapons by various state and nonstate actors.

46. US Department of Defense specialists have forecast that the greatest danger arises from groups acquiring low-technology nuclear bombs, biotoxins, and chemical weapons. See Pat Cooper, "Department of Defense Eyes High-tech Counterterrorist Effort," in *Defense News*, November 20-26, 1995, p. 2.

47. Also, the forthcoming volume by Richard A. Falkenrath, *NBC Terrorism: Understanding the Threat.*

48. Andreas Heinrich and Heicko Pleines, "Russia's 'Nuclear Flea Market' Tempts Smugglers," in *Transition*, November 17, 1995, OMRI, Prague, pp. 9-11. Russian military authorities declared that they were worried of the possible seizure of a nuclear weapon by terrorists. Moreover, the Chechen chief Shamil Basaev had threatened terrorist acts either by opening seven containers of radioactive materiel he claimed he had in his possession or by causing a major failure in a nuclear reactor. This threat is similar and analogous to that made by Serb extremists against the Krsko reactor during the war in the former Yugoslavia.
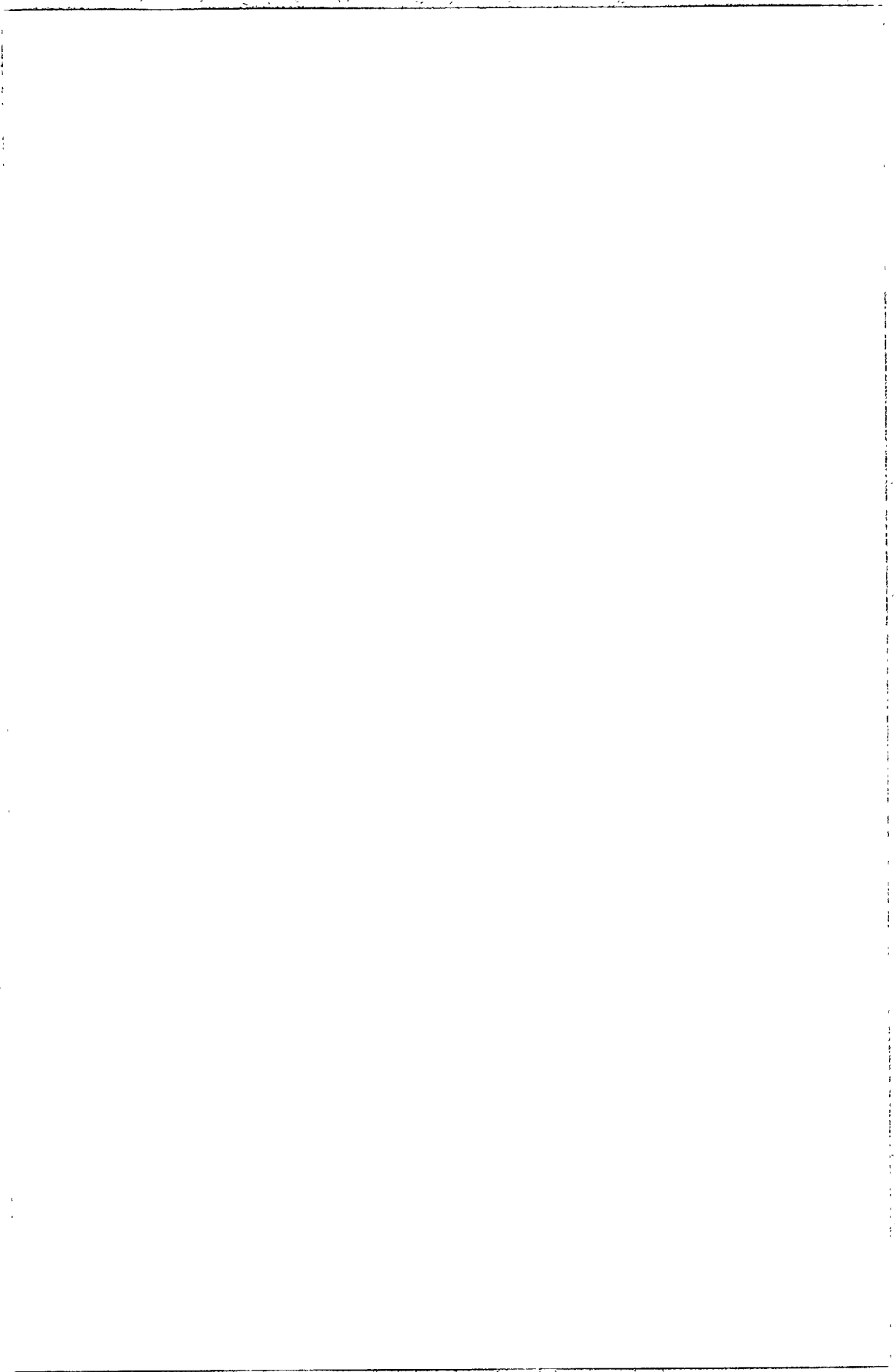
Chapter 15

The Internet Information Infrastructure:
Terrorist Tool or Architecture for Information Defense?

Steve Kadner, Brian Rees and Elizabeth Turpen

Technology defines the positive prospects, as well as the dangers, that shape our daily lives. As evidenced in the half century after the splitting of the atom, any specific technological advance can have peaceful purposes as well as destructive potential. Under current circumstances, the rapid changes in technology often make clear distinction between potential threat and positive improvement being contingent on the ultimate objective for which they are implemented. Moreover, some argue that the rapid evolution (or "revolution") and implementation of information technologies is transforming society itself. Rather than these technologies merely allowing for incremental increases in productivity and augmenting convenience, the transformation they impel makes information the "talisman for a new kind of society, a society in which reason and consensus set the tone rather than raw power and materialism."[1]

Postindustrial society is an information society. Knowledge and innovation are to the postindustrial society as capital and labor were to the industrial society. Assuming this is true, then power is a factor of ones access to knowledge and innovative capacity. Put simply, information becomes the commodity and the means to power, both in hard and soft terms.[2] Although it is not assumed at this point that information superiority will supersede raw material power in all cases, the variables that constitute power are changing. As such, how we think about threats to international security and how we formulate

solutions must shift from industrial to postindustrial or "information age" paradigms.

The Internet, as a culmination of information age technologies and an agent of change, exemplifies this transformation. As with any infrastructure, our dependency upon the so-called global information infrastructure creates certain vulnerabilities. Moreover, unlike physical infrastructures, the Internet is a multi-use technology. While information technologies, such as the Internet, can be utilized as a tool of terror, these same technologies can facilitate the implementation of solutions to mitigate the threat. In this vein, this presentation analyzes the multifaceted nature of the Internet information infrastructure and argues that policymakers should concentrate on the solutions it provides rather than the vulnerabilities it creates. Minimizing risks and realizing possibilities in the information age will require institutional activities that translate, exploit and convert information technologies into positive solutions. What follows is a discussion of the Internet information infrastructure as it relates to its increasing vulnerabilities and positive potential.

1. Information competence

The so-called "information revolution" is rapidly transforming human interactions and transactions, both public and private. This revolution is not a surface or temporary minor transition of the manner in which we conduct our lives. These changes embody an economic upheaval analogous to the industrial revolution in their capacity to transform our lives. According to one view, the Internet is "the new railroad to American life, and, like the railroad...(it) will transform first our lives, and then the life of the world. As the railroad created a new network of cities and an urban, industrial society, so this new network that we are laying will replace the urban, industrial world

with a new city, a new gathering place for...life: Byte City."[3]   Byte City is not a location, but rather a metaphor for a change that is wholly immaterial. More importantly, it is not the technology that is important, except in its role as the agent of change. It is how technology change affects us that matters.

As processing power doubles annually and product cycles are now measured in months, no reversal or even deceleration in the forward pace of technological advances appears likely.[4]   Today, one cannot assume to clearly decipher precisely how this revolution will change society. However, certain trends in the transformation can be delineated which should be taken into account in how we view global security threats and what means we use to implement responses. Ultimately, the Internet, the dimension of "Byte City," will bring about societal changes, assumed to largely have positive consequences. In short, Byte City's implications for the economy and our personal lives include the following: 1) time and distance play no role in transactions nor do they present barriers; 2) the marketplace will stipulate new standards of value; and 3) the global marketplace will compel openness and transparency in transactions.[5] Each of these will be discussed in turn.

Geopolitical boundaries become anachronistic in Byte City. This dissolution of barriers in our world is happening now. Transactions in real-time from laptop to laptop or ATM to your bank account are already a reality. Rather than the rhythms of the manufacturing society, the information society's "commuting" needs will be served via the net. Byte City allows entities the capability to consume, communicate and collaborate in a borderless world. Information technologies and global communications networks enhance personal and commercial freedom through the expanded choices and enhanced possibilities they create. The democratization effect of the Internet entails a fundamental shift in power relations, conferring power to individuals in their access to the commodity of information;

whereas the late industrial society was largely characterized by top-down hierarchies that controlled information. The systemic change, already underway, implies a decentralization of information and, therefore, decision-making power.

Businesses, as well as private parties, that are adept in their exploitation of the information infrastructure can greatly enhance organization and communication capabilities. In fact, in the information age, survival will be contingent on maximizing exploitation of these technologies to realize economic objectives. New standards of value created by the Byte City's marketplace will be defined by those who lead in the acquisition of information, who are adept in turning information into knowledge and who are innovative in applying it to solving problems or satiating persistent material, entertainment or lifestyle demands.

The last definitive implication is the force towards greater transparency. The effect of global information flows with unattended access is assumed to create an emphasis on openness, or at least in increasing "information-intensive exchanges in social, political, economic and cultural life."[6] Democratization compels transparency in that control of the most sought-after commodity is no longer regulated or controlled by the dominant power structures. While this constitutes a threat to the status quo, demands for transparency will elevate society to a new ethos in their interactions.[7]

The Internet is rapidly becoming the backbone of information competence in this new age. It personifies the myriad threats as well as positive consequences of technological change. Access to information in post-industrial societies will unravel the hierarchical structures of industrial society and, in turn, bestow power to individuals. In any age, power has destructive, productive and integrative dimensions.[8] Whereas, immense possibilities exist for the productive use of information power, it is the destructive and negative integrative dimensions to which the discussion now turns.

2. Terrorist Tool

A fundamental shift in power relations results from the rapid evolution of access to information. The information age, as embodied in the Internet, amplifies the individual's capacity for destruction. This transformation in the power relationship has three dimensions: 1) worldwide connectivity enables an individual, or small group, to distribute a message to an international audience on a broad scale; 2) interconnectivity and reliance on remotely controlled infrastructure systems allows persons to achieve access to realms of information that were previously controlled by large corporations or the state; and 3) the Internet also opens the possibility for individuals, assuming a sufficient degree of know-how and coordination, to exploit the vulnerabilities of the system and wreak havoc through disruption of critical systems. While the third dimension will be handled in the next section, the first two dimensions point to the very real possibility that "terrorists" will leverage information technology in the same way that a corporation or a technologically sophisticated armed forces might.

While this explosion of information technologies has enabled the attainment of more efficiency and bestowed greater power to almost every aspect of life, it also produces even more complex security problems. Just as the Internet is the railroad of the information age for legitimate purposes, it creates an additional tool for undetected communication, coordination and consummation of destructive acts, both physical and cyber.[9] The ability for the ill-motivated Internet user to wield these instruments for achieving large-scale destruction is one side of the coin; the other side is the potential for "customized propaganda" to multiply the range and the number of actors that pose a potential threat. In other words, Byte City is potentially also a

digitized conference room for visionaries of the Aum Shinrikyo bent.[10] Similarly, it confers on the believers the capability to influence and (mis)inform persons in real-time and across borders.

The fundamental shift in the relationship between the state and individuals is a direct consequence of the information age. Individuals, or small groups, can leverage this power through their own exploitation of communications and information technology. The peaceful or violent use depends on the objectives of the individual user. This multi-use potential of the access to information and communication capabilities can greatly enhance the terrorist's power. The terrorist's use of cyberspace enhances unparalleled opportunities for recruitment efforts, as well as the capacity to formulate, coordinate, and inflict severe damage. While the myriad avenues for manipulation of this information infrastructure are, as yet, unknown, they encompass the potential vulnerability of any information system that is a part of it or can be accessed through it. Increased democratization, and increased power, "affords the opportunity for willful, hostile actors, perhaps standing behind the experimenters, to watch, learn and manipulate."[11] Manipulation in the form of so-called cyber-warfare is the third dimension of this power shift to which the discussion now turns.

3. Terrorist target

Second only to the threat of weapons of mass destruction is that of information warfare or so-called cyberterrorism. Warfare in the information age implies additional transformations in the "nature of weapons systems and their targets."[12] Information technology is radically transforming the tactics and potential capabilities for warfare. For example, the application of these technologies for military purposes can provide higher resolution sensors and augment

signal or image processing. These technologies can greatly enhance the accuracy of hitting a target, as well as offering myriad possibilities for conflict simulations and virtual reality training functions.[13] Lastly, the military increasingly relies on embedded information systems for all of its so-called C^4I (command, control, communications, computers and intelligence) capabilities.[14] Some analysts already envision "information dominance" and, eventually, "battle omniscience."[15]

Again, however, the changes in military technology brought about through the application of new instruments are less important than the fundamental shift in the nature of conflict. In pursuing the analogy of the Internet today, as the railroad of 1870's, there is, in fact, good reason to question the military's status quo fixation on industrial age threats in an information age.[16] Conflict in the information age may entail a transition from utilizing material weapons (ships, tanks, guns) to attack material targets, toward using Internet capabilities to assail cyber targets to effect, in metaphorical terms, a black out in Byte City. For instance, increasing concern today is being focused on the possibility of destructive acts converging on crippling any number of network grids. Our increasing reliance on the Internet presumably makes these threats all the more menacing.

From the standpoint of international security, the post-Cold War information age is characterized by the increasing confluence of military and civilian, public and private, technological means. This gives rise to a convergence of threats and diffusion of responsibility in mitigating such threats. In recent Senate hearings, the US Deputy Secretary of Defense, John J. Hamre, commented:

> Our knowledge of the origin of such attacks, and their sponsorship, is likely to be imprecise. State, local and Federal authorities, as well as industry personnel and the general public, are each likely to have only part of the picture. In this context, the boundary between national security and law enforcement is blurred, as is the border between public and private sector responsibility.[17]

While this statement sounds similar to many descriptions of the difficulties in dealing with the increasing risk of a physical threat to civilians through a terrorist act, the speaker is specifically addressing the problem of cyberterrorism. Neither the potential threats nor the solutions can be dealt with in isolation due to the intricate web of risks created by advances in technology in conjunction with the blurring of lines between international and domestic, federal and local, public and private sector responsibilities and capabilities. In the information age, this negative potential not only makes distinction between criminal, terrorist, and warlike acts difficult, but it creates responsibilities for entities formerly not involved in coordinating strategies for national security.[18] Moreover, the increasing participation of new actors "shifts the locus from the battlefield and the level of conflict to the strategic plane... ." Information age conflict is "part of a dramatic redefinition of the notion of the boundaries of our national security domain in the post-Cold War world."[19]

4. Terrorism: physical and cyber threats

In response to Presidential Decision Directive 39, the Attorney General established a committee to review the vulnerability to terrorism of US government facilities and infrastructure. The Critical Infrastructure Working Group, comprised of representatives from the Department of Defense and the intelligence community, identified the following eight critical infrastructures: telecommunications, transportation, emergency services, banking and finance, electrical power systems, water supply systems, gas/oil storage and transportation, and continuity of government. Moreover, the group designated two categories of threat to these infrastructures: physical and cyber.[20]

As computers have become a basic and essential element of every aspect of our infrastructure, the integration of these technologies into society gives rise to cyber-terrorist threats to that infrastructure.[21] For instance, the Internet allows transmission of an e-mail message or a computer virus that can, if opened and thereby executed, cause damage to an entire network system. The perpetrator can achieve this objective from thousands of miles away, across international borders, and, at present, enjoy a high probability of impunity. Deterring or responding to such threats will require collaboration between and among formerly compartmentalized agencies and necessitates increasing cooperation between the international, domestic, corporate and government actors.[22]

In sum, the threat of information warfare or cyberterrorism is commonly perceived as being roughly proportionate to our own increasing dependence on computers and the networks that connect them. This is, however, an inaccurate assessment of the vulnerabilities created by Internet infrastructure. Here the analogy of the Internet as the railroad to the information age breaks down. Unlike the railroad infrastructure, which renders a train wholly reliant on a particular set of physical tracks to arrive at its destination, the Internet is a system of systems. Internet connectivity relies on underlying physical telecommunications facilities. "The Internet can overlay anything from satellite to cable to wireless to dial-the-regular-public-switch network-based lines, anything. It is a hostile overlay network in that it is indifferent to whatever the networks below it are."[23]

Due to the distributed nature of the myriad networks which comprise the Internet, in conjunction with individual, redundant "safety features," only small portions of specific intranets could be vulnerable for short (less than an hour) periods of time. In order for a hostile entity to cause severe damage to the Internet, they would have to make a substantial investment and have considerable expertise. Moreover, the business applications of the Internet lead to financially

driven incentives that surpass governmental imperatives for reliability. In short, the Internet's nature and economic imperatives for its robustness mitigate against the damage that could be achieved by cyberterrorism.

However, there already appears to be a threat from sophisticated hackers. For instance, as recent as last month while the US was preparing to mount an attack on Iraq, hackers achieved an electronic assault on eleven US military computer systems. In this instance, there was no evidence that might suggest the intrusions were aimed at disrupting Gulf deployments and no breach in security of classified information occurred. According to one official, the invasion had "the quality of voyeurism or vandalism" and "all the appearances of a game."[24] This is not an uncommon occurrence. To date the objective of hackers appears to be limited to achieving unauthorized access to these systems. This same vulnerability, however, if exploited by coordinated and sophisticated cyber-terrorists makes disruption or confusion through a strategic assault on critical systems a possibility.

"Combine our increasing vulnerability, with the explosive increases in the level of violence, and increasing expertise available inside terrorist organizations...(then one) can see that at the point where the physical and virtual worlds converge, the old models of managing terrorism are obsolete."[25] Increasing dependency on the information infrastructure for key aspects of our economy, military competence and personal interactions, including those upon which our lifestyles and survival depend, also creates a highly lucrative target. A well-executed cyber-terrorist attack on our critical national information systems presents a risk of the compromise, loss, exploitation, manipulation or denial of the information they carry. The threat of cyber-terrorist attacks to strategic information blurs the distinction between government and private sector systems. This interconnectivity greatly complicates the challenges in detecting an information attack and in developing defenses against it.[26] As in the

case of physical terrorism, it is only through the leveraging of information age technologies and the formulation and implementation of coordination among entities involved that these threats can be effectively addressed.

5. Real-time information and rapid response

Parallels to the physical threat of weapons of mass destruction (WMD) surface again in the discussion of solutions to cyberterrorism. However, rather than perceiving these issues as distinct, a more holistic approach would serve to identify the overlap between threats, both physical and virtual, as well as point to possible solutions provided by technology. A simplified version of policy issues involved in combating terrorism includes the following:

- coordinating various members of response communities in order to integrate the analysis and to differentiate between types of potential threats;
- whether response is required by a federal, local or private sector entity, a critical weakness in current readiness is the capacity to collect and compare information from a variety of sources in order to accurately comprehend its implications;
- more fundamental is the challenge of collecting important information itself, a task that will heavily rely on information sharing between international and domestic, public and private actors.[27]

It is precisely these activities -- collecting, comparing and sharing information -- that are greatly facilitated by the existent Internet architecture. Seamless coordination, barring human error, and real-time collaboration are a possibility now. Deterring the threat posed by the Internet, whether as a terrorist tool or target, is contingent on the

ability of domestic and international agencies to stay ahead on the learning curve and translate technological advances into solutions. Any strategy to counter the terrorist threat should capitalize on the technological advances in implementing a well-organized and integrated information defense program. While response capability demands achieving clear lines of responsibility among agencies, the efficiency and effectiveness of response can be greatly enhanced through reliance on the Internet infrastructure in devising cost-effective, reliable solutions to information and communication needs.

6. High-tech preparedness

Internet-based applications also provide first-best solutions in coordinating timely and effective responses to physical terrorist threats. Civil defense must be based foremost on timely and accurate information coordination. The Internet architecture provides a foundation for combating terrorism through real-time information collection, exchange, analysis and rapid response. The proper exploitation of the Internet can minimize the probability of success and enhance the response time in the event that an attack occurs.

For example, Radnet is an application that was designed as a means to monitor radiation detection instruments from a remote location. Radiation detection instruments are placed at various locations in a facility, and readings are needed at various intervals to satisfy operational, regulatory, and safety issues. The Radnet system allows its users the ability to monitor instruments in real-time and make a variety of notifications in the event of an abnormal situation, as well as allowing some capacity for remote control. The key to computerized reporting and data analysis are actualized by the computer's capability to receive data from a wide variety of

instruments and to incorporate it into a database with minimal operator action.

Radnet creators conceived of using the Internet to communicate with radiation detection instruments in order to achieve a standard communication protocol that gives manufacturers and users maximal flexibility; a flexible protocol to exploit the full use of an instrument's multiple functions but does not burden the computer systems when simpler instruments are used; allowing any computer to obtain data from the detection instrument without knowing anything about the instrument, and; utility and reliability of the system.

Radnet's implementation at the Los Alamos National Laboratory Plutonium Facility has met these objectives. The Eberline personal contamination monitors (PCM-2s) communicate across an Ethernet Intranet. Personnel can remotely monitor PCM operations through any computer connected to the network and be alerted to problems by messages sent to computers or sent to one or more pagers. Information sent via Radnet communicates through simple e-mail or 80-digit pager messages as to who used which instrument, what levels the instrument measured, and whether the instrument was working properly. The information gathered is also stored in a database for future use.

Before discussing additional possibilities for implementing a Radnet information structure, several advantages of this system should be mentioned.

- The Radnet protocol does not require buying another computer, program, or system, and Radnet functions on a variety of platforms (UNIX or IBM).
- The network architecture at an existing location is sufficient. No additional cabling is needed.
- Off-the-shelf hardware can be used to implement the system.
- New and existing instruments can be readily networked.
- Radnet allows any computer to monitor instruments.

- Security can be implemented at several levels. The server can encrypt, select individual computers or subnets to broadcast to and/or require passwords.
- Standard, commercially available wireless networking equipment can be used to communicate, eliminating the need for wiring between instruments and computers.

If one understands the potential applications of Radnet, the immediate possibilities extend far beyond meeting regulatory requirements and increasing efficiency of instrument monitoring for radiation detection devices. Radnet is an example of the type of systems that could be installed in a subway or ventilation system linked with detection devices to provide real-time information to officials (response agencies) via computer or pager. Information structure systems using a Radnet-type approach would enhance coordination and facilitate efficient and timely response to detected problems.

Radnet detection and response possibilities illustrate that the conversion of information technology into concrete solutions is the first-best approach to mitigating the terrorist threat. While advances in detection instrumentation would be required that eliminate "noise" (false alarms), it is important for persons involved in policy-making and response team coordination to understand the solutions that are based on the exploitation of the Internet. Information technologies should be leveraged at every level to utilize their positive applications. The Internet information architecture allows for enhanced coordination among entities involved in evaluation and analysis of information regarding potential threats. It can also serve as the infrastructure for achieving rapid response in crisis or consequence management of a terrorist attack.

7. Conclusions

The ultimate form of the information society is still nebulous. Whether Byte City will be a reality for a substantial percentage of the global population is unknown. However, the Internet as the infrastructure for information competence is indisputable. The multifaceted nature of Internet uses, as well as the changes in society it exemplifies, require careful analysis of the negative and positive potentialities and leveraging technology to reduce the vulnerabilities our dependency creates. Minimizing risks and realizing possibilities in the information age requires first, understanding the implications of the decentralization of power, and then taking steps to translate, exploit and convert information technologies into solutions that address the possible threats.

Notes

1. William J. Martin, *The Global Information Society* (Brookfield, VT: Gower Publishers, 1995), p. 1.
2. In a classical sense, power has been equated with military or economic might. However, in a more accurate assessment of the components of power, Joseph Nye distinguishes between "hard" (military) and "soft" (co-optive, ideological) power. See Joseph S. Nye, Jr., in *Bound to Lead: The Changing Nature of American Power* (New York: Basic Books, 1990), pp. 173-201.
3. Michael Vlahos, "The War after Byte City," in: *The Information Revolution and National Security*, Stuart J.D. Schwartzstein, (ed.), (Washington, D. C.: Center for Strategic and International Studies, 1996), p. 91. According to Vlahos, this is referred to as "the Infosphere" in industrial lingo; "the global information

infrastructure" is an additional term used for the railroad of this information revolution.

4. For instance, in 1967, the average time span between initial discovery of a technological innovation and its commercialization decreased from 30 years between 1880 and 1919. It was only 16 years from 1919 to 1945, and 9 years from 1945 to 1967. Product cycles for advances technologies, such as computers and software, are usually less than a year. Francis Fukuyama, *The End of History and the Last Man* (New York: The Free Press, 1992), pp. 91-92.

5. Vlahos, "Byte City," pp. 91-96.

6. Vlahos, "Byte City," pp. 93.

7. According to Vlahos, individuals as well as businesses will profit more through truth and openness in the information age, and the risks of deceit will become too great. In this manner Byte City embodies a radically different society than late industrial civilization. Earlier societies, even those that called themselves democratic "encouraged a kind of human tyranny built into (their) very social architecture. A world of tightly refined, top-down hierarchies specialized in controlling information; and information-control equaled people-control." *Ibid.*, p. 95.

8. Kenneth E. Boulding, *Three Faces of Power* (London: Sage, 1989).

9. Others distinguish between the "virtual world" and the "physical world" in discussing future terrorist attacks. The physical world is "matter and energy...that place in which we live and function," while the "virtual world is symbolic - true, false, binary, metaphoric representations of information - that place in which computer programs function and data moves." See Barry C. Collin, "The Future of CyberTerrorism: Where the Physical and Virtual Worlds Converge," *11th Annual International Symposium on Criminal Justice Issues Proceedings*, March 27, 1997,

<http//:www.acsp.uic.edu/O1CJ/CONFS/terror02.html>. The metaphor of Byte City, however, implies a convergence of these worlds in that cyberspace is the new market and meeting place.

10. According to one source, the Aum is, indeed, active on the net through exploitation of on-line forums and bulletin board messages. One forum, "Chemistry Square," featured discussions lasting several days on the chemical structure of sarin. On one particular computer bulletin board there have been "many messages supporting Aum, almost trying to woo the reader to Aum's side." In other instances, cyberspace has become a new front for promoting fundamentalist causes and urging illicit activities. See "Cults and the New Information Society," *The Asia Lutheran*, <http://www.jlh.org/asia-lut/june 95/sarin.html>.

11. Testimony of Senator Jon Kyl, Chairman, before the Senate Judiciary Committee Technology, Terrorism And Government Information Subcommittee hearing on "Critical Infrastructure Protection," Federal News Service LEXIS/NEXIS (5 November 1997).

12. John Arquilla and David Ronfeldt, "Information, Power, and Grand Strategy: In Athena's Camp," in *The Information Revolution and National Security*, Stuart J.D. Schwartzstein, ed. (Washington, D.C.: Center for Strategic and International Studies), p. 146.

13. Goodman, S.E., "War, Information Technologies, and International Asymmetries," *Communications of the ACM*, Vol. 39, No. 12 (December 1996), p. 11.

14. Jeffrey R. Cooper, "Another View of Information Warfare: Conflict in the Information Age," in *The Information Revolution and National Security*, Stuart J.D. Schwartzstein, ed. (Washington, D.C.: Center for Strategic and International Studies), p. 121.

15. According to Goodman, "It is central to the war-fighting futures sought by both the big platform advocates, who favor such

weapons as tanks, submarines, and bombers, and more radical thinkers who foresee, for example, a battlefield covered with many small, smart, sensors operating under an integrated battle management system that summons brilliant weapons from long distances to surgically destroy their targets." See Goodman, "War, Information Technologies."

16. The analogy between the U.S. on the brink of Byte City and France in the industrial revolution is the premise upon which Vlahos' bases his thesis. Namely, France lost in 1871 because it concentrated its efforts on war technologies and combat experience rather than real revolution in warmaking embodied in the railroad. While the French achieved a revolution in weapons modernization (breech-loading rifle, chassepot and needle gun), the "Big Change" in daily life - the railroad as "the tool of Europe's transformation" - created industrial war. Namely, the railroad made "war by mobilization, war by train timetable" a possibility.

17. Statement by the Honorable John J. Hamre, Deputy Secretary of Defense, before the *Senate Judiciary Committee Technology, Terrorism and Government Information Subcommittee*. Hearings on "The Nation at Risk: Report of the President's Commission on Critical Infrastructure Protection," Federal News Service, LEXIS/NEXIS (5 November 1997).

18. For instance, unilateral government action cannot assume to address the myriad dangers that arise from this decentralization of power. The information age gives rise to the need for involvement on the part of civil agencies, such as the Department of Justice, Department of Commerce, the Federal Communications Commission, among others. The proliferation of players in cyberspace is by no means limited to state actors. "...the U.S. military has already begun to encounter many of these new

players," such as international organizations, NGOs, special interest organization, etc. Cooper, p. 121.

19. See Cooper, "Information Warfare," p. 121.

20. Louis J. Freeh, Director, Federal Bureau of Investigation before the Senate Appropriations Committee Hearing on Counterterrorism FDCH LEXIS/NEXIS (May 13,1997).

21. Collin defines three potential acts of cyberterrorism: 1) Destruction; 2) Alteration; and 3) Acquisition and retransmission. He also outlines specific instances via such acts as a means to realize terrorist objectives of inflicting damage or causing disruption or destabilization. See Collin, "Cyberterrorism," pp. 3-4.

22. Comments of Senator Bart Gordon before the Technology Subcommittee of the House Science Committee hearing on Computer Security, FDCH Transcripts LEXIS/NEXIS (6 November 1997).

23. Brian Kahin, "Thinking about the Information Infrastructure," in: *Information Revolution*, p. 11.

24. Deputy Defense Secretary John J. Hamre cited by Bradley Graham, in the article "11 U.S. Military Computer Systems Breached by Hackers This Month," *Washington Post*, February 26, 1998, p. A1.

25. Collin, "Cyberterrorism," p. 6.

26. Testimony of Senator Jon Kyl, Chairman, before the Senate Judiciary Committee Technology, Terrorism And Government Information Subcommittee hearing on "Critical Infrastructure Protection," Federal News Service LEXIS/NEXIS (5 November 1997).

27. Statement by the Honorable John J. Hamre, Deputy Secretary of Defense, before the Senate Judiciary Committee "Technology, Terrorism and Government Information Subcommittee." Hearings on "The Nation at Risk: Report of the President's

Commission on Critical Infrastructure Protection" Federal News
Service, LEXIS/NEXIS (5 November 1997).

Chapter 16

Technologies for Fighting Terrorism: The Federal Role

Gerald L. Epstein

Governments have no more of a fundamental role than to ensure the safety and security of their citizens, an obligation that includes deterring, defeating, and responding to terrorist attack. In the past several years, the spectrum of threats that the Federal government is preparing to deal with has expanded. In the aftermath of the chemical weapon attack against the Tokyo subways in March 1995, the US government has given attention to countering possible terrorist use not only of chemical weapons but also of biological, nuclear, or radiological weapons: so-called weapons of mass destruction (WMD). Such unconventional weapons pose challenges above and beyond those presented by explosives, bullets, and firebombs. It is these types of weapons that have been used, heretofore, in practically all terrorist attacks.

Technology cannot solve these challenges by itself. There are no silver bullet technological fixes that can deny terrorists the ability to inflict damage on modern civil societies. However, technological tools will be an important part of any societal response to the problem of terrorism, particularly mass destruction terrorism -- and several federal agencies are developing and fielding new tools to counter this threat.

1. Multiple facets of WMD terrorism

Responding to a WMD terrorist attack, or even making federal preparations to be able to respond to one, is particularly challenging

considering that a mass-destruction terrorist incident is simultaneously a crime scene, a mass-casualty incident, and an instance of a broader category of situations involving poisonous, infectious, or radioactive materials (see Figure 1).

As a crime scene, a mass-destruction terrorist incident falls under the jurisdiction of law enforcement agencies that seek to identify and apprehend those responsible and ensures that they are successfully prosecuted. Law enforcement personnel need equipment to protect them from hazardous substances at the scene and to perform forensic analysis on materials that might provide clues as to who was responsible for the attack.

As a mass casualty incident, a WMD terrorist attack will trigger a response by agencies and institutions responsible for protecting public health and safety: fire departments and rescue squads; public health authorities; disaster assistance and emergency response teams; and the medical/health care communities. A significant WMD attack will almost certainly overwhelm the ability of state and local officials to respond and will call for federal disaster assistance. However, unless specialized federal response teams are predeployed at the incident site (as may well be the case for high profile events such as the Olympic Games or Presidential inaugurations), or unless relevant National Guard units are located in the vicinity, state and local agencies will be on their own for at least the first several hours.

Finally, any use of a weapon of mass destruction will attract the attention of the Federal national security community, if not because of the possibility that another nation is responsible, then at least because the national security agencies, and, in particular, the military, have experience protecting against and managing the consequences of chemical, biological, and nuclear agents. Since the United States must face the possibility that it will be attacked with WMD in a future conflict, the US military has equipment, personnel, and training to

Figure 1:

Facets of Mass Destruction Terrorism
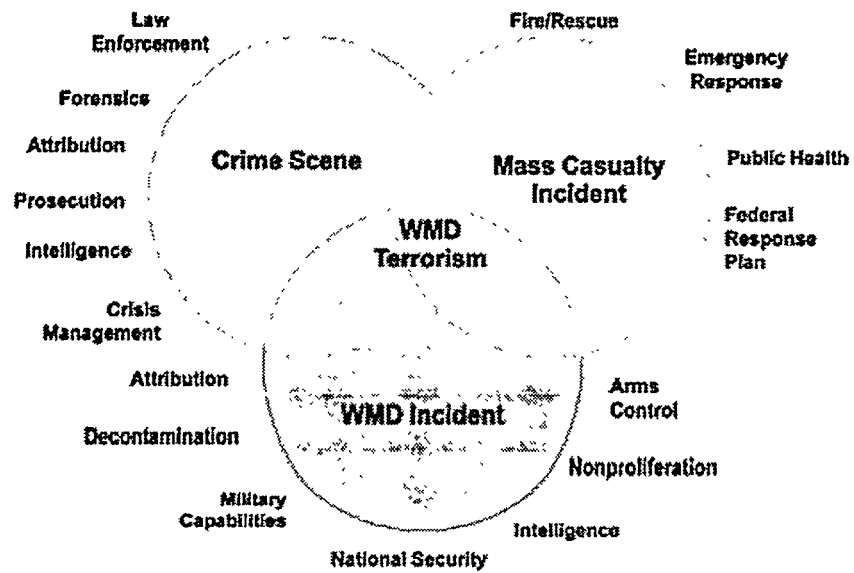
deal with WMD attacks. This expertise can be provided to the civil sector.

Each of these three facets of a WMD terrorist attack involves a distinct community, with its own set of agencies and perspectives. These communities do not necessarily share a common language. This point was made clear during a White House meeting held last fall to address the costs and benefits of establishing a surveillance system to detect possible terrorist use of biological weapons. This meeting included representatives from federal agencies involved in all three of these communities: law enforcement, public health, and national security. It gradually dawned on the participants that, whereas, the public health community uses the term "surveillance" to refer to epidemiology and other measures to track *disease*, the law enforcement and national security communities use the term to refer to wiretapping or otherwise tracking *terrorists*. Similarly, to public health practitioners, "response" means the provision of therapeutics and vaccines, whereas to the national security and law enforcement communities, it means a military strike or a raid on a terrorist hideout, respectively.

Operationally, the US government is becoming better at integrating these different elements of the response to a WMD incident. However, the research and development activities associated with each of these communities have not been very well integrated. Particularly to the extent that these research and development (R&D) activities share a common technology base (e.g., the ability to detect, protect against, and decontaminate nuclear, chemical, or biological agents), there is great benefit in coordinating these activities.

2. Developing technology strategies to fight WMD terrorism

Formulating a research and development agenda to deal with WMD terrorism requires that we first assess our capability to respond to such attacks. Such an assessment will reveal shortfalls that R&D can address. With respect to the medical requirements for responding to chemical and biological incidents, a study by the Institute of Medicine (IOM) -- the health/medical arm of the US National Academy of Sciences -- has performed the first phases of such a capability assessment.[1] Table 1, drawn from an interim report from that IOM assessment, indicates the US Government's current capability to respond to a chemical attack.[2]

This chart may be more useful for the categories it presents (in both the row and column titles) than for the evaluations contained in each of the table's cells. The row and column labels describe the components of a response to a chemical or biological terrorist attack. The columns represent four different types of organizations that would respond to such an event. The leftmost column refers to state and local "first responders": the police, fire, rescue, and emergency services personnel who would be the primary elements to respond to the site of a terrorist incident. The next column represents local treatment facilities; the clinics, hospitals, and doctors' offices that will receive the victims of a terrorist incident. The third column describes state or regional institutions such as poison control centers, or the several State Departments of Emergency Services or Public Health, that will be involved in incident response. The rightmost column represents the many and varied federal support teams and institutions, including civil institutions such as the Centers for Disease Control and Prevention, the National Disaster Medical Service, as well as specialized military or National Guard units with technical expertise to operate in contaminated environments.

Gerald L. Epstein

Table 1

Current Capability to Respond to Chemical Weapon Incidents

	Local First Response	Initial Treatment Facilities	State	Federal
Preincident Intelligence	L	L	S	H
Identifying Agents in Environment	S	L	S	H
Personal Protection	S	S	S	S
Patient Extraction	L	N/A	N/A	L
Recognition Patient Symptoms and Signs	S	S	S	S
Identifying Agents in Clinical Samples	L	S	S	H
Recognizing Covert Exposures	N/A	S	S	S
Mass-Casualty Triage Techniques	S	S	S	S
Decontamination of Exposed Individuals	S	L	L	S
Availability of Drugs and Other Therapies	L	S	S	S
Treatment of Psychological Effects	S	S	S	S

KEY	Little or No Capability	Some Capability	High Capability	Not Applicable
	L	S	H	N/A

Source: Institute of Medicine and National Research Council, *Improving Civilian Medical Response to Chemical or Biological Terrorist Incidents: Interim Report on Current Capabilities* (Washington, D.C.: Academy Press, 1998), p. 16.

The first and last of these columns -- state and local first responders and federal support organizations -- have been receiving increased attention in recent years as efforts are made to improve the nation's ability to handle WMD terrorist attack. However, the middle two columns are important as well, particularly with respect to biological attacks that may not have an identifiable "incident site" to which first responders and specialized federal support teams can report. Such attacks will be recognized, and responded to, by the medical and public health systems .

The rows in Table 1 represent different functional tasks that must be performed to mount a medical response to a chemical terrorist event. Note that a given technology may be utilized in more than one of these missions (e.g., identification of chemical agents in the environment, identification of chemical agents or metabolites in clinical specimens, and detection of residual agents to verify whether decontamination has been completed).

The darkest cells in Table 1, also labeled "L", represent areas where the IOM study panel believed that the indicated level of responder had little or no capability. The lightest shaded cells, labeled "S", indicate some degree of capability, and the medium shaded cells, labeled "H", represent areas where the IOM panel viewed the responder as being highly capable. Functional areas that do not apply to a particular category of responder are marked Not Applicable (N/A).

The capability assessments provided in this figure are important for planning and prioritizing an R&D response to the threat of chemical terrorism. However, a number of caveats must be made, or additional information obtained, before a complete R&D investment strategy can be formulated; and these follow:

- The chart does not reflect the relative importance of the different functional tasks (rows) to the various categories of responders (columns). Therefore, although this analysis can identify where attention is needed, it does not by itself prioritize which shortfalls are most important to remedy.

- Cells that are indicated as "highly capable" can benefit from considerable -- and continuing -- improvement. For example, even though responders at the federal level are "highly capable" at identifying chemical agents in the environment, these capabilities can be made more sensitive (capable of identifying smaller quantities of agent), selective (having lower false alarm rates), inclusive (able to cover a broader range of agents), and act at a longer stand-off range. As a separate example, federal agencies are deemed "highly capable" at acquiring and interpreting pre-incident intelligence, but this finding does not indicate that these agencies can count on knowing in advance if, when, or where a terrorist attack will take place.

- The rows in the charts are limited to tasks that are part of the medical response, and they do not include other missions that may draw on some of the same technologies, e.g., environmental decontamination or forensic analysis and attribution.

The Institute of Medicine's assessment of the capability to respond to a biological attack, depicted in Table 2, is quite similar to its assessment in the chemical case, even though the evolution, consequences and response to the two types of attack can differ substantially.[3] Tables 1 and 2 differ in only 5 of the 41 corresponding entries. However, the relative importance of the rows and columns in the two charts is quite different. For example, recognizing covert exposure is much more significant in the biological case than in the case of chemical. Similarly, detection and

Table 2

Current Capability to Respond to Biological Weapon Incidents

	Local First Response	Initial Treatment Facilities	State	Federal
Preincident Intelligence			S	H
Identifying Agents in Environment			S	S
Personal Protection	S	S	S	S
Patient Extraction	S	N/A	N/A	S
Recognition Patient Symptoms and Signs	S	S	S	S
Identifying Agents in Clinical Samples			S	H
Recognizing Covert Exposure in Populations	N/A	S	S	S
Mass-Casualty Triage Techniques	S	S	S	S
Decontamination of Exposed Individuals	S			S
Availability of Drugs and Other Therapies		S	S	S
Treatment of Psychological Effects	S	S	S	S

KEY	Little or No Capability	Some Capability	High Capability	Not Applicable
		S	H	N/A

Source: Institute of Medicine and National Research Council,
*Improving Civilian Medical Response to Chemical or Biological
Terrorist Incidents: Interim Report on Current Capabilities*
(Washington, D.C.: Academy Press, 1998), p. 16.

identification of agents in clinical samples are much more important in the biological case than in the chemical case. Also, in a biological incident, the "incident scene" may not be identifiable until well after the fact, therefore, state and local first responders may not be involved prominently, if at all.

The Institute of Medicine study that was the source for both Tables 1 and 2 is an interim report. The final report for that study is intended to "provide specific recommendations for priority research and development on detecting chemical and biological agents as well as methods for protecting and treating both the targets of attack and the responding health care providers."[4]

3. Federal R&D to combat terrorism

Even without the benefit of the final IOM assessment, the federal government has been engaged in a substantial R&D program to counter terrorism, including chemical and biological terrorism. Table 3 presents an estimate of the federal R&D funding for such contingencies. These figures are taken from an Administration report to Congress that was mandated by the Fiscal Year 1998 Defense Authorization Act, and which represents the first effort to systematically report spending to combat terrorism.[5] In addition to the R&D figures given in Table 3, the report to Congress includes spending figures for four additional categories: law enforcement and investigative activities; preparing for and responding to terrorist acts; physical security of government facilities and employees; and physical protection of national population and national infrastructure. The total expenditure across all these categories was estimated as $6.5 billion in FY98, to be compared with $6.7 billion that was requested for FY99.

Table 3

Federal R&D to Combat Terrorism

(Budget Authority, $ million)

Agency	FY98 Enacted	FY99 Request
DoD/Intelligence	93	116
Energy	27	27
HHS	1	1
Justice	23	14
State	2	2
Transportation	44	54
Treasury	7	7
Total	197	221

Source: "Government-Wide Spending to Combat Terrorism," report to Congress transmitted by the Director of the Office of Management and Budget to the Speaker of the House and the President of the Senate on March 12, 1998, pursuant to Section 1051 of the FY98 Defense Authorization Act (Public Law 105-85).

Table 3 is limited to research and development, and neither it nor the discussion below addresses operational activities to combat terrorism, such as ongoing federal efforts to provide state and local responders with training, threat assessments, exercises, and, in some cases, equipment to respond to WMD terrorist attacks.

The type of analysis contained in the report to Congress is notoriously difficult to compile and interpret. These figures were derived from the "top down" by asking agencies to identify their funding which was devoted to combating terrorism. A "bottom-up" analysis, compiled by identifying individual projects and programs relevant to combating terrorism and aggregating them, may well yield

different numbers. More important than determining the "correct" total, however, is determining whether funds to combat terrorism are being spent on the right things. The process of compiling these figures, and the interagency coordination and visibility that results from this process, can help minimize the gaps and overlaps which exist between individual agency R&D programs. Therefore, the process of deriving these estimates may well be more important than the numbers that result.

3.1 *Department of Defense*

The largest contributor in this R&D pie is the Department of Defense (DOD). In the chemical/biological arena, DOD's Chemical and Biological Defense Program is developing and fielding improvements to current chemical and biological detection, protection, decontamination, and medical treatment capabilities. Other DOD efforts, particularly at the Defense Advanced Research Projects Agency (DARPA), pursue longer term, higher risk, but potentially very high payoff approaches. Although DOD's chemical and biological defense R&D activities are primarily intended to protect troops on the battlefield, many of them are highly relevant to countering potential chemical or biological terrorist attacks against civilians.

Two of the major issues in mounting a medical response to bioterrorism are the limited time window, after an attack, in which therapeutics can be provided, and the need to decide in advance which therapeutics and vaccines should be stockpiled. The limited time window places a great premium on rapid detection and identification of an attack. The need to stockpile therapeutics requires public health officials to anticipate the agents that terrorists are most likely to use -- a decision that terrorists are likely to be knowledgeable and may be in a position to evade by choosing different agents.[6] The Defense

Advanced Research Projects Agency's programs to combat biological weapons are aimed at both of these issues.

DARPA's advanced diagnostics program is pursuing methods to determine in real time whether an individual has been exposed to biological agents, thus permitting diagnosis and treatment even before symptoms have manifested themselves and thereby lengthening the time window available for treatment. DARPA's unconventional pathogen countermeasures program is exploring treatments for large numbers of potential agents through approaches that act generically against entire categories of threat organisms, act specifically against large numbers of individual organisms, or can be developed very rapidly in response to whatever agent has actually been used in an attack. One such project is developing techniques to modify red blood cells by "decorating" them with enzymes that adhere to pathogens enabling them to be swept out of the bloodstream. Another project is exploring techniques to develop a vaccine against a previously unknown pathogen within one day of obtaining a sample of that pathogen, compared to the months it now takes. (Of course, this one-day period would not include time for the standard regulatory approval process, requiring expedited contingency procedures to be established that would balance the risks of administering such therapeutics against the risks of being unable to treat large numbers of exposed individuals.)

3.2 *Department of Energy*

The Department of Energy (DOE) is in the second year of its Chemical and Biological Program. This program, created by the Nunn-Lugar-Domenici Amendment to the Fiscal Year 1997 Defense Authorization Act, gives DOE a vehicle to apply its extensive and highly relevant technology base to combating chemical and biological terrorism, even though the Department had not previously had a

mission in chemical/biological defense. (In contrast, DOE has long had a major responsibility in nuclear and radiological-related counter-terrorism.) The Department of Energy's program identifies key technology needs and gaps in civilian preparation and response, and it also supports development of technologies that can provide significant enhancement over existing ones that would have significant operational impact. The Department also works with end-users to integrate these technologies into their operations. Key areas under study include advanced detection, biological forensics and attribution, decontamination and restoration, and modeling for urban environments.

3.3 *Department of Health and Human Services*

The Department of Health and Human Services (DHHS) budget indicates only $1 million in R&D for combating terrorism in FY98 and FY99. Although a detailed breakdown is not supplied in the report, much of these funds are probably dedicated to funding the Institute of Medicine's study discussed above (see Table 3). Given that DHHS has the lead federal role for promoting health, spending billions of dollars on health-related R&D each year, the small size of its R&D program for combating terrorism is probably the result of definitional issues. In particular, DHHS has not traditionally seen its mission as that of fighting terrorism, and, therefore, it has not devoted its research support to agents specifically identified as terrorism or biological warfare threats unless that research was also justified for public health (i.e., non-terrorism-related) purposes.

3.4 *Departments of Transportation, State, Justice, and Treasury*

The Transportation Department's R&D funding shown in Table 3 address aviation security issues. Although the purpose of the

Department of State's R&D funds in Table 3 is not specified in the report to Congress, those funds may constitute part of the funding for the interagency Technical Support Working Group (TSWG). TSWG, chaired by the State Department, has the mission of rapidly prototyping technologies to combat terrorism. Its budget, totaling approximately $30 million for FY98, is primarily funded through the Defense Department's appropriation.

Neither the Justice Department's nor the Treasury Department's counter-terrorism R&D programs are described in the report to Congress, but Justice counter-terrorism R&D work includes forensic sciences and explosives detection technology, among other subjects. About 75 percent of the Treasury Department's overall terrorism activities (not limited to R&D) are conducted by the Secret Service, with the Customs Service and the Bureau of Alcohol, Tobacco, and Firearms also undertaking counter-terrorism-relevant activity.

4. Conclusion

Chemical and biological terrorist attacks pose severe challenges to modern civil societies. The federal government is improving its ability to respond to such attacks, but new capabilities are needed. As a result, the federal government is investing at least $200 million in R&D dedicated to combat terrorism. The actual pool of relevant R&D is probably quite a bit larger when other, multiple-use programs are included.

The Administration has made combating terrorism one of its highest policy and budgetary priorities. Although technical measures cannot eliminate the threat posed by terrorists, such measures can make a substantial contribution. Accordingly, the development of new technologies to prevent, investigate, and respond to terrorism,

including mass destruction terrorism, is a key component of the Administration's counter-terrorism program.

Notes

1. Committee on R&D Needs for Improving Civilian Medical Response to Chemical and Biological Terrorism Incidents, Institute of Medicine; and Board on Environmental Studies and Toxicology, National Research Council, *Improving Civilian Medical Response to Chemical or Biological Terrorist Incidents: Interim Report on Current Capabilities* (National Academy Press: Washington, DC, 1998). This study was done for the Office of Emergency Preparedness of the federal Department of Health and Human Services.

2. Table 1 is based on *Ibid.*, Table 2-1, p. 16.

3. Table 2 is based on *Ibid.*

4. *Ibid.*, p. 12. The study does not extend to prevention of terrorism or long-term actions such as site remediation.

5. "Government-Wide Spending to Combat Terrorism," transmitted by the Director of the Office of Management and Budget to the Speaker of the House and the President of the Senate on March 12, 1998 pursuant to Section 1051 of the FY98 Defense Authorization Act (Public Law 105-85). The figures in this report, including the R&D figures reproduced in Table 3, cover combating all forms of terrorism, not just weapons of mass destruction.

6. Stockpiling therapeutics and vaccines against the agents that are easiest to produce and disseminate, or that pose the greatest public health hazard, can be worthwhile even if their only role is to force terrorists to select different agents.

Part V

Ensuring and Enforcing Compliance to
International Agreements and Regimes
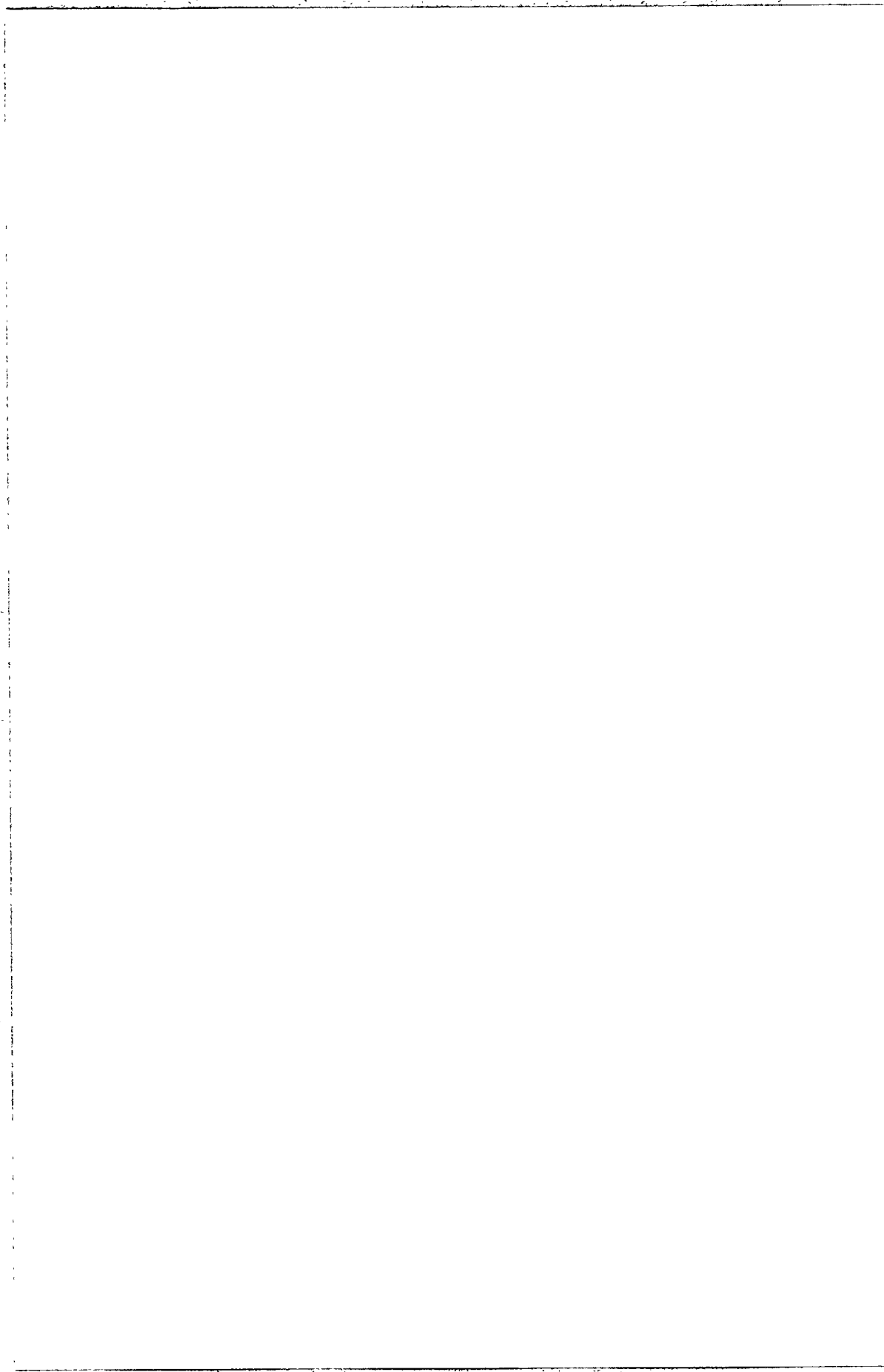
Chapter 17

Future Challenges to Arms Control Treaty Compliance

Amy Sands

In the last ten years, incredible progress has occurred in the arms control and non-proliferation arena. Non-proliferation efforts made great advances with the permanent, indefinite extensions of the Nuclear Non-proliferation Treaty (NPT) and the completion of the Comprehensive Test Ban Treaty (CTBT) and Chemical Weapons Convention (CWC) after years of international discussions, expert papers, and intense negotiations. Progress finally appears to be occurring in developing enhanced compliance measures for the Biological and Toxin Weapons Convention (BTWC). At the same time, the Intermediate Nuclear Forces Treaty (INF), Conventional Forces in Europe Treaty (CFE), and Strategic Arms Reduction Treaty (START I), treaties dealing with more traditional arms control areas, have helped to redefine the European security environment and relations between the two largest nuclear weapon states. Advocates of arms control should be satisfied with the results of these efforts and looking to make these successes the basis for the next round of arms control activities. Instead, voices of concern about the future of arms control and non-proliferation can be heard. Has the non-proliferation community been celebrating too soon and moving too quickly to the next generation of treaties?

Unfortunately, the answer to that question appears to be "yes." The long-term success of these agreements and others currently being considered is still to be proven and they depend largely on how they are implemented and how issues revolving around compliance are dealt with. So far, the record is mixed. Traditional arms control

efforts, such as INF, CFE, and START I, appear to have made significant progress along the pathway to effective implementation of the obligations involved in each of these treaties. But even these treaties have experienced serious "bumps" in the road, and at times substantial questions about compliance have been raised. The picture is bleaker when the multinational, non-proliferation agreements and treaties with chemical, biological, and nuclear weapons are examined. Here, many compliance issues appear unresolved and will act as open sores that could have the potential of crippling the specific treaty involved and undermining the entire non-proliferation regime. While many experts may bemoan the somewhat stalled nature of today's arms control agenda, perhaps it should be seen as a blessing in disguise. The delay in developing new arms control initiatives and moving ahead on negotiating new agreements provides an opportunity to focus on an already over-crowded arms control agenda and to develop the political will and consensus needed to have effective implementation of the current treaties. Without the strong foundation of successful implementation of the current set of arms control agreements, the basis for future arms control will be weakened and the long-term health of today's arms control and non-proliferation regime may be at risk.

This paper argues that now is the time to focus on arms control implementation and compliance given the uneven record to-date of addressing non-proliferation compliance problems quickly and effectively. Of great concern are new challenges that have created obstacles to identifying and addressing compliance issues. The analysis in this paper examines some of these challenges and their implications for ensuring compliance with arms control agreements. Specific issues to be explored include: 1) increased numbers of actors, state and non-state, involved in arms control; 2) differences in technical capabilities of states engaged in multilateral arms control; 3) continued international diffusion of information and global

technological advancement; 4) the dual-use nature of the materials and equipment involved in chemical, biological, and nuclear weapons; 5) insufficient consensus about compliance assessment and relevant standards of evidence; 6) lack of consistent attention to and political will to deal with compliance issues when they emerge; and 7) lack of effective enforcement tools. The paper will conclude with some recommendations about how the US and the international community might deal with these challenges.

1. Challenges to effective arms control implementation

1.1 *Why worry about treaty implementation?*

Four years ago, when Ambassador John Holum, Director of the Arms Control and Disarmament Agency, spoke at the Fifth Annual Arms Control Conference "Old Issues and New Strategies in Arms Control and Verification" at Southern Methodist University in Dallas, he talked about this being the era of arms control implementation. He discussed his concern that focus should be not just on negotiating treaties, but also on the effective implementation of them, or else an opportunity may be lost to foster trust and more openness that permits further arms control progress. He called it a folly to neglect the implementation of arms control agreements, comparing it to "thinking you have fed a hungry man by giving him a menu."[1]

What Ambassador Holum said four years ago remains true today. The focus of the non-proliferation community is turning to the implementation of treaties, even as some press for negotiation of new treaties. Since the Reagan Administration began its yearly *Soviet Non-compliance Report*, much of the time of senior administration officials has been spent dealing with arms control implementation and the resulting questions about compliance. The thorny questions about

compliance with arms control and non-proliferation norms and obligations are increasingly at the crux of the American national security agenda.

This increased interest in the implementation side of arms control agreements has developed now for several reasons. First, the post-Cold War era has shifted the focus of global security from the bilateral US-Soviet/Russian relationship to multilateral and regional security threats, causing greater concern over key regional actors' capabilities and activities. The non-proliferation and arms control regime provides one tool to address some of these new international security challenges, but only if the regime is effectively pursued so that confidence is developed in its ability to assess and respond to compliance questions. Second, the number of state participants in arms control and non-proliferation treaties has grown steadily so that several states that previously have had almost no experience with arms control treaties soon will find themselves faced with complex and intrusive-appearing non-proliferation obligations. Not only have new treaties been concluded recently that involve more widespread membership and more extensive verification activities (CWC and CTBT), but efforts are also underway to develop more enhanced verification regimes to assure compliance for established treaties, such as the NPT and the BTWC. Effective implementation of these new commitments is critical to establishing a solid foundation for future negotiations and the next phase of arms control and threat reduction. Third, the recent failure to develop an international consensus in general or in the more focused United Nations Security Council to deal with the continued Iraqi intransigence about revealing its weapons of mass destruction demonstrates a glaring gap in the international community's approach to compliance assessment and treaty implementation. This lack of international will was seen earlier in the decade when the Security Council was faced with North Korea's clear non-compliant behavior under the NPT. It had already been

evident when nothing was done in the face of Iraqi use of chemical weapons during its war with Iran in direct violation of its obligations under the Geneva Protocol of 1925. How a treaty is implemented and how compliance is determined becomes central to insuring that there will be the political will and international consensus needed to deal with compliance problems.

Many challenges, however, threaten successful treaty implementation that would permit a rich harvest from the seeds of past treaty negotiations. Probably some of the most difficult, but least addressed, are those challenges that deal with defining and pursuing compliance issues. Despite the importance of ensuring compliance with arms control treaties, it is one of the least studied aspects of arms control and non-proliferation. Moreover, while there is growing awareness of the challenge of dealing with an agreed problem of non-compliance, there has been almost no analysis of the earlier aspects of compliance issues, namely how to determine and define a compliance problem.

What is clear when one examines the materials available on the compliance determination process is its sparseness, especially when discussing how and whether countries regularly review compliance with arms control agreements. In the United States, there are several compliance processes, one that is a formal, thorough annual review, several quarterly reviews mandated by Congress, and almost daily discussions about treaty implementation issues. While an effort is made to coordinate these different compliance assessment activities, the process is laden with complexity and politics. In addition, few written guidelines exist for how each agency responsible for developing these compliance assessments should proceed. The academic community also seems to have missed this field in terms of research papers. Thus, even in the US where compliance issues do receive attention, the overall compliance determination process can be "murky", i.e., lacking in consistency of approach and coherence.

Moreover, it does not appear that other countries have developed anything similar to the US approach. Several may engage in compliance discussions at multilateral commissions established for treaties such as INF, START, and CFE, but these efforts appear to be tied closely to specific implementation issues. They do not provide a general review of a state's overall compliance with a specific treaty or the non-proliferation regime in general.

Another reason for focusing on the compliance determination process, or the lack of such a process, is that determining and ensuring compliance with arms control treaties must be a core concern for the non-proliferation community. Having a credible, transparent compliance assessment process is critical to the development of domestic and international support, a required consensus, and the political will to act on a troubling compliance problem.

1.2 *Defining the challenges*

What are the challenges to effective arms control treaty implementation? The challenges are that today's arms control environment is different in some very basic ways from previous times. Not only are there more players and more issues, and thus, more complexity to today's context, but there are also more destructive technologies and more widespread capabilities.

This oft-repeated litany about the post-Cold War era reflects the shift from bilateral arms control to multilateral non-proliferation efforts, resulting in multiple actors of diverse characteristics and interests. Gone are the days when only the Great Powers were engaged in international security issues. States, for example, vary in arms control experience; few have direct experience with the type of intrusiveness now envisioned under the IAEA's new enhanced safeguards initiative, the CWC, or even the proposed BTWC compliance measures protocol. They also have different perceived

national security and strategic needs. This variation in perceived national security needs means that the salience of arms control, in general and any one arms control issue, will differ considerably across countries. Finally, states vary in the technical and human capabilities and public resources available for arms control activities. This difference among states participating in arms control agreements means that some states depend on multilateral institutions for implementation, verification, and compliance determinations, while others rely on their own resources and capabilities. Some countries will turn first to monitoring capabilities they control, specifically using intelligence resources for their core understanding of compliance. Others, lacking access to such intelligence, will hold such information in disdain and discredit it as a source.

The effect of these differences in states is played out in all aspects of the arms control process, but is especially evident in the verification and compliance arenas. Questions about what types of information to use as the basis for determining possible violations loom as large stumbling blocks to the smooth implementation of arms control treaties. In addition, decisions about what resources to use for multilateral verification efforts and where to place such resources in the world become complex and political-driven determinations. There is a plethora of other verification and implementation issues that can no longer be considered straightforward and easily addressed in the new multilateral, multi-polar non-proliferation environment. A state's approach to these issues reflects its resources, its geo-political location, and its national security concerns. Thus, today's context is a very different "playing field" -- definitely not one that is level, not one involving just two teams, and one that may not necessarily have "teams" playing the same game.

Another difference in today's context from previous arms control eras is that there is not the presumption of compliance when a state signs and ratifies a treaty today. Especially before World War II, states

treated arms control agreements like gentlemen's agreements where there was not need for verification since the assumption was that states would act like gentlemen and be good for their commitments. It was assumed that compliance would occur, or else why sign the treaty. Since World War II and especially in the last seven years, there appears to be an assumption that some states sign-up to treaties with no intention of complying. Their objective in signing a specific non-proliferation treaty is to obtain access to technology and expertise needed to develop the technical foundation for the desired weapon of mass destruction while having a legitimate cover. Many believe that is what Iran, Iraq, Libya, and North Korea had in mind when signing onto the NPT. In addition, for several years the CIA has declared that somewhere between ten and twenty states may be developing chemical or biological weapons, and many of these states are signatories of the BTWC or the CWC. If the US assessment is only marginally correct, then several states joined the CWC and BTWC knowingly in violation or at some time after their signature were willing to violate these treaties while remaining members. The first effect of this change in states' objectives or perceived objectives is for states agreeing to enter into these limitations of their military capabilities to require extensive verification regimes. A second, more subtle effect, is that it taints treaty implementation and member-states perceptions of each other's behavior. States joining these regimes may not have an initial base of mutual trust, thereby making it hard to have implementation go smoothly and eventually undermining the value and credibility of the treaty.

A second challenge to effective compliance assessments is the dual-use nature of technology involved in weapons of mass destruction (WMD). Scientific and technological information will continue to spread and provide not only the basis for economic, technological, and social development, but also the basis for nuclear, chemical, and biological military capabilities. The shift from a

fertilizer industry to chemical weapons, or from development of new medicines to new biological weapon agents is close to seamless and could occur easily without ongoing, intrusive, expensive monitoring and inspections. Even these verification activities may only be able to deter a state dedicated to developing weapons of mass destruction temporarily. In the future, the world will consist of states with "virtual" chemical, biological and even nuclear arsenals, i.e., states with a non-weaponized WMD capability. Several states already have reached this status in the nuclear arena. For example, Germany, Japan, and Canada all have the nuclear infrastructure, human resources, and technical base needed to become nuclear weapon states within a short period of time. The same can be said for much of Europe, India, South Korea, Taiwan and Egypt when discussing shifting a commercial chemical industry to offensive chemical weapons capabilities. (Based on India's declaration for the CWC, it moved across this threshold.) It is just a matter of time, and not that much time, before most countries may be capable of crossing the WMD threshold and "breaking out" of their civilian program should their national security require it.

Moreover, the dual-use nature of the equipment, materials, and technologies makes distinguishing between legitimate and non-legitimate activities very difficult to detect and confirm. Technical data and verification activities may be of limited help at this point since countries will be able to justify developing an infrastructure for scientific and commercial reasons; yet, this same infrastructure also provides the basis for a weapons program. What will become the basis for assessing compliance if the technical components needed to develop a weapons capability are already in place? Compliance assessments would then turn on an analysis of a state's *intent*, which is much too politicized a concept to be the basis for the needed international consensus. Depending on the situation involved, it may even be insufficient to develop the support needed domestically.

Iran is a good current example of the dilemma that results from the dual-use nature of the technologies involved in developing nuclear weapons. The US is convinced that Iran is trying to develop a nuclear weapons capability and is using its civilian nuclear power program as cover to obtain experience, materials, and access to critical technologies needed when developing nuclear weapons. However, the US has not been able to convince Russia and several European states that Iran's nuclear activities are hiding a more sinister interest in nuclear weapons. The US is relying on its assessment of Iranian intent (probably based on intelligence), while others that are relying on Iranian technical capability and solid nuclear non-proliferation record are less inclined to accept the US position. Even if the US could release all of its evidence, it still might not change the opinions of many countries that are very suspicious of bias in US intelligence reporting and of intelligence based on non-technical spying methods. Thus, the US cannot show hard evidence of a weapons program in Iran and has not been successful in making its case based on Iranian intent as defined by the US. States want and need strong evidence to be able to make a decision about another state's compliance with arms control agreements -- relying on intentions, as the current Iranian case demonstrates, will politicize the compliance process and leave it stranded on "thin ice."

A third challenge is making the transition between negotiation and implementation. As the efforts at The Hague where the Organization for the Prohibition of Chemical Weapons (OPCW) was established to implement the CWC demonstrate, there is a new negotiation, albeit within certain parameters, that must occur when the details of implementation are developed and agreed upon. A good example of what has to be "renegotiated" during the implementation phase is terminology. Clarity of purpose is critical to implementation, but a bit of ambiguity and lack of detail may be the only way to make progress in arms control negotiations. The battle over the specifics will be re-

engaged when implementation occurs. So, defining types of compliance issues and levels of concern is only vaguely referenced in most treaties. The assumption is that the preparatory conference will address these issues. More often than not, they are left largely unresolved until the emergence of an actual problem, a time that may not be the most conducive to constructive dialogue on what compliance behavior may or may not be, how it will be determined, and who will determine it.

Another aspect of treaties that may change when the implementation phase begins is the way states see their obligations and interpret key parts of it. At the OPCW, some states have tried to narrow the extensive verification regime by defining the specific items covered, limiting types and capabilities of technical sensors to be used in inspections, and suggesting re-interpretation of key provisions. These efforts, which have failed to weaken the synergy of the CWC's verification regime, usually have reflected the changing interests and circumstances of member states.

1.3 *Problems resulting from today's challenges*

Several problems emerge from the challenges described above while they exacerbate other concerns. The basic problem is that no accepted multinational compliance assessment process exists, despite the extensive array of non-proliferation norms, treaties, and institutions. The lack of such a process is compounded by the lack of a dialogue on compliance issues, much less a process, until there is a crisis. The assumption is that each member state to a treaty will reach its own compliance determination and will then base its unilateral responses and those taken within a treaty's governing body on its own assessment. In reality, only the major states appear to go through such compliance assessment processes (and little is known about these various national compliance assessment processes). Their assessments

are not necessarily accepted easily by other states that do not trust the intelligence upon which they assume these assessments are largely made. They do not know exactly how a state, such as the US, reaches compliance determinations and, therefore, do not trust the conclusions, and do not have the same perceptions or concerns as the major states do. Most smaller and developing states lack the information and resources to do such evaluations and rely extensively on the implementing organizations of non-proliferation treaties for compliance information and judgments.

The tension between states reaching their own national compliance determinations and those turning to multinational entities for information and even assessments is a reflection of the newly multinational character of arms control implementation. In the future, it may be that states will allow multinational organizations established to implement treaties to determine and address compliance issues, but the world is not there yet. States, for the most part, recognize compliance assessments and determinations to be activities done by states, who then use their unilateral determinations as the basis for either national or international activity.

In the United States, the compliance review process is cumbersome, political, and mostly classified. It is also not one process, but several spread throughout the year. The Arms Control and Disarmament Agency is required by law to do an annual review of arms control treaty compliance. It takes more than six months (often nine months) to complete, and involves coordination with the intelligence community, State Department, Defense Department, Energy Department, Commerce Department, and the National Security Council. In this process, the information received from the intelligence community concerning a state's behavior in the last year is evaluated first for its currency, quality, and common sense, and then against the terms of the treaty, the historical record of the treaty, and the current context. During the six to nine months that this

assessment process is going on, the US State Department also reviews quarterly the compliance of the former Soviet Union with certain arms control treaties as a basis for continued access to funds provided under the Cooperative Threat Reduction Program. There is also an ongoing review of export activities of many states and corporations for their compliance with supplier agreements and US legislation.[2] Finally, on a regular basis specific issues that have emerged in the implementation of a specific treaty, such as INF or START I, are reviewed and determinations reached about compliance of the other party as part of an ongoing discussion with that other party in regular meetings in Geneva (or elsewhere) about the treaty's progress and implementation. The internal discussion in the US about these specific implementation questions engages a wide range of institutional actors and bureaucratic concerns that often require high-level political intervention to resolve. The discussions then move to the international level and often last for several weeks, with all states participating in the treaty having an opportunity to put on the table their compliance questions and problems.

This somewhat overlapping, but not always well-coordinated compliance review effort in the US does not provide the best basis to go to the international level to address the identified concern. Not only are there sometimes internal disagreements on the US side that get leaked, but these unilateral determinations reflect a heavy dose of American intelligence and American attitudes and political perceptions. The consequence of these different processes and perspectives (inter-agency as well as between Congress and the Executive Branch) is that it is not easy to identify and define compliance problems on the national, much less the international level. It should not be surprising that there is a sense of incoherence in both the international and national compliance assessment processes. Without access because of sovereignty and concerns over commercial proprietary information; without useable, accepted

information because of suspicions about intelligence in general and US-sourced information specifically; and without the agreement on when an activity becomes a compliance problem, it becomes difficult to garner strong support on the international level for taking actions against what some may define as non-compliance.

What does it mean not to have an international agreement or consensus on how to reach an arms control compliance determination? First, states may vary in the standards they bring to bear on making compliance determinations. Some may demand direct, hard evidence or a "smoking gun" if sanctions are to be pursued. Others may rely more on having enough information so that it is beyond a reasonable doubt, i.e., a reasonable person would reach a conclusion of non-compliance looking at the available information. Finally, some might opt for a standard of evidence that is much weaker and is willing to rely on circumstantial evidence that creates a preponderance of evidence in favor of non-compliance. Theoretically, the US uses the second approach during its annual review of compliance, but in reality for the US to find another state non-compliant with its treaty obligations requires solid evidence that is much closer to the "smoking gun" standard. Thus, even the US will give mixed signals as it engages in its own compliance review process. What other states or an international organization might use as standards for evidence is not transparent, nor very well understood.

Another result of not having an international agreement on these "first-order" compliance determination issues is that there is no agreement on what type of evidence is to be used in compliance assessments and conclusions. The US, well aware of the growing unwillingness to rely on nationally collected intelligence, has been trying to upgrade its own use of open source information and to help multilateral organizations do the same. However, there is no question that the US will rely on intelligence information for treaty monitoring, and that becomes the basis for American confidence in its treaty

compliance assessment process. The tension between the US approach, and that of other states, in regards to the use of intelligence, will become evident during discussions about potential challenge inspections or discrepancies over declared and non-declared activities/facilities at the OPCW and eventually the Executive Councils established to implement the CTBT and BTWC enhanced compliance measures. There may be room for compromise in these discussions about intelligence. To begin with, several states could provide intelligence during these international discussions about compliance. In addition, the international organization might procure commercial satellite information and analysis to be able to have some of its "own" intelligence.

A related problem deals with the increased publicly available information relevant to compliance and the emergence of interested non-governmental groups and individuals. This issue was evident when an "event" that occurred close to the Russian nuclear test site was detected by the US intelligence community, by the new CTBT monitoring center, and by academic groups worldwide in August 1997. Very diverse technical interpretations of the data were quickly provided leading to conflicting assessments and confusing responses. In some ways, this incident put the US intelligence on notice that other groups, with somewhat similar information, might be able to present immediate technical analysis questioning its own assessments.[3] Since, in most cases, US intelligence is unable to disclose fully all of its sources and information, this type of situation may erode the credibility of US compliance assessments in the eyes of the international community.

A third area affected by the insufficiency of the international community's discussion of compliance assessment procedures is the definition of what states define as compliance issues. States may define the following five categories of violations, each with a desired national and international response:

    1) minor technical or inadvertent problems;

    2) different interpretations or gaps in treaty language;

    3) significant detected overt violations;

    4) significant, detected, but covert violations; and

    5) suspected covert violations of possible significance.

Coming to some agreement about which activities deserve serious review and which are minor would appear to be an obvious first step. However, given the lack of coordination of the different national approaches to this definitional issue and the evolution even within a state of what is an important violation, it is often a missing first step in discussions at international implementing organizations.

Any violation may be perceived as potentially serious since a minor technical compliance problem may just be the "tip of the iceberg." Such was definitely the case in the North Korean situation where North Korea, having signed the NPT in 1985, did not finalize its safeguards agreement with the IAEA until April 1992. States are required to develop such an agreement with the IAEA within 18 months, and yet, when North Korea had not done so, little was done to compel it to do so. By the time the IAEA member-states took notice with more than a request for the agreement's completion, North Korea already had operated its nuclear reactor and gone through at least one reprocessing cycle (probably several cycles) without any safeguards in place. Under the Reagan Administration, any violation by the Soviet Union, whether minor or not, was seen as significant. Therefore, the Soviets could not be trusted. This meant that all compliance issues were handled with equivalent intensity. This American standard has been modified somewhat by the understanding that verification efforts are geared to deter the development of "militarily significant"[4] capabilities since it is impossible to achieve 100% verification for any arms control agreement. But the scope of what is to be reviewed as a significant violation remains undefined

both on the national and international level, making small technical items prone to the politics of larger concerns.

The immediate fallout is that states, relying on different standards of evidence, types of information, and varying definitions of compliance-related items, do not easily reach agreement on how to address proposed compliance issues. In turn, this lack of effective enforcement and response to possible violations of arms control treaty obligations leads to lowering the confidence level of member-states in the non-proliferation regime. While focus needs to be placed on the enforcement phase, determining what, if anything, will affect the behavior of recalcitrant non-compliers, is increasingly difficult to define. Some of the problems emerging in this final phase are the result of the lack of an international consensus about the compliance problem in the first place. This lack of an international consensus, in part, stems from the process used to determine what the compliance problem is. States object to the lack of transparency, weak evidentiary base, political bias, and over reliance on intelligence; many use these issues as reasons for being unable to act forcefully. Thus, developing a more accepted approach on the international level to reviewing compliance questions is critical to developing the strong international base needed to address effectively significant compliance problems.

2. Conclusions

In examining the compliance assessment process, the first word of caution has to be one about the limits of today's evolving international political system. As described earlier, it is a new world order, multilateral, multifaceted, diverse, and perhaps more uncertain of its path forward than at any time since the end of World War II. There should be no surprise that the Great Power states have been unwilling to relinquish their central role in compliance decisions that

directly effect their national security. But, the surprise comes when these states try to rely on international organizations in dealing with compliance issues that often the organization or its member-states have not recognized or defined as significant compliance issues. Some member-states may be over-burdening these implementing organizations with a not well-defined compliance mission in order to move the international community quickly towards an internationally accepted compliance process; others may just be exploiting this system in order to create the facade for its own compliance decisions. The reality probably lies between these two extremes.

At the current time, critical actors appear to lack the political will to address consistently and forcefully looming arms control and non-proliferation compliance challenges. Whether it is Russia's possible violation of the BTWC, Iraq's intransigence in its dealings with United National Special Commission (UNSCOM), or the still unresolved questions about North Korea's nuclear program, non-proliferation rarely is the highest priority of states when dealing with proliferation compliance challenges, despite the extensive rhetoric claiming it to be the greatest threat to US and international security and stability. Even the US, with its clear dominance militarily and economically, is reluctant to use its unique superpower status to "police" the world.[5] Even if it had the support of the international and national communities, the US would be foolish to accept playing such a role. Assuring compliance with arms control and non-proliferation treaties must be seen as the responsibility of all member-states and recognized as the highest priority by leaders of the world.

3. Recommendations

This paper has outlined some of the challenges and resulting problems facing the international non-proliferation community as it

tries to ensure the compliance with arms control and non-proliferation treaties. A major theme of the paper has been that the changes wrought by the end of the Cold War and the breakup of the Soviet Empire will not necessarily result in better compliance with arms control treaties, in an accepted international compliance assessment process, and in an internationally accepted approach to addressing non-compliance. Drawing from the gaps and problems discussed in the paper, there are several recommendations that can be made in the hope of strengthening treaty implementation and compliance assessment and thus, strengthening the foundation of the non-proliferation treaty regime itself.

First, more information and analysis on how the US and other states think about and treat compliance issues is needed. To learn more about states' compliance assessment process requires both additional studies and discussions. Studies should be done that examine the US history of dealing with arms control compliance issues and provide several detailed case histories of some of the more significant cases. In addition, a set of "functional" studies could be pursued that analyze the role of the different types of information (specifically intelligence), the role of Congress in the US process, and the role of UN Security Council in addressing treaty compliance issues. Finally, there needs to be a set of studies done by non-American authors, looking at some of the same compliance cases and functional issues as well as providing insights into other countries compliance process (or lack of such a process). The objective is to create the literature base and conceptual framework needed by policymakers as they grapple with compliance issues, and to begin to develop an international interest and expertise in this arena.

A second recommendation addresses more directly the need to develop interest on the international level in the compliance issue in general and the compliance assessment process specifically. Since states may be sensitive to discussing these issues openly, it may be

necessary to initiate this international dialogue on compliance with non-government officials and experts. Engaging a broader spectrum of states and individuals via a Track II-type effort would then provide the basis for moving to activities that involved some government and international officials. Eventually, states and international organizations will need to address these compliance issues directly, but for the moment just increasing the international discourse and attention given the compliance determination process is a critical first step to building the international support for addressing compliance problems effectively.

Third, even as the Track II initiative discussed above is going on, states should initiate their own set of activities that result in more collaboration on compliance determination issues. While at first these interactions might involve just exchanging information about how they examine compliance issues and what standards of evidence they aim for, eventually states might consider sharing intelligence. As part of ongoing bilateral discussions, states should review a variety of significant compliance issues with each other and begin to establish the basis for later support for enforcement actions should that become necessary.

A fourth recommendation is that governments engage their publics more and earlier about compliance issues. In democracies such as the US, it is important for the public to have realistic expectations about exactly what can be accomplished on the international level in the area of compliance. Educating the public about the new complexities and diversities of the post-Cold War era, especially as they relate to addressing proliferation threats around the globe, will provide the public with a more sophisticated understanding of the limitations of international and national efforts to determine clear-cut non-compliant behavior and, thus, the difficulty in responding in a clear-cut manner.

In addition to the recommendations that deal directly with the arms control compliance determination process, there are two suggestions that deal with the larger arms control agenda. As discussed in the introduction of this paper, the arms control agenda has been pursued extensively and intensively for the last ten years. It may be time to slow down the arms control process until a stronger foundation exists. While some might argue that a window of opportunity may be lost, especially for further nuclear weapons dismantlement and fissile materials limitations, a greater concern may be "overheating" the system. Given the limited resources available for arms control activities and the uncertain political will to implement effectively what already has been negotiated, increasing the burden on an already overloaded system may cause it to falter, if not crash. It is more important to build a solid base for future arms control initiatives than to rush ahead with new ones that lack solid footing.

Finally, recognizing that reaching clear-cut compliance determinations and then acting collectively on them may be difficult in today's world. States will need to develop innovative ways to first contain a compliance concern and next to address its deeper, longer-term roots. To address difficult situations, multifaceted packages that integrate incentives to change non-compliant behavior and disincentives to continuing troubling activities should be pursued. These "packages" will cover economic and political items and may involve coordination of activities at the bilateral, regional, and international levels. Such a "package" deal has already been developed and is being implemented in the case of North Korea, where North Korea's long and short-term energy needs were addressed in exchange for its commitment to close down specific nuclear facilities of concern and permit the removal of spent fuel, as well as work with the IAEA to address its safeguards problems. The hope is that by the time the Agreed Framework is completed, North Korean motivations and norms will have moderated and changed.

The key to pursuing successfully these types of responses to arms control compliance issues is patience. It also may require being able to accept that the state violating the treaty may never admit guilt and may appear to be rewarded for its bad behavior. While no one wants to create incentives for non-compliant treaty behavior, it makes more sense to contain and eventually eliminate the activities in violation of treaty obligations with these types of "package deals" than to either ignore the problem or impose ineffective sanctions against the state. Thus, the wave of future arms control compliance problems may never come crashing to shore, but rather may be short-circuited by a series of underlying, offshore currents and shoals.

At the beginning of this paper, Ambassador Holum's analogy of a "hungry man" was referenced. Returning to that analogy, it is apparent that this hungry man has been given a menu in five languages, with translations in brackets, but his waiter has provided him with only water. His waiter will not provide additional service because he has no daily specials or instructions, primarily because the chef has quit in a huff over insufficient staff and resources. The lessons of this story are obvious: on the world's stage are a maze of states, with different languages, cultures, and security needs with little experience, interest, and understanding of the arms control implementation process, much less the arms control compliance process. This latter process remains opaque to most states and is not extensively discussed on international or national levels until there is a crisis. In addition, there is an absence of a political consensus about proliferation-related compliance issues, resulting in some countries taking consistently hard lines while others seem willing to ignore the problem in lieu of other priorities. Given the various methods of determining compliance issues and the mixed record of response to these proliferation problems, establishing the political commitment on either the international or national levels is a major challenge for the non-proliferation community.

The challenge for the non-proliferation community is to assure that arms control treaties are effectively implemented and that compliance issues are quickly and directly dealt with. If compliance issues are not addressed in an effective manner, the non-proliferation regime may be at risk. The possibility increases dramatically that the hungry man leaves the "INPAC CafÉ" (International Non-proliferation and Arms Control CafÉ) to find his own means to feed himself, rejecting the international norms and legal obligations against weapons of mass destruction, instead opting for unilateral military capabilities.

Notes

1. Honorable John Holum, "Verification in the Arms Control Implementation Era," in *Old Issues and New Strategies in Arms Control and Verification*, James Brown, (ed.), (Amsterdam: VU University Press, 1995), p. 396.

2. The US has several national laws that restrict export activities involving technologies and materials relevant to the development of weapons of mass destruction and impose sanctions upon countries and/or companies that engage in certain types of activities that might facilitate the development of these weapons. See Zachary S. Davis, Steven R. Bowman, Robert D. Shuey, Theodor W. Galdi, *Proliferation Control Regimes: Background and Status* (Congressional Research Service, Library of Congress, 1995) for more information.

3. The US intelligence community unfortunately reacted too quickly with an early assessment that made this event appear to be a low-yield nuclear test by the Russians, which would have violated the Threshold Test Ban Treaty and the CTBT that Russia has signed but not ratified. This assessment was leaked and used to justify critical comments about Russian behavior and the CTBT.

Eventually, a revised assessment was released quietly that reflected the likelihood that this event was a seismic one located offshore in the proximity of the Russian test side. See Bill Gertz, "Suspicion Grows of Russian Nuke Test," *Washington Times*, August 29, 1997, p. 1; Spurgeon M. Keeny, Jr., "Focus: Aftershocks from the Novaya Zemlya Earthquake," *Arms Control Today*, August 1997, p. 2; and Holly Porteus, "Reports on Russian Seismic Event May Have Been Fueled by CTBT Foes," *Inside Missile Defense*, September 24, 1997, pp. 18-20.

4. The term "militarily significant" varies from treaty to treaty, and probably fluctuates over time and context. For example, for the CWC, General John Shalikashvili, Chairman of the Joint Chiefs of Staff, testified that even one ton of chemical agent could have a military impact in certain circumstances. (See *Hearings*, Committee on Armed Services, US Senate, 103rd Congress, 2nd Session, August 9, 11, 18, 1994, pp. 41-42).

5. Without domestic support for this role and international acknowledgment, if not approval, for it to play this role, the US would be diving into a quagmire of proliferation challenges and crises that would eventually become too costly politically and economically to support.

Chapter 18

The Primacy of Politics: Cooperative versus Confrontational Approaches to Compliance

Eric Arnett

Although some things appear rational on the surface, one has to consider a hundred thousand things behind every act.

-- Baburnama[1]

Approaches to ensuring compliance with arms control agreements and related norms can generally be categorized as cooperative or confrontational.[2] Cooperative approaches require consultation and collective action, whereas confrontational approaches rely more heavily on sanctions and unilateral action. Confrontational approaches only rarely offer greater chances of near-term success in forcing compliance or punishing non-compliance than do cooperative approaches, which run much greater risks of provoking non-compliance, while making cooperative approaches more difficult by damaging credibility and alienating friendly and neutral parties, and by weakening if not eliminating incentives for hostile states to comply. Since most confrontational approaches have important cooperative aspects, they are therefore self-defeating.

While recent US policy has emphasized cooperative approaches, as might be expected from an administration that came to power espousing "cooperative engagement,"[3] confrontational approaches appear to be gaining in popularity. This is true in part because they offer superficially attractive alternatives for opponents who seek to criticize cooperative policies. The resonance of the call for more

confrontational approaches in the media and the public can also be ascribed to an unavoidable frustration with the inherent limits on the ability of the United States and the international community to enforce compliance, whatever approach is adopted.

This paper, therefore, elaborates on the problems of compliance and enforcement. The first part discusses the relationship between agreements, norms and regimes, emphasizing the inherently cooperative aspects of norm- and regime-building. The second part enumerates situations in which nominally permitted or apparently irrelevant behavior may provoke non-compliance. The third part elaborates on the difference between detecting non-compliance or apparently non-compliant behavior and demonstrating non-compliance to constituencies that must cooperate in enforcement. The paper concludes with a brief evaluation of the Clinton administration's policies compared with those recommended by the opposition.

1. Developing agreements into regimes through the promotion of norms

At the most fundamental level, participation in the activity of arms control requires an acceptance of the assumption that cooperation is necessary -- sometimes even between adversaries -- to avoid undesirable outcomes. In bilateral negotiations, coming to agreement is relatively straightforward, even if the normative importance of the agreement is not perceived in the same way by both parties. Multilateral agreements become much more complex, since -- aside from differing understandings of an agreement's normative importance -- they may not be universally accepted, even if they are intended to be.

Agreements may gradually develop into nearly universal regimes, as the Nuclear Non-Proliferation Treaty (NPT) has, through the

gradual acceptance of their central norms. (Even the states not party to the NPT accept that nuclear weapons should not proliferate further and that complete nuclear disarmament is desirable in the long run.) Hopes that the Chemical Weapons Convention (CWC) and the landmine ban will have a similar norm-building effect may be exaggerated given the emphasis on both in some states' military planning. Chemical weapons are apparently seen as a legitimate means of defense in several Middle Eastern states, and anti-personnel landmines are even more popular. This is not to say that use of either weapon will not be criticized in the future on normative grounds, only that the norms embodied in these agreements do not appear likely to gain universal acceptance in the near term.

A simpler route, when it is practicable, is to codify universal norms into agreements, as was done in the case of the Comprehensive Test Ban Treaty (CTBT). Still, there may not be unanimity regarding the normative importance of the treaty.[4] As a result, some states parties may hold that important norms are not being honored even when the agreement is not being violated. Furthermore, when a norm is so widely held, non-compliance with the treaty does not necessarily undo the related regime. In such a case, withdrawal or reciprocal non-compliance may not be the most appropriate response to violations.[5]

2. Ensuring compliance by not provoking non-compliance

One of the most important cooperative approaches to ensuring compliance is to avoid provoking non-compliance. While the observation verges on the tautological, it is not always taken seriously. For example, some states-parties to the NPT that express particular concern about the perceived non-compliance of the nuclear weapon states party to the treaty with Article VI have done little to address the threat perceptions or alliance commitments that justify a cautious

approach to nuclear disarmament.[6] Most immediately, US allies in NATO and the Pacific, for example, have reiterated their commitments to the nuclear component of defense planning. Related, however, NATO expansion is seen by some Russians as inducing a greater reliance on nuclear weapons. Taking a longer view, there has been little progress in developing the international system to the point at which war is obsolete, seen as a prerequisite by some for the elimination of nuclear weapons.

Similarly, activities related to missile defense, while not necessarily violating agreements and understandings, may create a situation in which compliance with the START Treaties and the CTBT would not be in the interests of other nuclear weapon states. Although Russia has accepted the clarification of the Anti-Ballistic Missile (ABM) Treaty, it is unlikely that a National Missile Defense (NMD) can be deployed that will both cover the entire territory of the United States and avoid provoking Russian and Chinese countermeasures. Furthermore, Russian deployment of advanced theater interceptors could lead to modernization of the British, Chinese and French arsenals. These, in turn, might require testing.[7]

Another interesting case is presented by India's acquisition of conventional counter-force and strategic air defense capabilities with the assistance of most of the world's major arms suppliers, including France, Israel, Italy, Russia, Sweden, the United Kingdom and the United States. The Indian Air Force's capability to destroy Pakistani aircraft on the ground, even in hardened shelters, gives cause for concern about the survivability of Pakistan's nuclear deterrent, which is highly valued by the national leadership.[8] Under the circumstances, Pakistan has a greater incentive to reconsider norms related to deploying survivable nuclear ballistic missiles, producing more fissile material, and conducting nuclear tests. Pakistan's test of the Ghauri ballistic missile in April 1998 was a predictable response to India's counter-force build-up.

3. Detecting and demonstrating non-compliance with agreements and norms

Although national, multinational and private means for verifying compliance with arms-control agreements and norms are steadily making it more likely that non-compliance will be detected, an effective response to non-compliance requires that one actor's conclusion that another is in non-compliance be demonstrated to others.[9] Effective demonstration -- that is, proof -- will depend on the nature of the non-compliant activity, the quality of the evidence of non-compliance, the willingness of those in possession of the evidence to share it, and the credibility of the accusing state. In many cases, the nature of the non-compliant activity will make the other factors much less important. Three useful categories are: incidental non-compliance, overt and significant non-compliance, and covert and significant non-compliance.

3.1 *Incidental non-compliance*

Incidental non-compliance occurs when states attempt to remain in compliance, but are unable to do so. For example, the CWC requires reporting on the activities of private firms. That is difficult for many states parties to file on time. A less obvious but similar problem arises in the case of the UN Register of Conventional Arms. Some foreign ministries have trouble securing arms import data from their own governments' defense ministries. This is apparently the case in Iran, which has submitted data to the register, but has always done so late.[10]

3.2 *Overt and significant non-compliance*

This category may be more likely than is often assumed. There is good reason to expect, for example, that nuclear testing would be resumed by states only after withdrawing from the CTBT. Even if they did not withdraw, they would make no effort to conceal their non-compliance, which would be intended as a political response to their security situations, as much as a technological necessity.[11]

This is all the more true of norms that have not been codified into agreements or are not universally accepted. Pakistan's posture of "nuclear volatility" for example, flies in the face of the emergent norm of nuclear weapons as an option of last resort.[12] Pakistani officials have asserted that they would use nuclear weapons early in a conventional war, even if it were fought for limited objectives. In 1990, President Ghulam Ishaq Khan told a US official that "in the event of war with India, Pakistan would use nuclear weapons at an early stage."[13] In 1995, Asad Durrani, the former director of Inter-Services Intelligence, said Pakistan must cultivate the perception that "we are primed, almost desperate, to use our nuclear capabilities when our national objectives are threatened, for example, a major crackdown on [the] freedom movement in Kashmir."[14] One can only hope that the weaknesses of such an approach have been pointed out to Pakistani officials.[15]

Unfortunately, a growing body of academic research reflects the wishful thinking of Pakistan's leaders back upon them, falsely reassuring them that they can rely on nuclear deterrence to avoid all war.[16] Mushahid Hussain, Information Secretary for the ruling Pakistan Muslim League stated that "(T)he only reason why [recent] eyeball-to-eyeball confrontations between Pakistani and India armies were not converted into military conflict was the nuclear factor."[17] Former Chief of Army Staff Mirza Aslam Beg indicated that

"(T)here is no danger of even a conventional war between India and Pakistan... . There is no possibility of an Indian-Pakistan war now."[18]

3.3 *Covert and significant non-compliance*

This type is more likely to be detected than ever before but requires credible demonstration to marshal a response. The successful detection and demonstration of Iraqi and North Korean violations of the NPT, combined with improved monitoring since 1991, should not lead to complacency regarding other cases in which suspected non-compliance must be demonstrated. US charges that Iran is in violation of Article II of the NPT have not been demonstrated adequately and the United States and Israel are at risk of losing international credibility on the issue for three reasons. First, despite a long history of accusations, Iran has not been shown to be in non-compliance with its treaty commitments. Second, the United States remains unwilling to refer the case to the International Atomic Energy Agency's (IAEA) Director General.[19] Third, the pattern of rhetoric and behavior with respect to Iran in the US and Israeli administrations and the US Congress gives the thoughtful observer pause.

Possible Chinese and Russian violations of the Missile Technology Control Regime (MTCR) and related norms could also be treated more effectively, though administration policy is complicated by uncooperative legislation. In the case of Chinese transfers to Pakistan, legislation mandating sanctions that would complicate a more effective foreign policy prevent the administration giving a full public account of known activities. In the case of Iran, the inability of the administration to give a consistent account of Russian and Iranian activities reduces the credibility of any individual report,[20] especially given the apparent eagerness of some actors to identify projects of concern to justify nuclear doctrine and funding for missile defenses.

4. Conclusion: reluctant sheriff or lonely cowboy?

In the 1990s, the United States has generally pursued a role that could be characterized as that of the "reluctant sheriff", rounding up or joining a posse to pursue those who do not comply with established norms.[21] During the years of the Clinton Administration, this prudent approach has been criticized by those who would like to see more unilateral confrontation of apparent non-compliance on the part of adversaries and even neutral and friendly states that do not accept US policy. One proponent of this more belligerent stance has associated it with the Lone Ranger,[22] but a more appropriate label in keeping with the Western motif might be "lonely cowboy."

The tendency to underestimate the risks of confrontational approaches to enforcing compliance is as evident as the understandable frustration with the limitations of cooperative approaches. Although it is generally understood that US nuclear threats were responsible for China's decision to acquire nuclear weapons, the connection between the perceived arrogance of the United States and friendly or neutral nuclear acquisition is more often overlooked or forgotten. It should be remembered that Charles de Gaulle's decision to acquire nuclear weapons can be traced directly to the US intervention in the Suez Crisis, and Indira Gandhi's similar decision had more to do with Nixon and Kissinger's high-handedness than the threats arguably posed by China or Pakistan.[23]

From this perspective, the Clinton Administration's acceptance of the agreement negotiated by UN Secretary General Kofi Annan and Iraqi President Saddam Hussein can be expected to have much broader implications for non-proliferation than are immediately apparent. While it may be true, as Annan acknowledged, that force made the agreement possible, there can be little doubt that military action by the United States would have failed without the cooperation

of friendly and neutral states. While the United States cannot have a primary policy goal of eliminating the perception that it is an arrogant power, any more than it can eliminate the tendency of some states to "free-ride" by enjoying the benefits of US dominance without supporting it unabashedly, it should not undervalue international norms and its own credibility.[24]

The good news in 1998 is that US policy has generally been successful in securing compliance when it has been most important, and in preserving its credibility. Furthermore, the recent record is much better than it would have been if the administration had followed the recommendations of the opposition in the Congress and the press. Of course, there is always room for improvement and constructive criticism. The assessment offered below is meant as much to highlight traps that the Administration has succeeded in avoiding as to draw attention to the shortcomings that are inevitable in policy formulation and execution. The scale used conforms to recent academic practice, that is, an "A" signifies unusually insightful policy, a "B" denotes solid, creditable but perhaps uninspired policy, a "C" marks an area where policy has been disappointing, and a "D" suggests a policy or approach in immediate danger of failing. Marks are offered to both the administration and the alternatives suggested by the opposition. They are offered in roughly descending order of importance to US interests and susceptibility to US action.

4.1 *Russia*

The administration has continued its predecessor's policy of deep involvement with and encouragement of Russia as it struggles to cope with the legacy of the Soviet Union.[25] In addition to financial support for a number of arms control and conversion activities, Russia has been admitted to the MTCR and has been engaged in dialogue regarding the full range of its technology exports, from conventional

weapons through civilian nuclear and space technology. US policy has successfully disrupted Russian supplies of conventional weapons to Iran, but not civilian nuclear technology.

The success and significance of the effort to prevent transfer of space-launch technology to India is less clear, as is the extent of US efforts regarding the transfer of conventional weapons to China. The opposition has been quick to call for the administration to sanction Russia for unproved allegations about cooperation with Iran's ballistic-missile program. There are unconfirmed reports that Russia might supply supersonic anti-ship missiles to China,[26] and, thereby, force the administration's hand with respect to Russian transfers to the Indian space program. President Clinton's appointment of Frank Wisner and then Robert Gallucci to consult with Russian actors regarding MTCR compliance *vis-à-vis* Iran was a more appropriate response. Continuing questions about Russian compliance with the Biological and Toxin Weapons Convention (BTWC) are less tractable by whatever means.

Grade: Administration B, Opposition D

4.2 *China*

The administration has pursued a policy of engagement with China that seeks to manage its emergence in the international system without unnecessarily antagonizing it. An important component of this approach has been a process of socialization regarding arms control and non-proliferation norms.[27] China has made important progress on both fronts, in part because of US policy. Among these, China's participation in the NPT, the CTBT and the CWC are more significant. The gradual improvement in China's non-proliferation behavior is also notable.[28] Despite criticism from the opposition, the US has used sanctions selectively and did not attempt to isolate China

at the CTBT negotiations. One false note that US observers apparently do not adequately appreciate was Chinese outrage at the *Yinhe* incident, in which the US Navy stopped a Chinese freighter on the high seas for allegedly carrying chemicals with legitimate civilian uses because of the concern that they might be used by an Iranian entity to make a chemical warfare agent. No chemicals were found when the ship was searched. The suspected chemicals had legitimate civilian applications in any case, and the US Government never formally apologized for its confrontational and clumsy treatment of this incident.

Grade: Administration B; Opposition D

4.3 *Iraq*

The Clinton administration inherited a difficult situation from its predecessor. From the end of hostilities in 1991, the coercive leverage available to secure continued Iraqi compliance with UN Security Council resolutions was bound to dissipate. International support for military action has weakened, while popular understanding of the US Government's reluctance to risk US or Iraqi lives has increased.[29] Under the circumstances, the inspection regime has held up remarkably well -- in part because of effective US diplomacy -- while demonstrating how difficult it can be to see even a broadly accepted sanctions regime grounded in a clear mandate through to a satisfactory conclusion. There were a couple of false notes. First, the US use of cruise missiles against Iraq in response to an alleged assassination plot against former President Bush served to legitimize the practice of using missiles as a tool of unilateral demonstrative force, a norm that states should be working to undermine in the region. Second, Secretary of State Albright's statement in 1997 that the United States will oppose lifting sanctions on Iraq until the current

government is replaced, regardless of its compliance with United Nations Security Council. Resolutions made cooperation more difficult during the 1998 inspection crisis. These comparatively minor mistakes pale in comparison with the opposition's eagerness to wage a major war against Iraq with or without international support, even after the UN Secretary General had presented a viable inspection package.

Grade: Administration B; Opposition D

4.4 *North Korea*

The administration's approach to North Korea was strongly affected by the positions of other partners in the region. Despite the widespread perception that US policy was allowing China, Japan, and South Korea to a free ride, the administration took their concerns seriously and withstood considerable domestic pressure calling for unilateral military action. Although, according to some accounts, some in the administration succumbed to the war fever that infected the opposition and many in the press,[30] US diplomacy eventually produced a workable framework without provoking North Korea or undermining Washington's leadership position in the region. A side benefit of the framework seems to have been an end to North Korean missile sales.[31]

Grade: Administration B; Opposition D

4.5 *Iran*

In contrast with the areas discussed so far, the Clinton Administration has seemed eager to sanction Iran as aggressively as called for by the opposition, rather than exercising its options more selectively. This approach has alienated partners in Europe without

effectively disarming critics. The non-proliferation successes that the United States has enjoyed *vis-à-vis* Iran have not been the result of sanctions or other punitive legislation. Still, the administration has resisted calls for military action against civilian nuclear sites and has fostered the perception in the West that force will only be an option of last resort against Iran.[32] Further, it appears that US assessments of Iranian compliance with proliferation norms are being reconsidered with an eye to more effective implementation of related agreements and regimes.[33] The official US reaction to Israeli charges that Iran is developing long-range ballistic missiles with Russian assistance was appropriately measured and bodes well for cooperative implementation of the MTCR in the future without hasty resort to sanctions. Finally, US officials acknowledge that they have never specified which weapons Iran could acquire legitimately,[34] since all transfers to Iran -- whether unconventional weapons, conventional weapons that threaten US forces, conventional weapons needed for defense against Iraq,[35] or even civilian economic activity unrelated to military preparations -- have been opposed under the approach of blanket hostility.

Grade: Administration C; Opposition D

4.6 *Missile defense*

As in the case of Iran, the administration may have been too quick to give ground to the opposition in the case of missile defense. There are two main areas of concern: theater missile defense (TMD) demarcation and National Missile Defense (NMD). With respect to TMD demarcation, the administration rather easily gained Russian agreement that testing of low-speed interceptors would be permitted under the ABM Treaty. Low-speed interceptors are adequate to meet plausible near-term threats and are being developed, albeit less

energetically, by Russia. Despite the questionable requirement for a high-speed exo-atmospheric interceptor, the administration accepted the demand of the opposition that the Navy Theater-Wide (NTW) project join the low-speed interceptor projects as a core TMD project. NTW will not be needed unless Iranian and North Korean projects progress much more rapidly than they are publicly known to be.[36] It embodies a risky technology and is useless for intercepting shorter-range missiles within the atmosphere, while raising fears among the other nuclear weapon states of a creep out from the ABM Treaty. Similarly, the administration's 3+3 compromise on NMD raises fears that the ABM Treaty will be abrogated within ten years despite the lack of a compelling threat without neutralizing domestic criticism.

Grade: Administration C; Opposition D

4.7 *South Asia*

Finally, in the case of South Asia, the administration has turned a blind eye to academic fashion, and rightly continues to base policy on the assumption that war is possible in South Asia which could escalate to nuclear use. While accepting that the Indian and Pakistani nuclear options are unlikely to be rolled back in the near term, Clinton Administration policy has emphasized acceptance of norms relating to ballistic missiles, production of fissile materials, and nuclear testing. The administration's emphasis on missiles, as the most destabilizing potential delivery systems, has led them to underestimate the risks involved in transfers of conventional counter-force capabilities associated with combat aircraft, an oversight that could ultimately make the policy self-defeating.[37]   India's efforts to develop a conventional counter-force capability undercut Pakistani restraint, especially with respect to deployment of nuclear ballistic missiles. If, as recommended by some in the opposition, more conventional arms

were transferred to India, the problem would likely be exacerbated without much commensurate gain in US credibility or leverage. It should be noted that South Asia is a peripheral interest and not very responsive to US initiatives. The risks of a humanitarian catastrophe involved here may be the greatest, mainly because of Pakistan's apparent reliance on the policy of deterrence through nuclear volatility.

Grade: Administration C; Opposition D

5. Conclusions

Two patterns are discernible in this brief evaluation. First, Clinton Administration policy has been consistently more prudent than the alternatives put forward by opposition critics and have been at their best when the stakes were highest. While no "A's" have been awarded, it may be that compliance is a policy area that requires solid implementation rather than inspired feats. For the opposition, the fact that its stated approaches to dealing with compliance risk policy fails in every area of concern suggests either that they advocate measures that they know to be inadvisable for the sake of politics, or that they are in need of a thorough re-evaluation of their foreign policy approach.

Second, the administration's policies have run into their greatest problems because of the opposition. The difficulties of unhelpful legislation have already been noted. In other cases, Clinton's signature "triangulation" approach to decision-making has led to inconsistent compromises with the opposition that have weakened cooperative approaches without strengthening either coercive leverage or relations with the opposition. Finally, the appointment of a Republican, William Cohen, to be Secretary of Defense ensured that decisions made in the

Pentagon would be influenced by opposition concerns more than consistency with the administration's policy approach. This is seen most clearly in Secretary Cohen's strong support for NMD upon taking office.

Notes

1. *The Baburnama: Memoirs of Babur, Prince and Emperor*, Wheeler M. Thackston, (tr.), (New York: Oxford University Press, 1996), p. 102. Babur founded the Mughal dynasty in what is now Afghanistan, India and Pakistan nearly 500 years ago.

2. These conform roughly with what Abram and Antonia Chayes have termed the *managerial* and *enforcement* or *sanctions* approaches. Chayes and Chayes conclude that sanctions approaches are impracticable, so that only managerial approaches should be considered seriously. Abram Chayes and Antonia Handler Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements* (Cambridge: Harvard University Press, 1995), especially pp. 2-3.

3. See, for example, the record of 1992 campaign-season deliberations on arms control and security by Clinton's sympathizers presented in Janne E. Nolan (ed.), *Global Engagement: Cooperation and Security in the 21st Century* (Washington: Brookings Institution, 1994).

4. On the various norms associated with the CTBT, see Eric Arnett, "Implications of Nuclear Weapon Programmes for the Comprehensive Test Ban Treaty and the Non-Proliferation Regime" in Eric Arnett (ed.), *Nuclear Weapons After the Comprehensive Test Ban: Implications for Modernization and Proliferation* (Oxford: Oxford University Press, 1996), pp. 132-137.

5. Responses to non-compliance with the CTBT are discussed in Eric Arnett, "Implications of the Comprehensive Test Ban for Nuclear Weapon Programmes and Decision Making," in Arnett (ed.), *Nuclear Weapons After the Comprehensive Test Ban*, pp. 6-12. In no case is the appropriate response to a state party's testing found to be reciprocal testing by other states parties.

6. Article VI promises eventual nuclear disarmament and general and complete disarmament.

7. Testing would be most likely in the case of China, which interrupted its testing program over the objections of the Ministry of National Defense in order to sign the CTBT and still operates a test site, which France and the UK do not. Eric Arnett, "The Comprehensive Nuclear Test-Ban Treaty," *SIPRI Yearbook 1997* (Oxford: Oxford University Press: 1997), pp. 403, 410.

8. Eric Arnett, "Nuclear Stability and Arms Sales to India: Implications for US Policy," *Arms Control Today*, August 1997; and Eric Arnett, "Conventional Arms Transfers and Nuclear Stability in South Asia," in Eric Arnett (ed.), *Nuclear Weapons and Arms Control in South Asia After the Test Ban* (Oxford: Oxford University Press, 1998).

9. The terminology used here is developed further in Eric Arnett, "The Complementary Roles of National, Private and Multinational Means of Verification," in Eric Arnett (ed.), *Implementing the Comprehensive Test Ban: New Aspects of Definition, Organization and Verification* (Oxford: Oxford University Press, 1994).

10. Personal communication with Iranian official.

11. Arnett, "Implications of the Comprehensive Test Ban," pp. 6-22; and Arnett, "The Complementary Roles," p. 65.

12. The apt term *nuclear volatility* was coined by Giri Deshingkar in "Indian Politics and Arms Control: Recent Reversals and New Reasons for Optimism," in Arnett, *Nuclear Weapons and Arms*

Control in South Asia.

13. Hamish McDonald, "Destroyer of Worlds," *Far Eastern Economic Review*, 30 April 1992, p. 24.

14. Asad Durrani, *Pakistan's Security and the Nuclear Option* (Islamabad: Institute for Policy Studies, 1995), p. 92.

15. The South Asian variant of the stability-instability paradox is discussed in greater detail in Arnett, "Nuclear Stability and Arms Sales to India" and Arnett, "Conventional Arms Transfers and Nuclear Stability."

16. See, for example, Stephen P. Cohen, "Nuclear Neighbors," in Stephen P. Cohen (ed.), *Nuclear Proliferation in South Asia: Prospects for Arms Control* (Boulder: Westview Press, 1991), p. 12; Peter R. Lavoy, "The Strategic Consequences of Proliferation: A Review Essay," *Security Studies*, Summer 1995; and Devin T. Hagerty, "Nuclear Deterrence in South Asia: The 1990 Indo-Pakistani Crisis," *International Security*, Winter 1995-96.

17. Mushahid Hussain, "A Bomb for Security," *Newsline* (Karachi), November 1991, p. 32.

18. Quoted in Gregory F. Giles and James E. Doyle, "Indian and Pakistani Views on Nuclear Deterrence," *Comparative Strategy*, April-June 1996, p. 146.

19. Mark Hibbs, "IAEA, Russia to US: Go Public in UN Bodies or Drop Iran Claim," *Nucleonics Week*, 9 October 1997, pp. 1, 12.

20. For example, the 1997 edition of the Pentagon's annual *Proliferation: Threat and Response* does not conclude that Iran has a development project for a missile of range longer than the 500 km Scud-C, but other official and unofficial statements suggest that there are longer-range projects. The 1997 *Proliferation: Threat and Response* also appears to step back from the previous charge that Iran may have weaponized some biological agents. Another source claims that US officials no longer believe Iran is working on nuclear weapons, but that Iran

has launched a crash ballistic-missile program that dates to 1995. Joseph Fitchett, "Ousting Iranian, Russia Signaled US on Arms," *International Herald Tribune*, 9 December 1997, pp. 1, 4.

21. The metaphor was coined by Richard N. Haass in his book *The Reluctant Sheriff: The United States After the Cold War* (Washington, D.C.: Council on Foreign Relations Press, 1997).

22. Michael Walzer, "The Hard Questions: The Lone Ranger," *New Republic*, 27 April 1998.

23. On the irrelevance of China to Indian nuclear policy, see Han Hua, "Sino-Indian Relations and Nuclear Arms Control" in Arnett, *Nuclear Weapons and Arms Control in South Asia*.

24. The relationship between the Annan mission and US credibility is elaborated in Spurgeon M. Keeny, "Give Diplomacy a Chance," *Arms Control Today*, January/February 1998, p. 2.

25. This discussion does not address the balance of interests in NATO expansion. The relationship between missile defenses and the START Treaties is discussed separately below.

26. In the case of the anti-ship missiles, Congressional Republicans called for all aid to Russia to be discontinued. Eric Arnett, "Military Research and Development," *SIPRI Yearbook 1998* (Oxford: Oxford University Press, 1998).

27. This discussion will not address the issue of how best to deal with China's position on Taiwan or the exercise of Freedom of Navigation (FON) in cases where the United States and China disagree about claims. The US Navy has challenged Chinese claims every year since exercises under the FON Program have been made public.

28. China has cracked down on exports of nuclear materials and ballistic and cruise missiles after encouragement from the United States.

29. The 1991 war was apparently brought to an end as much because of the Bush administration's fear that the US public would not

tolerate televised images of Iraqi losses -- including retreating military personnel -- as the attainment of US war aims.

30. Among those calling for unilateral attack were Phil Gramm, Richard Haass (despite his later advocacy for the reluctant sheriff model), Henry Kissinger, Charles Krauthammer, John McCain, William Safire, Brent Scowcroft and Paul Wolfowitz. For a useful review of public debate during the incident, see James Fallows, 'The Panic Gap: Reactions to North Korea's Bomb," *National Interest*, Winter 1994/95, pp. 40-45.

31. Alleged North Korean involvement in the Iranian and Pakistani missile programs has not been proved and seems unlikely given the slow progress of its Rodong programme and the weaknesses of North Korean military science and technology since it has been cut off from China.

32. This perception has not been conveyed effectively to Iran, which is quick to see disagreements with the United States as possible pretexts for military action. This perception in turn feeds Iranian interest in developing some sort of deterrent and thereby undermines norms and compliance with agreements. Eric Arnett (ed.), *Military Capacity and the Risk of War: China, India, Pakistan and Iran* (Oxford: Oxford University Press, 1997).

33. As noted above (note 20), some US charges regarding Iranian nuclear and biological weapons have been moderated in the past year and are not insensitive to new information. The US reaction to Iranian data declarations under the CWC remains to be seen.

34. Elaine Sciolino, "Quietly, America Takes Steps to Answer an Iranian Opening," *International Herald Tribune*, 27 March 1998, p. 12. For an attempt to differentiate between legitimate and unnecessarily provocative Iranian acquisitions, see Arnett, *Military Capacity and the Risk of War*.

35. For example, the administration pressured Poland not to deliver tanks to Iran, despite the fact that these tanks pose no real threat to

anyone but Iraq, against which Iran still needs to defend itself.

36. Secretary of Defense Cohen acknowledged that the Joint Chiefs do not see an immediate need: "They are saying, wait a minute, let's see what the threat is." Cohen is quoted in Stephen S. Rosenfeld, "Still on a Cold-War Footing," *Washington Post*, 31 Oct. 1997, p. A25. Israeli allegations that Iranian missiles will be deployed by the end of 1999 have not been corroborated. Some of the Likud Party officials associated with the allegations do not have a good track record of honesty when it comes to securing support for Israel Aerospace Industries. See, for example, Dov S. Zakheim, *The Flight of the Lavi: Inside a US-Israeli Crisis* (Washington, D.C.: Brassey's Publishers, 1996).

37. The United States permitted Texas Instruments to transfer smart-bomb kits to India during President Clinton's first term. Arnett, "Conventional Arms Transfers and Nuclear Stability."

Chapter 19

Assuring Treaty Compliance: The Case of the Chemical Weapons Convention

José M. Bustani

Establishing and maintaining compliance is of paramount importance for the formation of any multilateral treaty regime and its long-term stability. This is particularly so for an agreement which directly affects the security of the member states. Confidence in the robustness of the regime will rely largely on the perception that all member states are in full compliance, or that they are willing to establish full compliance as soon as they can. In turn, confidence in the robustness of the regime will be paramount to attract states that have yet to join the agreement, thus increasing the security of all members of the regime. Hence, the establishment of full treaty compliance at the outset of a new regime is very important.

Compliance is understood here to mean the faithful and comprehensive implementation of all undertakings accepted under a treaty by its States Parties.[1] The concept of compliance includes the taking of corrective action by a State Party whenever it recognizes that it has failed to fully implement certain undertakings.

In other words, establishing and maintaining compliance is first and foremost a matter of domestic acts of the States Parties, and thus of "national implementation." At the same time, compliance is subject to dialogue and cooperation, and, as necessary, clarification and problem resolution, between States Parties. If a treaty establishes an enforcement agency such as the OPCW, compliance assurance becomes a truly multilateral affair dealt with primarily in the context of that agency's mandate.

The Chemical Weapons Convention (CWC) is perhaps the most important multilateral legal instrument in the field of global arms control and disarmament that has gone from the drawing board to states' practice during the past few decades. It, therefore, deserves an analysis in relation to treaty compliance. This paper will briefly discuss the compliance assurance mechanism of the Convention itself. It will then address the work of the Preparatory Commission and its effect on treaty compliance immediately after the entry into force of the CWC. Thereafter, this paper will examine the initial trends in the status of compliance with the provisions of the Convention, and discuss some of the actions taken by the OPCW in this respect.

Finally, the paper will attempt to draw some preliminary conclusions on the issue of compliance assurance. One must realize, however, that the CWC is still in its infancy; caution must be exercised in drawing too far-reaching conclusions at this early point in time.

1. The "compliance assurance machinery" of the Chemical Weapons Convention

The CWC contains a whole range of measures and provisions that are related to assuring that the States Parties are, and remain, in compliance with the treaty obligations. These are implemented by the States Parties themselves as well as by the OPCW as a whole.

1.1 *National measures*

National means relate to the establishment of compliance within the area of jurisdiction of a State Party as well as to measures a State Party may take in order to receive assurance about the state of compliance of another State Party.

It is important to underline that all States Parties are required to "adopt the necessary measures to implement [their] obligations under this Convention."[2]   This broad reference relates to a variety of measures, such as the enacting of legislation to be able to collect declaration data, and the adjustment of national laws and regulations to enable the OPCW to undertake its verification measures, in particular its inspections.   States Parties are required to properly prepare for their role as inspected States Parties, which has legal, administrative and budgetary implications.   The Convention specifically requires that States Parties enact penal legislation in relation to treaty violations in areas under their jurisdiction or control, and extend this penal legislation to their citizens abroad.

It is important to understand that compliance does not occur automatically as a result of ratification. It requires active enforcement measures by the governments of the States Parties based on their legal and constitutional context as adjusted to the requirements of the CWC.

The Convention also provides for mechanisms to secure assurances regarding the continued compliance by other States Parties.[3] The treaty does provide for procedures (in addition to those involving the OPCW in one way or another) that may be invoked by a State Party in case it had compliance concerns in relation to another State Party. In particular, paragraphs 1 and 2 of Article IX establish a procedural framework for States Parties to address and resolve compliance concerns amongst themselves.

1.2 *Compliance assurance by the OPCW*

In the institutional context of the OPCW, compliance assurance is addressed through a network of provisions that complement each other. In a somewhat abbreviated manner, the sequence of events may be described as follows.   Based on information submitted in declarations by the States Parties and verified by the OPCW through

data monitoring and on-site inspection, including through challenge inspection, if required, the (individual) member states, as well as the political bodies of the OPCW collectively, form their opinions about the compliance status of the States Parties. The Convention provides an institutional frame for the taking of decisions on compliance issues, and, if necessary, on measures to redress a situation in order to reestablish compliance, which may include sanctions.

The initial declarations of States Parties establish a baseline for assessing their treaty compliance. These declarations become subject to independent verification by the Technical Secretariat, by routine on-site inspections, as well as data monitoring. If it appears as the result of an inspection that certain information provided was incorrect or incomplete, or if the information provided indicates that certain undertakings may not have been honored, the Technical Secretariat seeks clarification from the State Party.[4] The results of these activities are reported on a regular basis to the Executive Council, and annually to the Conference of the States Parties.

Under normal circumstances, compliance problems that may become apparent as a result of verification activities are discussed between the Secretariat and the State Party involved, and resolved. The Executive Council, as well as the Conference of the States Parties, is kept informed about such issues. The Executive Council has the power to address any compliance issue that comes to its attention and give directions to the Technical Secretariat or issue recommendations to the States Parties involved, or to the Conference.

In addition, there may be situations when States Parties themselves have concerns in relation to possible non-compliance by another State Party. To resolve such concerns, the Convention offers a range of clarification procedures involving the Executive Council and/or the Director General.[5] Alternatively, the State Party causing the concern may invite the Executive Council to investigate the compliance concern.[6] In all these cases, the Executive Council will eventually

inform all States Parties about the clarification procedures involved and their result.

As an ultimate safeguard, States Parties have the right to request a challenge inspection of any location on the territory of a State Party, in order to clarify a concern of possible non-compliance. The procedure is mandatory and can be invoked at any time and relation to any site, whether declared or not. It relies on a complex procedural framework that forms part of the CWC. The Treaty is designed to protect the legitimate rights of an inspected State Party in relation to the protection of sensitive information while, at the same time, enabling an inspection team to conduct an inspection and, therefore, make it possible for the inspected State Party to demonstrate its compliance with the CWC. Challenge inspection ultimately boils down to the concept of managed access. It is a methodology that allows an inspected State Party to control the inspection process in relation to the exposure of confidential data up to the point when it has undertaken any reasonable effort to demonstrate its compliance. The report of a challenge inspection will be considered by the Executive Council, which addresses the non-compliance concern as well as the question of possible abuse. The challenge inspection report eventually is submitted to all States Parties.

When compliance concerns have been addressed by verification means or clarification procedures, but could not be resolved, the Convention provides for a number of options to remedy the situation and re-establish compliance. These are contained in Article XII. There may also be cases where non-compliance concerns lead to a dispute between two States Parties, or between a State Party and the OPCW. A range of options for resolving such disputes is offered in Article XIV.

In general terms, it should be recognized that the approach taken by the CWC is one of persuading a State Party to reestablish compliance where and when it has failed to comply with its

undertakings, rather than to punish. A central aim of verification is to identify areas where States Parties need to improve their treaty performance. But, inspections are quite different from police investigations. Their ultimate aim is to identify ways and means by which the inspected State Party can accomplish full treaty compliance.

At the same time, the Convention recognizes the need for the OPCW to enforce compliance if a State Party causing a non-compliance concern does not itself take corrective action. In such cases, the Executive Council has the power to request the State Party to take measures to redress the situation and, in case the State Party fails to comply, may recommend to the Conference to restrict or suspend the State Party's rights and privileges or, in serious cases, to issue sanctions.[7] Furthermore, the Conference may decide to bring the matter before the UN Security Council or the UN General Assembly.[8]

To sum up, the machinery provided by the CWC for compliance assurance rests on three pillars: *declarations* forming the baseline for information relevant to the assessment of compliance (initial as well as annual declarations), *verification* of the data contained in these declarations as well as of other information of relevance for compliance assessment (by routine as well as challenge inspections), and *measures to redress the situation when non-compliance has occurred* taken by the States Parties individually, or in the context of the OPCW, or through the UN system. It is the interaction of these three distinct mechanisms with the actions of States Parties in the field of national implementation that will ensure that States Parties establish and maintain full compliance, and take corrective action when acts of non-compliance are encountered.

In the following section, some practical aspects of compliance with the CWC will be discussed.

2. CWC compliance and work of the Preparatory Commission

In relation to establishing full compliance with the CWC at an early stage after the entry into force (EIF) of the CWC, the work of the Preparatory Commission of the OPCW was important in several respects.[9]

Quite uniquely in the history of disarmament negotiations, the Preparatory Commission had what, in fact, amounted to a negotiation mandate to complete treaty provisions. This related to a range of well-defined areas where the Convention itself contains a reference to a decision by the First Session of the Conference of the States Parties rather than a full-fledged provision. In other words, the treaty negotiators had left a number of aspects of the treaty unfinished and delegated them to the Preparatory Commission. In addition, the Preparatory Commission itself decided to take up certain other issues.

The significance of the Commission's work for compliance is two-fold: in areas where the Commission succeeded, it developed guidelines for implementation. Thus, it created an expectation of what compliance with specific provisions would entail. In areas where the Commission failed to complete its work, there remains disagreement about what the treaty actually requires States Parties to do. This may lead to compliance disputes in the future. The success of the Preparatory Commission was manifested in the considerable number of decisions it was able to forward to the First Session of the Conference of the States Parties.[10] These decisions confirmed the recommendations developed by the Preparatory Commission which had been used by the States Parties in their national implementation work. The decisions were necessary for the States Parties to be certain that the previously agreed standards for implementation were, in fact, binding.

A particularly interesting case is the decision which the Conference developed in relation to the list of approved equipment.[11]

This issue had not finally been resolved during the preparatory work, but States Parties recognized that, without a decision, the inspection work of the OPCW would be severely hampered. What the Conference actually did was to adopt the list of approved equipment (including operational requirements, technical specifications and common evaluation criteria) together with a number of conditions that addressed the remaining areas of controversy. These were, in particular, the relationship between equipment selection and inspection type and the free availability of approved equipment to all States Parties. While, in respect to the latter, the Director General was tasked to establish a mechanism for National Authorities to familiarize themselves with the equipment. The first issue was delegated into the inter-sessional mechanism that would deal with the other unresolved issues.[12] This decision had significant implications for compliance as it established the framework within which States Parties could reject the passage of approved equipment through the Point of Entry (POE). Any equipment rejection at the point of entry for reasons other than those contained in paragraph 29 of Part-II of the Verification Annex, as well as in the Conference decision, must be considered as not in accordance with the Convention, thus constituting an act of non-compliance.

The preparatory phase also provided the necessary framework, as well as the time required, for national implementation preparations. The CWC is not a self-enforcing treaty. Compliance with its provisions requires both legislative and administrative steps to be taken by the States Parties well in advance of the entry into force, as recognized by the treaty.[13]

This was, of course, very much a matter of setting national priorities. It involved the development and enactment of legislation, the establishment of national administrative structures (within existing branches of the executive or as new agencies), the identification and preparation of affected government bodies and private industries, the

setting aside of funds for supporting the national aspects of the implementation process, as well as the operations of the OPCW and the training of staff.

In respect to what has become known as the "unresolved issues", or rather in relation to some of them, the lack of agreement during the preparatory phase has had significant implications for the compliance situation after entry into force. A classical example is the failure by the Preparatory Commission to agree on certain types of guidelines for initial declarations. Two of them will be discussed in more detail.

For chemical weapons produced between 1925 and 1946, the CWC contains two alternative classifications: either these are chemical weapons, or they are old chemical weapons. The decision how to classify a particular stock is left to the declaring State Party on the basis of whether or not the weapons under consideration are still "usable." The CWC links usability to the degree of deterioration of the weapons but leaves the specifics (i.e., the guidelines for this decision making) open, assuming that there is a decision by the Conference of the States Parties establishing these guidelines. However, this issue remains controversial. This would not, in itself, cause severe problems, were it not for the fact that two related issues also remain unresolved: the nature of the verification regime for old chemical weapons and, perhaps more importantly, the allocation of the verification cost to either the organization or the inspected State Party.[14] Thus, diverging treaty interpretations carry the potential of disputes between States Parties over the applicable regime as well as financial implications.

A second example is the lack of agreement on the guidelines for mixtures containing a Schedule 2 or 3 chemical in a low concentration. While this is of little consequence in relation to Schedule 3 chemicals,[15] different national implementation approaches in relation to mixtures containing low concentrations of Schedule 2 chemicals, has caused significant differences in the coverage of

chemical and other (downstream processing and manufacturing) industries. This results not only in an uneven implementation of the treaty provisions but may also lead to disputes between States Parties about unfair operations of the treaty.[16]

The fact that the Preparatory Commission failed to complete its work on a number of issues has meant that States Parties have had to take their own decisions about the way specific provisions are to be interpreted, leading to potentially inconsistent implementation of the same provision by different States Parties. These inconsistencies are only now becoming apparent.[17] The OPCW will have to find ways and means to harmonize national approaches if problems in relation to the compliance status are to be avoided.

3. Compliance issues during the initial phase of CWC implementation

Compliance is occasionally viewed in a somewhat simplistic manner, by addressing non-compliance issues exclusively in the context of the basic undertakings of an agreement (e.g., not to manufacture chemical weapons). No such type of non-compliance has been found during the initial phase of the CWC implementation. But the problem of non-compliance needs to be examined in a somewhat broader perspective (hence the understanding of the term "non-compliance" as set out at the beginning). The Convention itself does not make a distinction between technical mistakes and substantive non-compliance of different degrees of severity. Instead, it leaves this judgment to the OPCW and its member states. Compliance becomes a matter not of how an incident is classified, but how the OPCW responds to it.

During the initial phase, there were a number of problem areas in relation to potential or actual non-compliance, in relation to specific

provisions of the Convention. The following discussion will address three such areas: declarations, inspection conduct, and Schedule 1 transfers.

3.1 *Initial Declarations*

Initial declarations are required from each State Party within 30 days after the CWC enters into force. The initial declarations required under Article III of the CWC form the baseline for all future undertakings in relation to destruction obligations. These declarations effectively separate the member states into those who have obligations in relation to their existing or former CW capabilities, and those who do not. These initial declarations are thus of paramount importance for the regime of the treaty. The initial declarations due under Article VI have a slightly different character. They initiate the long-term compliance monitoring regime in relation to legitimate activities, such as the production or use of scheduled chemicals. A failure to submit them can create a situation where States Parties, with otherwise similar activities in the field of chemistry, get treated differently by the OPCW, and, therefore, can only conduct routine verification activities at sites involved in these legitimate activities when the facilities have been declared.

Several aspects are important when attempting to analyze the compliance status in relation to the requirements to submit initial declarations:

- timeliness of submission, and whether an initial declaration was submitted at all;
- completeness of submission and conformity with the required formats; and
- faithfulness of the initial declaration on past and present CW capabilities.

In relation to the timeliness of submission, significant problems have been encountered. In its 1997 Annual Report, the OPCW stated:

> The status of submission of initial declarations since the entry into force of the Convention on 29 April 1997 remains problematical. Thirty days after EIF, thirty-three States Parties had provided initial declarations as required by Article III of the Convention. Between 30 May and 28 October 1997, the Secretariat received an additional thirty-five initial declarations, bringing the total number of submitted initial declarations to sixty-eight. However, thirty-two States Parties still had not submitted initial declarations by 28 October. The Secretariat is continuing its efforts to encourage and support States Parties in their presentation of initial declarations and in the effective implementation of the Convention at the national level.[18]

In other words, only about a third of the initial States Parties submitted their declaration in time, and a third failed to submit them at all.[19]

There were different reasons behind the failure of some States Parties to submit their declaration. On the other hand, quite a number of States Parties had joined the treaty in good faith but had failed to understand that the treaty carried an obligation to submit a set of formal initial declarations.[20] They assumed that as they never possessed chemical weapons capabilities in the past, the deposition of their instrument of ratification would suffice to meet the treaty requirements at the entry into force. Another group of States Parties, on the other hand, had failed to grasp the significance of having to enact legislation in order to be in a position to submit a declaration, or delayed in drafting and enacting it. Delays in their legislative processes put them into a position where they had only limited means to collect the declaration data, or they realized that it was legally difficult to submit such data to the OPCW.

Completeness of declarations as well as their technical correctness was a second problem area. A number of States Parties, including

very important ones, found themselves in a position where they were, in fact, unable to submit certain parts of their declaration. The reason, again, being the failure to enact legislation in time for the entry into force. This is a problem quite unique for the CWC. In many other treaties of this type, legislation is of little concern as the declaration data are in the possession of the government. Here, industry data are typically in private hands and their collection is by no means trivial. Laws to protect privacy are in place and the collection of the data from private industry with the aim to submitting it to an international organization requires a legal framework.

These delays and failures have caused serious concerns within the OPCW. While the Executive Council repeatedly urged States Parties to meet their declaration obligations, the Secretariat of the OPCW launched a number of initiatives to encourage States Parties to submit their declarations or to assist National Authorities in preparing them. This included training courses for National Authorities, declaration workshops, the dispatch of Secretariat staff to National Authorities on request, the development of a "simplified declaration format" for States Parties with little or nothing to declare, and the establishment of a network of international experts that could be called upon when assistance was required by a National Authority. The Secretariat also went through several phases of requesting clarifications from States Parties in regard to their initial declarations.

In relation to the question of whether States Parties faithfully declared their (past or present) involvement in CW affairs, the Report of the Organization on its activities in 1997 had this to say:

> It is heartening to be able to report that good progress was registered in the first six months of operations of the OPCW. During the preparatory phase it had been assumed, for budgetary and planning purposes, that only three States -- the Russian Federation and the United States of America and one unnamed other -- would declare the possession of chemical weapons. In fact, eight States declared either the possession of

chemical weapons or a past or present capability to produce them. This list does not include the other declared possessor of chemical weapons, the Russian Federation, ...Thus, a clearer picture is already emerging about the quantity and location of chemical weapons activities, part and present, in the world - an essential step towards the ultimate goal of eliminating this class of weapon of mass destruction.[21]

It should be noted that, so far, no State Party has challenged another on this matter.

All in all, the degree of compliance with the requirements for initial declarations leaves concerns. The OPCW has so far reacted to non-compliance, or only partial compliance, by statements of concern, requests for clarification and offers of administrative support. While the situation is slowly improving, it falls well short of the expectations of the OPCW and its member states.

It seems that the lack of compliance is largely a result of defects in the national preparations for the entry into force, either by lack of legislation or by failures in the practical preparations for data collection, validation and submission. In some cases, a lack of timely allocation of funds added to the implementation difficulties. There are, thus, good hopes that over time, and with continued persuasion combined with administrative assistance, the lack of compliance in relation to the submission of initial and annual declaration may be overcome.

3.2 *Verification Conduct*

The initial implementation of the CWC's verification provisions depended critically on the compliance with a number of timelines. The most important initial timelines were these:

- the submission of initial declarations by all States Parties not later than (NLT) 30 days after EIF;

- the designation by the States Parties of points of entry, diplomatic clearance numbers for inspection flights, and National Authorities (NLT 30 days after EIF);
- the clearance of staff for handling confidential information (NLT 30 days before access is given; unless States Parties agreed to waivers, such access rights had to be given before declarations containing confidential data could be processed);
- the designation of inspectors for routine inspection (notification to States Parties NLT, 30 days after EIF, acceptance or rejection by States Parties NLT 30 days thereafter);
- the designation of inspectors for challenge inspection from those already designated for routine inspection (acceptance or rejection by States Parties NLT 30 days after notification);
- the initiation of permanent monitoring of CW destruction operations (as from 60 days after EIF);
- the initial inspection of all CW production facilities (90 to 120 days after EIF; and
- the inspection of all other declared CW facilities as well as of all Schedule 1 facilities in time to conclude facility agreements within 180 days after EIF (the planning assumption was that all initial inspections would have to be concluded by EIF plus 150 days).

It is immediately apparent from this list that compliance with the provisions of the CWC is as much a matter of national preparations as it is of the readiness of the Technical Secretariat to implement the treaty's verification provisions.

First and foremost, it is important to stress that the implementation of the verification provisions of the CWC has gone surprisingly smoothly during the initial phase of implementation. Most importantly, the time lines for the initial inspections were met. While the target date for the conclusion of all facility agreements could not be met, drafts have in most cases been negotiated and an

understanding reached that these drafts will be followed if the final agreements have not been concluded prior to the need for re-inspection of the sites concerned.

The results of the inspections conducted thus far have been quite encouraging. While there are a few uncertainties in relation to the accuracy of the information submitted in declarations, none of these lead to significant concerns about possible non-compliance with the basic undertakings of the Convention.[22] There were, however, other issues that had to be addressed in the context of compliance assessments. Two types of problems will be briefly discussed here. These are the steps required of the States Parties before an inspection, and the problems arising during inspections.

As part of the national preparations for receiving OPCW inspections, States Parties have to take a number of measures that are either prescribed or implied by the CWC. These include:

- the designation of points of entry;
- the notification of the standing diplomatic clearance number for special flights;
- the response to the OPCW's designation of inspectors and inspection assistants;
- the issuance of two-year multiple entry visas to designated inspectors and inspection assistants;
- the granting of the required inviolability to inspection team members, their working and living premises, their equipment and their samples (the same applies to observers of challenge inspections except with respect to samples); and
- any other national preparation that would be required to enable inspection teams to undertake their duties (e.g., equipment usage licensing, the necessary adjustment of regulations on the transportation of hazardous goods, preparations at the Point of Entries).

In relation to the declarations and notifications due within 30 days after entry into force, the OPCW reported as follows:

> On 10 October, the Acting Director General wrote to 97 States Parties to draw to their attention the fact that they had either not provided all the notifications and declarations required under the Convention or that, if they had, such notifications and declarations were incomplete. The Director General reiterated his concern about the lack of compliance with the requirements of the Convention in this respect. As on previous occasions, he noted that this situation had not yet impacted greatly on the Secretariat's ability to implement the relevant provisions of the Convention, but that there would clearly be major operational problems if a challenge inspection were to be made against a State Party which had failed to provide the Secretariat with either a notification regarding its point of entry or its standing diplomatic clearance numbers for non-scheduled aircraft. The Director General, therefore, urged all States Parties to provide this information as soon as possible.[23]

Other compliance concerns related to the preparations by States Parties for the passage through the Point of Entry (POE) of inspection equipment, and the use of inspection equipment. The Director General had to inform the Executive Council, on a number of occasions, about problems in relation to equipment passages through POEs. There are occasions when inspection mandates could only be implemented in part as a result thereof. In one case, the Director General had to call for an emergency meeting of the Executive Council to resolve a problem in relation to the passage through a POE of certain equipment items. The background for these problems seems to relate largely to the fact that some States Parties did not fully review and adjust their existing regulations for exports and imports of equipment, or for the transportation or use of certain equipment items in certain circumstances. That leads to situations where a conflict emerges between an existing regulation (established for other purposes such as safety or customs) and the requirement for the

inspected State Party to guarantee the free passage of approved inspection equipment in accordance with Part II of the Verification Annex, as well as its use for inspection purposes as provided for the by the CWC.

To sum this up, while the inspections conducted have, so far, proceeded without any major problems, it should be pointed out that State Party non-compliance with certain administrative provisions of the CWC, as well as delays in national preparations for handling and supporting OPCW inspection, cannot be ignored. They have the potential of creating difficult and politically undesirable situations in future inspections. These can be particularly significant if a challenge inspection were called for, and the lack of preparation in certain administrative areas might hamper the conduct of such an inspection to the point where one could no longer discriminate between obstruction and violation.

3.3 *Compliance concerns in regard to transfers of certain Schedule 1 chemicals*

Two concerns will be mentioned here which have transfer notifications, and the specific case of Saxitoxin.

In relation to transfer notifications, they are required 30 days before any Schedule 1 transfer, due from the supplier as well as the recipient State Party. It has emerged that different States Parties achieved quite different degrees of implementation. The number of mismatches (i.e., the situation where only one of the two States Parties notified an upcoming transfer) was remarkable. To improve this issue, direct contacts between the involved National Authorities are encouraged.

A particular problem appeared in relation to one of the scheduled chemicals, Saxitoxin. During the fifth meeting of the Executive Council in September 1997, the attention of the Council was drawn to

a matter that could have implications for the compliance status of the Convention. An observer state submitted a non-paper entitled "Transfers of Saxitoxin for Medical/Diagnostic Use ...".[24] Another delegation provided additional background information in a non-paper entitled "Proposal for Expedited CWC Transfer Provisions for Diagnostic Testing Kits Containing Saxitoxin."[25] This problem can be summarized as follows:

> Saxitoxin is a chemical listed in Schedule 1 of the Annex of chemicals. As such, it is subject to the provisions under Article VI of the CWC and Part VI of its Verification Annex. These include, inter alia, a prohibition of exports to States not party to the CWC, and a requirement to notify the OPCW of any transfer between States Parties 30 days in advance, and a prohibition of re-transfers between States Parties. The rigid implementation of some of these regulations has resulted in conflicts with existing practices in relation to the use and transfer of Saxitoxin for legitimate purposes. These legitimate uses include certain types of research and, most importantly, the use of Saxitoxin as a reference standard in food testing for paralytic shellfish poisoning (PSP). These applications involve very small quantities of the toxin (several orders of magnitude below the declaration threshold applicable to production facilities used for research, medical or pharmaceutical purposes).[26]

The Executive Council recognized that there was a problem: either, the CWC would get in the way of entirely legitimate uses of Saxitoxin for (regulatory) food quality monitoring programs, or the CWC's rules would have to be interpreted in such a way (or new rules for this particular situation devised) that the continuation of these legitimate and, in fact, quite essential activities could not be misconstrued as acts of non-compliance. The seemingly logical approach, to move the toxin from Schedule 1 to Schedule 2, was not discouraged, but it was recognized that such a move would take time and needed careful consideration.

The Executive Council thus decided to task a friend of the chair with preparing a solution to this problem. At the time of this writing, the friend of the chair has submitted a proposal for one of the issues involved, namely the advance transfer notification, but the proposal has not yet been agreed by the Executive Council. A national proposal dealing with the issue of re-transfers between States Parties has also been submitted to the Executive Council for its consideration.

In the context of discussing CWC compliance, it is interesting to note that while some States Parties seem to operate on the premise that, in relation to this case, the rules need to be followed rigidly unless there is a decision by the Executive Council expressly permitting that certain measures can be applied in a more flexible manner.[27] Such a decision implies that anything else would, in fact, constitute an act of non-compliance. Other States Parties take the view that while they would like to see the issue resolved, they would, if necessary, supply PSP test kits containing small amounts of Saxitoxin even to States not party, if a humanitarian situation would require them to do so. They would not consider this as not in compliance with the CWC. This underlines that compliance, to a considerable extent, is a matter of perception, not only of what the obligations of the treaty mean, but also how they relate to undertakings and principles agreed to by the State Party in other international treaties or as general principles of law.

4. Conclusions

While still in its early years, the OPCW provides already a number of lessons in relation to compliance assurance.

First, it seems paramount that a treaty, in particular when dealing with the security of its member states, has a complete set of provisions in relation to establishing and maintaining compliance. States Parties need to be able, as well as formally required, to provide information in relation to their compliance status. This information needs to be subjected to independent scrutiny, including, as appropriate, by on-site inspections. Also, a mechanism is needed to address the results of such verification and interpret them in compliance terms. There then needs to be a mechanism for follow-up, and to assist and encourage States Parties to re-establish compliance in cases when they failed to comply. Finally, there needs to be an element of possible sanction in the rare case that a State Party did commit a breach of the treaty and remains reluctant to re-establish compliance.

Second, it should be understood that situations of non-compliance *will* occur, more so if a treaty is technically complex and when its functioning rests to a considerable degree on national implementation measures. What is important for treaty enforcement is not to ignore such situations of non-compliance, nor to exaggerate their significance to the point where the credibility of the regime becomes questionable, but to find expedient ways to help States Parties recognize that they are in non-compliance, and to help them re-establish full compliance as soon as possible. It is important, however, to understand that prolonged persistence of such non-compliance situations will eventually undermine the credibility of the regime and put its effectiveness into question. For a treaty dealing with the security of its member states, this could be potentially fatal.

Additionally, it is important to keep the dialogue regarding situations of non-compliance ongoing and to inform decision-makers

in State Party capitals aware of the potential consequences of these types of situations. After all, other States Parties are watching and may well interpret continued non-compliance with certain provisions as an intentional act aimed at escaping certain consequences of the treaty rather than as technical difficulty.

Furthermore, it is important to focus the work of the OPCW on those problem areas which may give raise to differences in the interpretation of basic terms and provisions of a treaty, with the view to swiftly resolving them. Differences of perception as to the meaning of key provisions carry the potential of future compliance disputes. Such issues, however awkward or complex, cannot be ignored, but should be separated from the host of other problems an organization may find itself confronted with.

Last, but not least, it must be stated again that compliance enforcement starts with the readiness of the States Parties to establish and maintain compliance themselves. Long term compliance is a cooperative undertaking of all members of a treaty regime, and the enforcement agency is there to tell them where their efforts need intensifying, and to assist them in doing so. While the agency must be capable of identifying acts of non-compliance, the operational goal is not to put blame on a perpetrator, but to create a situation within which the State Party can establish full compliance as quickly as possible while other States Parties are reassured that the non-compliance situation will soon be rectified. Cooperation, as well as transparency, are fundamental conditions in the work of an organization to this end.

Notes

1. "Undertakings" may include both the implementation of required acts and the observance of prohibitions "positive" and

"negative" obligations, compare J. Lundin "An overview on verification objectives under a Chemical Weapons Convention," in SIPRI CBW Series 9 *Non-Production by Industry of Chemical-Warfare Agents: Technical Verification under a Chemical Weapons Convention*, J. Lundin (ed.), (Oxford: Oxford University Press, 1988).

2. Paragraph 1 of Article VII.

3. The term "national technical means" is never mentioned in the CWC, but it is implicit that these are considered legitimate. It should be noted in this respect that the CWC provides for the submission of only a part of the declaration data to States Parties. While declaration data on CW issues as well as Schedule 1 facilities are available to all States Parties as declared, other industrial declaration data are only available in respect to non-quantitative information. The information basis used by States Parties to assess the compliance of others will, thus, have to build on the declaration data accessible to them and on other information.

4. If this happens as a result of inspection activities, the Director General is, in fact, required by the Convention to do so, under paragraph 64 of Part II of the Verification Annex.

5. Compare paragraphs 3 through 7 of Article IX.

6. Paragraph 5 of Article IX.

7. Paragraphs 2 and 3 of Article XII.

8. Paragraph 4 of Article XII.

9. The Preparatory Commission was established during the Signing Conference of the CWC in Paris from 13-15 January 1993. Its mandate (the "Paris Resolution") was adopted by acclamation during the Conference. It encompassed the preparation of the First Session of the Conference of the States Parties and of all practical multilateral and institutional aspects of implementation, the elaboration of decisions on a whole range of specific issues that had not been finalized during the negotiations of the treaty

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terminology of the Convention, processing or consumption). As a consequence, the impact of the Schedule 3 low concentration limit only applies to export/import transactions but has no impact on the declaration of facilities, for which the rule was designed in the treaty.

16. The creation of a "level playing field" has always been an important aspect for states whose foreign policies are strongly influenced by their economic policies, in particular countries in Western Europe, Japan and North America where the main chemical producers are located.

17. For example, inconsistencies caused by different interpretations of the "low concentration rules", or methodologies for generating aggregate national data, are not apparent from the declarations as such. As long as States Parties fail to inform the OPCW about the specific rules they actually use, their data cannot easily be interpreted in comparison to the data submitted by other States Parties. This was recognized when the Conference decided at its Second Session that States Parties should inform the Secretariat about their decisions on the low concentration rules they use (C-II/DEC/7), and that the Executive Council should resolve the issue of how to report aggregate national data in relation to Schedule 2 and 3 chemicals (C-II/DEC/8).

18. Paragraph 2.5 of C-II/2/Rev.2.

19. It should, however, be noted that a compliance rate of 60-70 percent in relation to mandatory declarations is not unheard of in other treaty regimes.

20. Quite different from many other treaties, where it is often assumed that the absence of a formal statement implies a negative answer, Article III requires States Parties to formally state whether they have chemical weapons or have had CW capabilities. The absence of an initial declaration cannot be taken as a No statement in this respect.

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21. Paragraph 1.3 of C-II/2/Rev.2
22. Certain data on CW or old CW (quantities, agent composition) cannot, at this moment, independently be verified without creating unacceptable safety risks. They will eventually become verifiable, during actual destruction operations.
23. Paragraph 2.10 of C-II/2/Rev.2.
24. EC-V/NAT.1, dated 25 September 1997.
25. EC-V/NAT.2, dated 26 September 1997.
26. For more detail, see the Secretariat Paper "Background Paper on Saxitoxin Transfers," EC-VIII/TS.3 dated 28 January 1998.
27. One of the countries has, in fact, stopped all transfers of tritiated Saxitoxin to States Parties other than the one it imports the (untritiated) Saxitoxin from, as a result of which the worldwide supply of tritiated Saxitoxin for test and research purposes has all but collapsed.

Chapter 20

Restoring Compliance

Thérèse Delpech

Four years ago, I was called upon to present some views on the topic of compliance in the midst of the North Korean crisis. It was then tempting to assess the situation as a first-rate example of non-compliance: international diplomatic pressure at that time would have been lighter than the tough Democratic Peoples Republic of Korea's (DPRK) diplomacy. Any positive incentive involved openness of some kind towards the West and therefore was looked upon suspiciously by Pyongyang. Sanctions were doomed. The North Koreans had already contrived means to self destroy themselves. Sanctions that were successful would have been even worse with the possible collapse of the regime, and the resultant refugees. In any case, China would have opposed sanctions. Furthermore, preemptive air strikes would have been tempting, if the targets were known. Thus, war was not an option at that time.

Four years later, the North Korean situation is not much better, even if a "framework agreement" has been signed. Compliance is still remote. But generally, a more balanced view of compliance, with international commitments, may be adopted because of the increased impatience that the DPRK warrants today in the international arena.

Three major issues must be examined. These include a recent reassessment of the subject matter, major lessons learned of past experiences, and the political issues to be resolved.

1. A reassessment

Capabilities for detecting undeclared material and activities are now considered essential. It has always been an assumption in the international community that, when a nation signed an international treaty or agreement, and ratification by the appropriate body was completed, compliance to that agreement was not open to question. This is the manner that the non-proliferation regimes operated for decades.

In the past, there were certain countries that chose to remain outside the international system, and, as a result, the attention was for a long time only focused on them. The main question was, therefore, universality (something that the Indian, and Pakistani nuclear denotations might bring to the forefront again). As for the other countries, the IAEA was concerned exclusively about declared materials. Every year, the safeguards statement asserted that the Secretariat had not found "any indication that nuclear material which has been declared or placed under safeguards had been diverted for any military purpose or for purposes unknown." Confidence in the good faith of the signatories was assumed. It took, however, some time for the international community to realize that adherence did not necessarily mean compliance. The Iraqi crisis brought home this point. As Lenin once stated, "trust is good, but control is even better." Special inspections under the texts of the agreements provided a means for additional information or new and additional sites to be "rediscovered."

In order for the IAEA to strengthen its capabilities for detecting undeclared materials or activities, its Board of Governors, in May 1997, approved the text of a Model Protocol in addition to the safeguards agreements, so as to meet this new mandate.

There is doubt that verification provisions are increasingly important in conventions and treaties. Previously, the main objectives

of many disarmament agreements seemed to be essentially political or declaratory. Even if verification was discussed extensively, the effective implementation of the measures provided for were not always followed with the required attention. A number of treaties or conventions lacked compliance requests or, for that matter, verification provisions. The NPT has no provision for dealing with non-compliance. The Biological and Toxin Weapons Convention (BTWC) lacks a verification regime altogether. The turning point may have been the negotiation for the Chemical Weapons Convention in Geneva, in which the verification debate assumed wide proportions. A protocol to the BTWC is now being drafted to permit on-site inspections in order to monitor compliance of this Convention. The strengthening of IAEA safeguards, and the improvement of export control procedures, are steps in this same direction.

Two major crises have compelled the international community to change and to adopt more intrusive measures. The main reason why non-compliance has not been a core question until recently is most likely because this topic has always been a tough issue to address. The unpleasant discovery that some countries find it preferable to ratify international treaties and, in turn, use them as smokescreens to conduct covert activities, without fear of interference, has been a turning point in the history of compliance. It is indeed a very different kind of challenge for these nations than the activities of other countries that remain outside of international treaties or conventions. Threshold states have always favored ambiguity over openness. Until recently, India, Pakistan and Israel always felt that their best interest was in adopting the well known dictum "neither confirm, nor deny," rather than in stating openly their nuclear capabilities. These countries remain a legitimate subject for concern. On the other hand, non-compliance is not the issue for countries choosing not to adhere to treaties or conventions. These types of regimes, like Iraq and North Korea, expose the inherent weaknesses of

the system. It also requires some political confrontation. Both cases have shown that, while violations of IAEA safeguards might be unambiguously demonstrated, compliance can not be definitively established.

The importance of intent must be reemphasized. The main objective of verification measures is to assess capabilities. Technological capabilities are increasingly powerful tools for verification. The very existence of effective detection methods is in itself a deterrent for potential cheaters. Nevertheless, experience has shown (Iran for instance) that such an assessment could still be a delicate matter. It is more difficult to assess intentions than capabilities, but both are essential parts of this discussion. The question of intent seems to be relevant mainly when no hard evidence is available, unless there is a formal acknowledgment by the suspected proliferator. In the case of Iraq, this was achieved through extraordinary circumstances. This is most likely Iran's policy and also why Iran is a particularly difficult case to deal with. To assess intentions, the best recipe is for on-site inspections. But the question of intent has another dimension. In the cases of Kim Il Sung and Saddam Hussein, what both attempted to achieve strategically with their clandestine programs largely remain obscure. It is essential to have some understanding of the intent in order to judge non-compliance but to also ensure a return to compliance. Finally, once a state's non-compliance has been established, it is a sensible policy to suspect this state of further non-compliance.

Technological evolution further complicates the compliance issue. Nuclear power has always been recognized as a "dual-use" technology. The main purpose of the IAEA is to encourage the production of energy for peaceful purposes while discouraging nuclear weapons proliferation. The new factor affecting safeguards and export control regimes is modern technological development and the increasing number of dual use materials and equipment.

Although end use might well be specified on paper, the verification of actual and eventual use is most difficult to ascertain by any acceptable degree of confidence.

Furthermore, new political factors have appeared. The role of non-state actors is a difficult challenge to counter, not only because they are not bound by international law, but also because it is increasingly more difficult to place responsibility. In addition, the extent to which the States Parties are willing to cede additional sovereignty to international verification organizations is further a fundamental dimension of this problem. Finally, with a crisis in the lack of political leadership, when non-compliance appears to be obvious, comes a reluctance to make decisions.

2. Six lessons to be drawn from the recent past

The first lesson is to react quickly. Better to react early on to minor non-compliant behavior than to have to deal with the issue later when it is a full-blown challenge. Before North Korea was found in non-compliance with its safeguards agreement, it first failed to comply with its obligation to conclude this agreement within 18 months of its NPT accession in 1986. Additionally, Saddam Hussein hardly elicited any reactions in the early 80's, although he scarcely made any attempt to conceal his nuclear intentions at the time.

Another lesson that is vitally important is to make the best possible use of on-site inspections. Inspections are less risky than military actions. They are also more effective in restoring compliance. This point was made repeatedly last February when it was pointed out that UNSCOM and the IAEA teams destroyed far more prohibited equipment in Iraq than all the military strikes that took place during the Gulf War. Iraq being a special case, the general point to be made

here concerns the implementation of the IAEA Additional Protocol, whose purpose is to make full-use of on-site inspections.

Thirdly, it is important to combine specific responses with multilateral assessments and support. Tailor-made solutions are, in some aspect, necessary for the sake of effectiveness, but different treatment of specific instances should be handled carefully. In attempting to restore compliance, substantial discrepancies from case to case undermines the treaty process because it is perceived as a challenge to the equitable treatment of member states. This is even more the case when the solution is the result of an initiative by one country.

A fourth lesson to be understood is that the threat to use force might be necessary for a diplomatic solution to succeed. Enforcing non-proliferation is a process where two opposing wills confront each other. Without the use of some pressure, other than diplomatic, the most difficult cases will remain deadlocked. Therefore, the readiness to take such initiatives is often a sensible recipe for success. States Parties who decide to undertake clandestine WMD programs are secretive by nature. They are also recalcitrant and unpredictable. Negotiations and incentives are regarded by such states as a proof of weakness.

Also, there is no doubt that time is on the proliferator's side. Experience has shown that restoring compliance is a long and costly process. Neither Iraq, after seven years, nor the DPRK, after five years, is in full compliance with its treaty obligations. To keep governments involved and coalitions alive, after such a long period of time, is one of the most difficult challenges facing non-proliferation agreements. Impatient societies bent on quick results face patient proliferators.

Finally, it is crucially important that non-compliance not be tolerated by any party to a given treaty. Laxity encourages unilateralism and creates division among members at the expense of

the non-proliferation norms of behavior.   These norms must be strengthened not weakened.

3. Major political questions

Who determines non-compliance?   Who restores compliance? The purpose of the IAEA safeguards is to verify that nuclear material "is not diverted to nuclear weapons or to other explosive devices." This statement is easier said than to actually implement into effective regulations.   Assessments of nuclear material amounts must be detected and the time frame over which those diversions were conducted also needs to be evaluated.   While violation and non-compliance can be demonstrated by the IAEA, it has no power to compel states to comply with its inspection requests.   The DPRK, in the 1993 crisis, fully illustrated this point.

In short, the IAEA Secretariat established non-compliance with the Safeguards Agreement (Article 19 of INFCIRC 153), and it reported these violations to the Board of Governors.   The next step was for the Board to notify non-compliance to the Security Council (Article XII C of the IAEA Statute) which then took up what appropriate measures should be leveled against the DPRK.   Unfortunately, the Security Council did not reach agreement on restoring compliance.   As a result, the process gave way to bilateral consultations and negotiations, which resulted in a bilateral "agreed framework", thus freezing the issue rather than solving it.   In addition, the agreement suggests that the DPRK would remain in non-compliance for some years to come, since it could only be in total compliance when the KEDO project is actually shipped to Pyongyang.

Although the reasons for such a situation to exist are well understood, this case cannot be put forward as a model of restored compliance.   Multilateral   treaties   should   follow   multilateral

mechanisms, otherwise, implementation becomes a subject of division and differences in judgments among states, or of secondary concern for most members (assuming that the US will take charge), and, therefore, is totally unsatisfactory. As a result, it may become necessary to create a new multilateral mechanism for the NPT so that the State Parties can deal with non-compliance issues.

The current assessment of Iraq's compliance with Security Council Resolution 687 raises an important issue. In its October 1997 progress report to the Security Council, the IAEA recorded that "it had formed a technically coherent picture of Iraq's clandestine nuclear program" and (stated) "that there were no indications of significant discrepancies between that picture and the information contained in Iraq's Full, Final and Complete Declaration of 7 September 1996, as supplemented by the written revisions provided by Iraq since that time." Some questions still remain concerning Iraq's enrichment capabilities and its weaponization program. However, the Action Team indicated that it did expect further improvements under current inspection procedures. Therefore, it leaves to the Security Council, and to the States concerned, to decide the level of uncertainty they are willing to accept.

Furthermore, there is the fundamental question of how the international community handles threats of withdrawal from treaties. Most treaties wisely provide that notification of withdrawal should be completed with some advance notice in order to provide time for adequate reaction. In the case of the NPT, the notification must be supported by invoking extraordinary events jeopardizing the supreme interests of the State concerned. This formulation was obviously adopted to prevent unduly easy withdrawal. In particular, it was important at that time to avoid a situation where the disclosure of activities inconsistent with the commitments made, under the treaty, would simply permit a cheater to exit the treaty. If the NPT is to remain a valid instrument, it can not be violated. Otherwise, it loses

much of its relevance for the prevention of proliferation. Such was the case of North Korea when the DPRK threatened to withdraw. The three depository states questioned whether the DPRK's stated reasons for withdrawing from the treaty constitute extraordinary events relating to the subject matter of the treaty. This statement was challenged by North Korea as well as Japan. Nonetheless, every State is the best judge of its own national interests. However, when a State patently has no respect of its freely made commitments, this then becomes an international issue. It is, therefore, essential that wider support for verification exist in the international community and with the Permanent Five [(P-5), China, France, Russia, United Kingdom and the United States)].

In the event of blatant violations, the issue must be brought to the attention of the highest international body, namely the Security Council. The P-5, therefore, have a decisive responsibility in this process. In the two major causes of non-compliance, North Korea and Iraq, the P-5's position was, and still is, essential for the non-proliferation regime and its implementation.

Furthermore, there is the question of how much do governments genuinely want to know about non-compliance issues? An interesting example is provided by Iraq. As discussed earlier, Saddam Hussein hardly concealed his intentions from the beginning of the 1980s. This did not prevent Western nations from continuing the sale of arms to Iraq. Another interesting example that the international community now faces is China's export of ballistic missile technology. It seems temptingly convenient not to denounce this policy, even if it constitutes a serious destabilization threat in regions that are already unstable. This is precisely the same point that the Indian government made (when it detonated three nuclear weapons) of China's policy toward Pakistan on this particular issue.

Finally, what does the international community do when, within a regional context, the climate is not conducive to political support for

restoring compliance of an agreement? Again, Iraq comes to mind in the crisis of February 1998. It was evident that the Arab countries had grown impatient with the embargo imposed on Iraq. Although the peace process was in shambles, it did not lend itself to support of the US's position in the use of force. Fortunately, the Security General of the United Nations found a way out of this impasse. One wonders, however, what will be the outcome of the next crisis when it arises.

In the end, there is no doubt that the political dimensions of restoring compliance by State Parties to an agreement are clearly crucially important. Nonetheless, the process is delicate and is fraught with obstacles and, at times, disappointments.