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The Converging Roles of Arms Control Verification, Confidence-Building Measures, and Peace Operations: Opportunities for Harmonization and Synergies

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Arms Control Verification Studies

The background graphic on the front cover represents the ongoing dialogue on arms control and disarmament issues in Canada and between Canadians and the world community.

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prepared for

The Non-Proliferation, Arms Control and Disarmament Division

Department of Foreign Affairs and International Trade

Ottawa, Canada

Arms Control Verification Studies No. 6

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List of Abbreviations

ABM	Antiballistic Missile		ISMA	International Satellite Monitoring Agency
ASEAN	Association of Southeast Asian Nations		ISMS	International Seismic Monitoring System
AWACS	Airborne Early Warning and Control System		ITM	International Technical Means
BTWC	Biological and Toxin Weapons Convention		JVE	Joint Verification Experiment
CBM	Confidence-Building Measure		MBFR	Mutual and Balanced Force Reduction
CD	Conference on Disarmament		MFO	Multinational Force and Observers (Sinai Peninsula)
CDE	Conference on Disarmament in Europe		MTCR	Missile Technology Control Regime
CFE	Conventional Forces in Europe		MTM	Multilateral Technical Means
CoCom	Co-ordinating Committee for Multilateral Export Controls		NACC	North Atlantic Co-operation Council
CSBM	Confidence- and Security-Building Measure		NATO	North Atlantic Treaty Organization
CSCE	Conference on Security and Co-operation in Europe		NIM	National Intelligence Means
CTBT	Comprehensive Test Ban Treaty		NMOG	Neutral Military Observer Group (Organization of African Unity)
CWC	Chemical Weapons Convention		NNWS	Non Nuclear Weapons States
DMZ	Demilitarized Zone		NPT	(Nuclear) Non-Proliferation Treaty
ECMM	European Community Monitoring Mission		NTM	National Technical Means
ECOWAS	Economic Community of West African States		OAS	Organization of American States
ENMOD	Convention on the Prohibition of Military and Other Hostile Use of Environmental Modification Techniques		OAU	Organization of African Unity
			ONUMOZ	UN Operation in Mozambique
FSU	Former Soviet Union		OPANAL	Organization for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco)
HUMINT	Human Intelligence			
IAEA	International Atomic Energy Agency		OPCW	Organization for the Prohibition of Chemical Weapons (Chemical Weapons Convention)
ICBM	Intercontinental Ballistic Missile		SAARC	South Asian Association for Regional Co-operation
INF	Intermediate Nuclear Forces			

SALT	Strategic Arms Limitation Talks
SAM	Surface-to-Air Missile
SFM	Sinai Field Mission
SIPRI	Stockholm International Peace Research Institute
START	Strategic Arms Reduction Talks
TLE	Treaty-Limited Equipment
TLI	Treaty-Limited Item
UN	United Nations
UNAVEM	UN Angola Verification Mission
UNDOF	UN Disengagement Observer Force (Golan Heights)
UNEF	UN Emergency Force
UNFICYP	UN Force in Cyprus
UNIFIL	UN Interim Force in Lebanon
UNITAF	Unified Task Force (Somalia)
UNMOGIP	UN Military Observer Group in India and Pakistan
UNOSOM	UN Operation in Somalia
UNPROFOR	UN Protection Force
UNSCOM	United Nations Special Commission
UNTSO	UN Truce Supervision Organization (Middle East)
WEU	Western European Union

Abstract

This report explores the interrelationships among three processes: arms control verification, confidence-building and peacekeeping. It argues that in the current dangerous and unstable world, these three processes are undergoing changed demands, which brings each into closer relationship with the others. Underlying this report is the premise that the synergistic relationships among these three processes can further contribute to international security, through both improved effectiveness and better use of limited resources. The study also emphasizes that the roles of the United Nations and other international bodies could be expanded and harmonized to contribute to greater transparency and security.

Résumé

Le présent rapport explore les relations entre trois processus, à savoir la vérification du contrôle des armements, l'adoption de mesures d'accroissement de la confiance et le maintien de la paix. Il laisse entendre que, dans le monde dangereux et instable où nous vivons actuellement, ces processus se transforment parce ce que les demandes changent, chacun devenant plus étroitement lié aux deux autres. Le rapport suppose en outre que les relations synergiques entre les trois processus peuvent contribuer davantage à la sécurité internationale, en permettant une utilisation plus efficace et plus judicieuse des ressources restreintes. Il souligne également que l'élargissement et l'harmonisation des rôles des Nations Unies et des autres instances internationales favoriseraient la transparence et la sécurité.

Acknowledgements

Disclaimer

The opinions expressed in this paper represent the personal views of the four authors, and should not be attributed to government agencies of Canada or the United States, to the United Nations or to Science Applications International Corporation.

The authors have worked at separate locations and, although the study team has read and discussed all of the sections, the contents of each section are the responsibility of the author or authors, as indicated.

Preface

A significantly changed international environment has emerged with the end of the Cold War as well as the events in the aftermath of the Gulf War. This new environment has important consequences for thinking about the controlling of armaments and about verification. Among these changes are the following:

1) a heightened concern about the proliferation of weapons of mass destruction and weapons technology, as well as excessive and destabilizing build-ups of conventional weapons;

2) a growing recognition that the resolution of regional and local conflicts, including intrastate hostilities, will be critical to progress in achieving wider international peace and security in the future; and

3) an emerging consensus that the role of multilateral processes and institutions for peace and security, particularly the United Nations, must and can be enhanced.

As represented by two seminal reports by the United Nations Secretary-General—*An Agenda for Peace* and *New Dimensions of Arms Regulation and Disarmament in the Post-Cold War Era*[1]—the process of controlling arms and its concomitant verification dimension, are increasingly seen in the broader context of their contribution to international peace and security.

Greater international attention is now focusing on compliance monitoring activities in a variety of contexts that go beyond the traditional focus on verifying formal "arms control" treaties. These contexts include the proliferation of weapons of mass destruction and their delivery systems, destabilizing accumulations of conventional weapons; reciprocated unilateral measures of disarmament; enforced disarmament or arms limitation under Security Council resolutions; and efforts to regulate military forces as part of specific conflict management activities such as peacekeeping, peacemaking

and peace enforcement. Within these contexts—which collectively might be termed the "control of arms"—there is a shared focus on:

1) measures to regulate armaments or military forces in some manner;

2) a requirement for increased transparency regarding these forces; and

3) a requirement that compliance with such measures be monitored, to enhance confidence and to detect violations should they occur.

While writers in the past have examined the changing roles of arms control verification, confidence-building and peacekeeping in the post-Cold War period, they have viewed the three as independent processes, or at the most have looked at the linkage between arms control verification and confidence-building. It is clear that all three processes have a basic underlying objective—increased transparency—and that in the current dangerous and unstable world, they are undergoing changed demands that bring them in closer relationship to each other.

This report results from the third in a series of forward-looking studies involving a combined team of American and Canadian scholars[2] and represents an important example of co-operative research. It is being made available to researchers and specialists in the field in fulfilment of one of the objectives of Canada's Verification Research Program, which is to contribute to improved understanding of questions relating to verification in all its aspects.

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[1] *An Agenda for Peace*, UN document no. A/47/277, June 17, 1992; and *New Dimensions of Arms Regulation and Disarmament in the Post-Cold War Era*, UN document no. A/C.1/47/7, October 23, 1992.

[2] See Sidney Graybeal, George Lindsey, James Macintosh and Patricia McFate, *Verifiication to the Year 2000*, Arms Control Verification Study No.4 (Ottawa: External Affairs and International Trade Canada, 1991); and Patricia McFate, Sidney Graybeal, George Lindsey and D. Marc Kilgour, *Constraining Proliferation: The Contribution of Verification Synergies*, Arms Control Verification Study No. 5 (Ottawa: External Affairs and International Trade Canada, 1993)

I   Purpose and Scope of the Study

Patricia Bliss McFate

The long winter of the Cold War has been followed by the spring of our discontent. The threat of 45 years has been replaced by a variety of threats. Affirmations of the triumph of freedom—the fall of the Berlin Wall, the dissolution of the Warsaw Pact, the break-up of the former Soviet Union (FSU)—have no metamorphic equivalents in the new disorderly world of the mid-1990s.

Positive actions can be counted, of course: progress, however occasionally stalled, toward constitutional government and economic reform in the republics of the FSU; a cautious, but hopeful Middle East peace process; modest confidence-building measures in place at points on · the India-Pakistan border; the rolling back of nuclear weapons programs in South Africa, Argentina and Brazil. But these positive steps can be countered by the nightmare of North Korea's nuclear ambitions; the reality of millions of land mines maiming and killing civilians throughout the world; a growing threat of proliferation of weapons of mass destruction, their advanced delivery systems, and advanced conventional weapons; and a growing set of interstate and intrastate conflicts in which violence seems to be the first rather than the last resort.

Without question, the international security environment has changed since the late 1980s. Two wars, the Cold War and the War in the Gulf, have ended. East-West conflict no longer dominates the stage, and new players, such as China, are on the scene. The focus in arms control has shifted to multilateralism, for example, negotiation of the Chemical Weapons Convention. Next on the agenda will be additional multiparty agreements and actions that contend with global and regional proliferation and address long-standing regional instabilities, which are only exacerbated by the acquisition of weapons and delivery systems. In this postwar world, the processes of arms control verification, confidence-building measures and peace operations will play major roles.

The nature and scope of arms control verification, confidence-building measures and peace operations have been examined before; however, these analyses have viewed the processes independently, or at most have looked at the linkage between arms control verification and confidence-building measures. In fact, the three share a basic underlying mission, a means of accomplishing this mission and a common operating principle: to enhance stability by collecting, processing and disseminating information in a cost-effective manner. They promote increased transparency regarding security-related matters. All three processes must adapt to a significantly changed international environment.

Since the early 1970s, arms control verification has been in an evolutionary process, proceeding from theory to practice, from unilateral space surveillance to co-operative monitoring, from Cold Warrior jousting to multiparty agreements. Along the way, on occasion the pendulum swung too far: insistence on on-site inspections at a time when the Soviet Union remained resolutely closed led to stalled negotiations; on-site inspections taken to their ultimate intrusiveness produced unexpected costs such as potential loss of sensitive information and budgetary excesses. Recently negotiated co-operative monitoring opportunities, such as the overhead surveillance called for in the Open Skies Treaty, will, in the long term, reduce the costs while serving the goal of openness and more effective verification.

Taken to the ultimate limits of its definition, confidence-building has been around since the beginning of history. The formal beginning of the diplomatic process known as Confidence-Building Measures (CBMs) dates from the Helsinki Accord of 1975. While tracing CBMs from Helsinki to Vienna is useful, it narrows the geographical boundaries to Europe. What past experiences in the Sinai Disengagement Agreements demonstrate and future agreements

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may prove is that CBMs can travel to regional hot spots. Indeed, they may be able to get there faster than arms control verification, because they may be perceived as less rigid and less formulaic.

Less understood, more heatedly debated in recent days is the area of peace operations, an umbrella term used in the title of this study to encompass preventive diplomacy, peacemaking, peacekeeping, peace enforcement and peace-building. The debate is not centred around semantics—although precise definitions of these categories are not universally agreed upon—but rather is focused on the providers of the service, primarily the United Nations. Whereas old-style UN peace operations were often limited to monitoring ceasefires, more recent missions include supervising elections, feeding war victims under fire, and keeping the peace in countries where peace has not existed for years. There should be no surprise that sometimes something goes wrong in the pursuit of these complex operations. There should also be no surprise that the UN is overextended in terms of requests for peace operations and undersupplied in terms of modern communications and logistical support systems. The authors of this study have taken a future-oriented, optimistic point of view: they believe that the United Nations will be an effective body however it changes in terms of structure and mission.

Chapters IV, V and VI of this study examine three processes: arms control verification, confidence-building measures and peace operations. Chapter VII examines several of the major institutions and regimes responsible for these processes. Chapters VIII and IX then look at opportunities for harmonization of the institutional roles and synergies associated with the processes.

The study as a whole argues that in the current dangerous and unstable world, the processes of arms control verification, confidence-building measures and peace operations are undergoing changed demands that bring them in closer relationship to each other.

Underlying this paper is the premise that the synergistic relationships among these three processes can further contribute to international security, through both improved effectiveness and better use of limited resources. The study also emphasizes that the roles of the United Nations and other international bodies could be expanded and harmonized to contribute to greater transparency and security.

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II   Key Findings
Patricia Bliss McFate

Control of Arms

- The control of arms through multilateral formal and informal treaties, agreements, measures and activities that involve the processes of arms control verification, confidence-building measures and peace operations in a variety of formats and localities will remain a fundamental approach to international security.

- In the period between 1994 and 2004, multilateral agreements will dominate, with regional and local (bilateral) agreements increasing in importance.

- Limiting, reducing and eliminating arms will continue to be major multinational challenges which will require verification of compliance. Thus, verification will remain an essential requirement of all agreements that seek to preserve global and regional security.

Constraining Proliferation

- Constraining proliferation will continue to be a significant international and regional security goal.

- Because the Non-Proliferation Treaty (NPT) is the single most important agreement that constrains proliferation on a multilateral basis, extension of the Treaty, which will be decided at its 1995 review conference, will be of the greatest importance.

- The achievement of two potential multilateral arms control agreements—the Comprehensive Test Ban Treaty (CTBT) and the cut-off in the production of fissile materials for weapons purposes—could make a significant, positive impact on the outcome of the 1995 NPT review. Implementation of the START I and START II agreements will also have a positive impact on the outcome of the NPT review.

- There are clear synergistic relationships among the NPT, the CTBT and the cut-off: each agreement reinforces the others.

- Regional agreements—whether they are arms control, non-proliferation, confidence-building, demilitarization or other peace-oriented agreements—will take on increased importance because they can contribute to stability in several hot spots of the world, such as the Middle East, South Asia and the Korean Peninsula.

- Advances in science and technology hold promise for better conditions in the developing world, yet they also lead to development of technologically superior weapons of mass destruction and their delivery systems, advanced conventional weapons and other lethal arms such as improved land mines.

The Processes of Arms Control Verification, Confidence-Building Measures and Peace Operations

- In the international security arena, arms control verification, confidence-building measures and peace operations will play major roles individually and collectively.

- The three processes can enhance stability and security by collecting, processing, analysing and disseminating useful information in a cost-effective manner.

- The three promote increased *transparency* regarding international security-related matters among states parties whether willing or unwilling, for example, the coercive arms control verification being carried out in Iraq.

- Each process involves efforts to verify compliance, resolve ambiguous activities or events, and deter or possibly detect non-compliance, whether the operational context is a formal arms control agreement, a regional non-proliferation agreement, an approach to confidence-building, or one of the many efforts involving UN personnel for the purposes of prevention, containment or resolution of an interstate or intrastate conflict.

- The linkages among these processes are becoming increasingly recognized, and

they can, if properly utilized, enhance the benefits from each process individually, and all three processes collectively.

- The synergistic relationships among these three processes can further contribute to international security, through both improved effectiveness and better use of limited resources.

Arms Control Verification

- An arms control verification regime consists of the totality of measures, procedures and methods for acquiring the information necessary to assure compliance, deter non-compliance and/or resolve ambiguous events on the part of the parties to an arms control agreement.

- *Effective* verification will continue to be the standard by which verification regimes will be judged. However, determining what constitutes effective verification in the new, unstable multilateral and regional environment will be very difficult and controversial.

- The criterion for determining effective verification will continue to be *military significance*. However, what constitutes military significance in a multilateral or regional context is quite different from that in the old bilateral world. Each party to a multilateral or regional agreement will have its own view of what constitutes military significance and thus effective verification.

- When assessing the effectiveness of a verification regime, the synergistic effects between elements of the negotiated regime and outside elements should be taken into account. Particularly important outside elements are the utilization of CBMs and information resulting from peace operations.

- Designing a verification regime requires a number of steps. The nature and scope of the information required to assure effective verification should be determined first. Next, there should be an assessment of whether the needed information is and will continue to

be available in a reliable and usable manner from existing sources. Lastly, the *provisions* of the verification regime should be formulated to assure the availability of accurate, timely data necessary for determining compliance. The transparency and information resulting from CBMs and data available from national intelligence means (NIM) should be fully explored in the second step.

- In formulating and negotiating future verification regimes, consideration should be given to including specific provisions or possible actions to be taken in the event of non-compliance. Including such provisions could further deter cheating, provide a basis for action by other parties, and partially answer the to-date-unanswered question, "after non-compliance, what?"

Confidence-Building Measures

- Confidence-building measures are primarily directed toward the establishment of confidence in the benign *intentions*, rather than the military capabilities of states. In many cases, it will be more difficult to obtain convincing evidence of non-compliance with CBMs than with treaties to limit arms.

- Future CBMs should offer the potential for making a significant contribution to effective verification.

- Unless and until there is an agreed formal and effective verification regime for the Biological and Toxin Weapons Convention (BTWC), confidence-building measures provide the best means of enhancing confidence in compliance of all the parties.

- Although the Open Skies concept is considered to be a confidence-building rather than a verification measure, it can contribute significantly to the monitoring of regional non-proliferation and demilitarization agreements and peace operations.

- Measures to reduce motivation for an arms race in space may take the form of CBMs rather than formal treaties.

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- Data resulting from CBMs should result in less intrusive and less expensive verification regimes while maintaining the required level of confidence in compliance. Such data can be utilized to identify and help resolve ambiguous situations without compromising sensitive sources and methods associated with some NIM.

Peace Operations

- The term "peace operations" is becoming, at least in UN circles, an accepted shorthand notion for the complex, interwoven and multidisciplinary actions undertaken by the international community in the search for peace and security. These actions include preventive diplomacy, peacemaking, peace-keeping, peace enforcement and post-conflict peace-building.

- Preventive diplomacy is in many ways another term for confidence-building, and its methods, such as fact-finding, can be described as confidence-building measures, even if the fact-finding is done by a third party.

- Peacekeeping, though not envisaged in the UN Charter, has been one of the most successful innovative techniques of conflict control and resolution arrived at by the Security Council to execute its mandate, including its role in arms control, disarmament and non-proliferation. The scope of peacekeeping operations has expanded, with more and more mandates clearly including provisions for arms control and disarmament.

- UN peace operations not only benefit from lessons learned in the development of arms control verification and confidence-building measures, but lessons learned during peace operations should in turn benefit the other two processes. As Table 1 demonstrates, linkages among the three processes can be found in certain UN peace operations.

- The development of techniques to dispose of arms and to detect and remove millions of deployed land mines is another example of cross-fertilization between some technologies associated with arms control verification and post-conflict peace-building.

The United Nations

- The United Nations will continue to be an important body, charged with peace and security responsibilities, however it changes or expands in terms of structure, mission and authority, and whether or not all members contribute their fair share of resources.

- There is considerable room for improvement in the quantity, quality and timeliness of the information that should be made available to UN decision makers.

- Individual states must be constantly encouraged to provide appropriate UN bodies with pertinent information that comes to their attention by whatever means, including national technical means (NTM), providing their own analysis where appropriate.

- The development of UN Risk Reduction Centres and processes could facilitate exchanges of military information and officers, inspections of military facilities, and the observation of military exercises. These measures, presently in use in Europe, should be exported to other regions of the globe.

- UN offices in the field should be further developed to facilitate transparency measures. At the present time, UN "Resident Representatives" and their staff are assisting with activities normally outside their area of responsibility.

- The development of UN "embassies" in certain unstable regions of the world would permit the acquisition of fresh information concerning global or regional problems; the "embassies" would be invaluable in assisting the deployment of a peacekeeping, humanitarian or disaster relief mission.

- The UN should play a leading role in the creation or modification of regional and / or interstate and intrastate arrangements that

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Table 1

Peacekeeping/Peace Enforcement Missions: Peace Operations/Verification/CBM Linkages

Mission	Preventive Diplomacy	Peacemaking	Peacekeeping	Peace Enforcement	Post-Conflict Peace-Building	Verification	Confidence-Building Measure
UNTSO			X				
UNMOGIP			X*				
UNFICYP			X*				X
UNDOF			X			X	X
UNIFIL			X				
MFO	X		X			X	X*
UNIKOM			X				
UNAVEM II			X		X	X*	
ONUSAL	X		X		X	X	
MINURSO			X		X	X	
UNPROFOR	X*		X	(X)		X	
UNTAC	(X)		X		X*	X	
ONUMOZ			X		X	X	
UNOSOM II				X*	X		
UNOMUR/UNAMIR			X		X	X	
UNOMIG			X				
UNOMIL			X		X		
UNMIH			X		X		

Notes: * *See description in text.*
    (X) *Subjective characterization*

require monitoring and/or enforcement by a third party.

• Practical, real arms control and disarmament measures should continue to be an important part of UN conflict resolution. Monitoring and verification will be indispensable elements of such conflict resolution.

• The work of the UN Special Commission and the International Atomic Energy Agency (IAEA) in operation in Iraq is a practical example of what can be accomplished by multinational verification teams. The investigation, inspection, destruction and monitoring techniques developed and used constitute good precedents for use in other regimes and situations. The UN should profit from this experience by applying, when needed, these and similar techniques to other unstable regions or countries.

Improving the Roles of Existing International Bodies/Developing New International Bodies

• The number of treaties, agreements, organizations, bodies and regimes attempting to deal with the problems of international security will continue to grow, as will the number of nations participating in many international groups. The clear potential for useful synergy where there are elements of commonality between or among the roles and interests should be exploited.

• There are opportunities for harmonization within the organizations, bodies and regimes associated with agreements and when these organizations, bodies and regimes are grouped, for example, into functional areas (such as nuclear weapons), geographical areas or methodologies. Such harmonization may increase efficiency and reduce costs.

• The effectiveness of regime-based organizations will continue to be dependent on information, some of which is readily available,

some of which is subject to commercial secrecy, and some of which can only be obtained by the operation of intelligence services.

• Handling non-compliance will continue to pose serious problems for the agencies responsible for verification and for other international bodies; these bodies are unlikely to be provided the authority to mete out judgments, punishments or sanctions.

• The pooling and combination of information should be made more efficient by harmonizing the recording, dissemination, storage and retrieval of the various sets of data into a minimum number of homogeneous data banks using standardized formats and a common system for communication and processing.

• New demands will continue to be placed on the IAEA. To be effective, its resources must be correspondingly increased.

The Role of the United Nations in the Harmonization of Implementing Bodies

• With its membership throughout the world, the United Nations is the only multinational organization with a global mandate. As such, it is in a unique position to integrate the global, regional and local dimensions of the processes and methods associated with the control of arms; each geographical dimension can build on the others.

• As the institution that most closely embodies the concept of global rule of law, the United Nations should take a more active role in encouraging and capitalizing on the synergies associated with arms control verification, confidence-building measures and peace operations.

• There should be more sharing of verification technologies and capabilities to further strengthen UN peace operations.

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- With increased logistical support, over time, the United Nations could evolve into an "umbrella" body providing timely early warning of potential crises and conflicts, and providing the information needed for verification of compliance with multilateral treaties.

- The United Nations could perform a valuable service by establishing a capability for acquiring, integrating and analysing information from a variety of sources to assist in verifying compliance with multilateral and regional agreements.

- The UN should hasten the implementation of an advanced management information system to handle the volume of data that could become available via the various collection means and via registers of arms transfers or military budgets.

- For purposes of effective verification of arms control agreements and confidence-building measures, the UN should consider establishing some multinational centres, such as a Centre for Monitoring Space Activities, a Centre for Monitoring Activities at Sea, and a Centre or Centres for Development of Co-operative Monitoring Equipment, Methodologies and Training.

- The ultimate degree of harmonization and synergy would be attained by establishing under the United Nations an overall body charged with preventive diplomacy, implementing global and regional arms control agreements, handling non-compliance, and constraining proliferation. However, although these missions are gradually converging toward a common goal of co-operative security, they are sufficiently different, their state of development is so far incomplete, and acceptance by nation states of such a degree of sharing responsibility for security is not sufficient for such an overall and universal integration to be practical at the present time. Therefore, establishing this harmonization and synergy would have to be done in steps.

Synergies between the Processes of Arms Control Verification, Confidence-Building Measures and Peace Operations

- As Table 2 indicates, the methods developed for the three processes have different names, but their functions, when viewed generically, are very similar.

- Co-ordinating and combining these generic functions provides opportunities for numerous synergies, as shown in Table 3.

- As demonstrated in the verification of the Sinai Agreements, a multi-method verification system with mutually reinforcing, interlocking responsibilities strengthens the viability of the disengagement process, and the synergies produced by the integration of individual monitoring components contribute to the creation of an effective verification system.

- There are high value synergies associated with the combination of international technical means (ITM)/multilateral technical means (MTM) and data exchanges, notifications, on-site inspections, confidence-building measures, and activities associated with peace operations.

- Whatever the process, co-operative monitoring—the multi-method, multiparty collection and analysis of information—has an important role to play in the *global* non-proliferation arena, for example, in monitoring the Chemical Weapons Convention (CWC), a cut-off in the production of fissile materials for weapons purposes, and a comprehensive test ban.

- Complete resolution of the underlying sources of regional instabilities will be long in coming. More hopeful are intermediate steps: the adoption of confidence-building measures, the negotiation of regional or local arms control agreements, and/or the acceptance of peace operations under the auspices of the United Nations.

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- The Open Skies concept has potential application to peace operations and regional stabilizing activities because of the synergies inherent in combining monitoring from aircraft with ground- and space-based monitoring.

- Another area for co-operative monitoring, broadly defined, concerns future efforts to increase the transparency of military pos-tures, budgets, doctrines, and global arms sales, transfers and procurement through national production.

- Global economic and budgetary constraints will make synergies among arms control verification, confidence-building measures and peace operations and greater harmonization among implementing bodies a necessity.

Table 2
Similarities in Functions

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Arms Control Verification	Confidence-Building Measures	Current and Potential UN Peace Operations
National Technical Means, Multilateral Technical Means	Space & Airborne Sensors	International Technical Means
National Technical Means	Information Measures	Early Warning & Fact-Finding Information
Data Exchange	Information Measures	Arms Register, Military Expenditure Reports, etc.
Notifications	Notification Measures	Activity Reports
On-Site Inspections	Invitational Inspections & Observations of Movement	IAEA activities, special observers, fact-finding missions, UNSCOM
Aerial Inspections	Open Skies	Aerial surveillance during peace operations, including UNSCOM
Implementing Bodies, Nuclear Risk Reduction Centres, etc.	Crisis Prevention Centres, Communication Measures & Implementing Mechanisms	UN War Risk Reduction Centre, Field Offices ("embassies"), UNSCOM-type activities, peacekeeping and peace enforcement missions

Table 3

Synergies among Methods Associated with Arms Control Verification, Confidence-Building Measures and Peace Operations

	Technical Means	Intelligence, Information, Fact-Finding Means	Data Exchanges & Registers	Notifications & Declarations	Inspections & Observations	Aerial Surveillance	Implementing Bodies
Technical Means	—	H	M	L	H	M	H
Intelligence, Information, Fact-Finding Means	H	—	H	L	H	M	H
Data Exchanges & Registers	H	H	—	L	H	M	H
Notifications & Declarations	H	M	L	—	H	H	H
Inspections & Observations	H	H	H	M	—	H	H
Aerial Surveillance	M	H	L	M	H	—	H
Implementing Bodies	M	M	M	M	H	M	—

Helps or Impacts Items Listed Vertically

Helps or Impacts Items Listed Horizontally

H = High Value Synergies
M = Medium Value Synergies
L = Low Value Synergies

III Introduction and Assumptions

Patricia Bliss McFate

The 1990s are a period rich in contradictions—change seems to be the only constant. The new unstable "multipolar" world contains different challenges than the dangerous old bipolar world, but the greatest challenge may be unpredictability. As James Woolsey, Director of the U.S. Central Intelligence Agency, has noted, we have slain the large dragon, but we find ourselves in a jungle full of a bewildering variety of poisonous snakes.

With the loss of "protectors," strong central control and long-standing alliances, countries in Eastern Europe and the Third World are moving in two opposing directions at the same time: toward the institution of democratic reforms and into violent conflicts. Regional conflicts abound in which international action is needed, but the conditions of intervention are complex and evolving because the framework of military co-operation, the North Atlantic Treaty Organization (NATO) and Warsaw Pact alliances, has been replaced by issue-dependent, loosely formed coalitions. A sustained period of open trade and markets has led to global economic growth, but increasing economic competition, particularly among allies, and economic recession in some parts of the world complicate international politics. The spread of science and technology holds promise for better conditions in the developing world, yet it also leads to development of technologically superior weapons of mass destruction, their delivery systems, and advanced conventional weapons.

What follows are *assumptions*, not predictions, concerning a period of great uncertainty. The assumptions, which speak to the period between 1994 and 2004, set the context in which this study on the converging roles of arms control verification, confidence-building measures and peace operations will be discussed. The assumptions are not necessarily a "wish list"; rather, they take into consideration certain geopolitical constraints and realities. They do not pretend to predict the unpredictable, for example, tectonic shifts such as the disintegration of the Soviet Union or the recent Israeli-Palestine Liberation Organization accord. Indeed, this study assumes that international events, however uncertain, will unfold without such global upheavals.

The World in 1994-2004: The Realm of International Politics

- While every major power will have the capacity to strike targets from hemispherical to global ranges, major wars will not be likely, and international co-operation will be on the rise. There will be basic unity among advanced industrial/technological nations and many less-developed countries on the rules of international behaviour and the sanctions for violations of these norms.

- Multilateralism will be dominant. There will be less reliance on unilateral or major-power solutions to international problems and greater reliance on the offices of the United Nations. UN resolutions will form the bases of collective security, but the UN will not be able to intervene militarily in unstable regions of the world without the support or acquiescence of the major powers.

- After reviews of its roles and organizational elements, the United Nations will be a more effective, possibly changed, body with expanded authority. The organization will be strengthened, both economically and diplomatically, by the confidence displayed by the major powers in utilizing its capabilities. From time to time, however, there may be serious questions on the part of some countries about the effectiveness of the UN in its peacekeeping role.

- The majority of the republics of the FSU will successfully negotiate the transition from communism to constitutional government, "democracy"—however fragile the concept—and economic reform.

- However, during this period, the dominant trend in the FSU, the other countries of Eastern Europe and certain areas of the Third World will be one of instability, with regional conflicts and ethnic, religious and social violence. New countries will proliferate through the potentially explosive form of fragmentation or disintegration of old borders. North and South Korea could unify (if they get beyond their immediate conflict over North Korea's nuclear capability), creating a new

geopolitical power that may destabilize Northeast Asia. China will grow more powerful and more assertive, but its leadership succession problems will cause domestic and regional strife. Democratic states may face military challenges from a resurgent Iraq, an aggressive Iran, or even a combined effort by both countries. Armed conflict between India and Pakistan may develop; this will be a matter of serious international concern, because during this period both countries will be able to assemble a small number of nuclear weapons. The Balkan area could remain markedly unstable.

- There will continue to be real concerns about smaller nations buying more-and-more-capable weapons and the increasing frequency of regional or local clashes that threaten to spill over into larger conflicts involving some major powers. While the enduring regional crisis in the Middle East may be mediated, it will not be totally resolved. Regional conflicts in South and Northeast Asia are unlikely to be resolved in the next 10 years. Conflicts associated with the rise of Islamic fundamentalism will certainly not be resolved. With the rise of nationalistic interests will also come incidents of ethnic, religious and social conflict throughout the world. In future conflicts sparked by cultural factors, there will be less willingness among national or international factions to accept the results of negotiations and more reliance on arms and military forces.

- The primary focus in the field of regional and international security will be on conflict resolution through preventive diplomacy, peacemaking, peacekeeping and post-conflict peace-building. Peace enforcement will be a last-ditch effort.

- The movement of refugees will strain beyond capacity international health, educational and social welfare organizations. Measures to restrict immigration will be a source of friction both inside and between countries.

- There will be increased respect for the institutions of democracy in the developing world, and a greater emphasis will be placed on the need for technical and economic aid. Western countries will not be able to meet the overwhelming needs for developmental assistance, causing frustration in the Third World and former Eastern bloc.

- The concept of national sovereignty will evolve. Developments, particularly conflicts, traditionally viewed as being exclusively within the jurisdiction of a nation state, will come under increasing international scrutiny and possible intervention.

Economic Factors

- Global economic power will remain in the northern hemisphere, but rising economic tides will submerge North-South issues. The traditional focus on the Atlantic will give way to a focus on Pacific Rim or Eurasian economic and trade issues. With a few exceptions, notably Europe, economic activity and wealth will be concentrated in Pacific Rim countries.

- When not stifled by protectionist policies, open trade and open markets will stimulate economic growth; however, economic competition will divide traditional allies. There will be more incidents of protectionism and economic warfare, and there will be alliances based on economic issues. Economic summits will become as important to international security as superpower summits once were.

- Unemployment will be a problem, both nationally and internationally; social dislocation and political change will result from economic stagnation.

- The defence budgets of most major countries will continue to decline throughout the 1990s. Cost consciousness and affordability will be major emphases in defence expenditures. Efforts at defence conversion on the part of the United States and the FSU will probably fall short of their objectives.

- Economic sanctions and rewards ("sticks and carrots") will become more important as tools of policy. However, in order to be

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effective, sanctions will have to be observed by all state parties; this could pose additional monitoring or verification issues.

The Social-Cultural Dimension

- The world will continue to take on the characteristics of a "global village." There will be an increasingly free flow of information and skilled people across national barriers, resulting in the further rise of transnational businesses and international communications, entertainment and education.

- World events will impact populations directly through the expanding electronic media. The military importance of C^{4}I will grow. These developments will have important effects on transparency.

- Environmental consciousness will continue to rise, complicating domestic and international political agendas and generating demands for control of harmful practices and compensation for cross-border, ocean and space pollution. Verification of environmental agreements among countries will become an increasingly important concern.

- Human rights abuses will continue to cause strains with and among some security partners.

- Terrorist threats by unstable governments and radical groups will increase and have serious international ramifications.

- Drug problems may be slowed, but they will not be eliminated. Enhanced intelligence and surveillance technologies will result in improved interdiction capabilities, and demand will be reduced with more effective cross-national educational, prevention and rehabilitation campaigns. However, new-style criminal organizations will exploit advances in technologies in their efforts to keep the drug trade in operation.

- Population growth will continue to provide challenges, particularly in the poorer countries, resulting in increased migration and conflict over scarce resources and state boundaries.

Scientific-Technological Factors

- Technology will drive decision-making much faster than ever before. The constant influx of information and images will alert people to ongoing crises, and the public will demand timely responses.

- The technological sophistication of the Third World will increase. Regional military capabilities will become more advanced and destructive; at the same time, regional economic powers will become more competitive with the advanced industrial states in selected industries. The most advanced states will lose their power to deny sophisticated equipment to those able to pay for it. Domestic economic and social issues, for example, food production and distribution, power generation, mass transit, and environmental pollution will be increasingly resolved by scientific and technological advances, although these may introduce new social and environmental problems.

- Military institutions will increasingly make use of dual-use technologies and processes. Proliferation of dual-use technologies and processes will become an even more important, but difficult security policy problem.

- Technology, expertise and materials for weapons of mass destruction will be increasingly available.

- Increased sophistication of monitoring sensors, increased data-processing requirements and capabilities, and advances in computerized data interpretation will affect international transparency.

Proliferation of Weapons of Mass Destruction, Advanced Delivery Systems, and Destabilizing Accumulations of Conventional Weapons

- Proliferation will continue to be an international and regional security concern. A growing number of countries will seek advanced weapons, including nuclear, chemical and biological ones, as well as the missiles and aircraft to deliver them. The military potential and sophistication of the

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nations of the world will grow, and this will have destructive consequences.

- Arms sales will be increasingly important economically to former Eastern bloc countries selling advanced and ordinary conventional arms for hard currency as well as to Western countries facing problems of unemployment and trade deficits. Tracking suppliers, middlemen and end users will be difficult. Distinguishing between legitimate and illicit purposes for technologies will be daunting.

- Several countries will acquire or develop ballistic missiles that will have sufficient range to threaten Europe, Japan, other Western allies and Western forces; these missiles may be adapted to carry nuclear, biological or chemical warheads.

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- Over the next 10 years, several Third World countries will either acquire or develop the technical knowledge and infrastructure necessary to undertake indigenous development of intercontinental ballistic missiles (ICBMs) and space launch vehicles capable of delivering weapons to North America.

- Some countries will pursue weapons of mass destruction and delivery systems despite being signatories to arms control agreements and regimes prohibiting their development or acquisition. These countries will also become even more clever in devising networks or front companies and suppliers to circumvent export controls.

- The growing stocks of fissile material being generated by nuclear power reactors in many countries and the stocks of fissile material being removed from dismantled nuclear weapons will create serious concerns.

- In 1993, some black-market transactions in Western Europe included small amounts of radioactive material from the FSU, but in the next 10 years, no *significant* quantities of weapons-grade nuclear material, no *operable* nuclear weapons, and little nuclear weapons technology will be transferred from the former Soviet bloc. On the other hand, economic and nationalist pressures will cause some

Russian and Ukrainian leaders to question the wisdom of adhering to the Missile Technology Control Regime (MTCR), and Russia will continue to sell submarines, surface-to-air missiles, advanced aircraft, and air-to-surface and air-to-air missiles to the Third World.

- China will continue to seek missile technology from the FSU in its efforts to develop more advanced missile systems for indigenous use and for sale to the Third World.

- In 1993, Iran and Iraq had the basic technology to develop nuclear weapons, and Libya, Iran and Iraq already had stockpiled chemical weapons. Iran will continue its military build-up, including not only weapons of mass destruction but also advanced fighter aircraft, long-range fighter bombers, submarines and missiles. Despite being a signatory to the Non-Proliferation Treaty, it will continue to pursue the development of nuclear weapons. Iraq will continue to hide evidence of the extent of its remaining weapons of mass destruction and missiles capabilities. Its biological weapons capability will be the greatest immediate concern, but its ability to rebuild its nuclear weapons capability, its retention of the equipment for its chemical weapons program, and its still-extant missile production capabilities will be matters of deep concern. It will continue to play a "waiting game"—waiting for the United Nations to grow weary or to be unable to continue the expense of monitoring activities throughout its territory.

- Until its possible unification with South Korea, North Korea will continue to develop weapons of mass destruction, including nuclear weapons, and longer-range ballistic missiles. It will also continue to be a key supplier of ballistic missiles to states that have been cut off from traditional suppliers in the West by stricter export controls and improved enforcement.

- Worldwide proliferation of advanced conventional weapons will continue to be a serious concern; this proliferation will have a pronounced impact on the military outcome

of future regional conflicts. Ballistic missiles and advanced aircraft will continue to be the delivery systems of choice in proliferating countries, but several states, including Iran, Syria and Libya, will continue to improve their relatively advanced anti-ship cruise missiles. The demand for advanced cruise missiles with enhanced stealth capability will sharply increase. Many countries will also market advanced precision-guided munitions and surface-to-air missiles.

Regional Instabilities, Local Conflicts, Intrastate Hostilities

- Third World military capabilities will grow. Some regional powers will develop the capability to threaten North America directly. The capabilities of regional allies will grow in importance.

- Theatre missile defence systems will be deployed or available for rapid deployment, providing some deterrence to certain renegade states in acquiring or using ballistic missiles.

- The United States will have to take the lead in any major military conflict requiring coalition operations. The United Nations will take the lead, supported by the United States, Canada and other major powers, in those instances where the conflict is manageable through peace operations.

- Multilateral coalition forces using advanced conventional weapons will play a central role in preventing local conflicts from becoming regional or global and will limit the expansion of regional powers as problems arise.

- Coalition operations will in many cases be the mode of operation, for both political and economic reasons; this reality will produce compatibility problems with language, equipment, logistics and communications.

- The absence of a major global threat will reduce the perceived need for traditional alliances and security regimes. NATO's future will remain uncertain, causing greater tension among traditional allies. The United

States will have a declining global leadership role as European and Asian powers take regional security increasingly into their own hands.

- Military personnel, most particularly U.S. military, will have to be trained for a wide variety of missions, including peacekeeping, peace enforcement, peace-building, counter-terrorism, counter-proliferation, sanction enforcement and humanitarian efforts.

Arms Control Verification, Confidence-Building Measures and Peace Operations

- Arms control in a variety of forms— multilateral, bilateral, reciprocal, unilateral, global, regional, local—will remain a fundamental approach to international security. Multilateral agreements will dominate, with regional and local bilateral agreements increasing in importance. ("Bilateral" arms control, as used here, does not refer to agreements between the United States and Russia, but rather to agreements between neighbouring countries, for example, Argentina and Brazil.)

- Less focus will be placed on lengthy, formal arms control treaties such as the CWC, and more focus will be placed on supplier regimes and CBMs. Membership in the supplier regimes will be under review and, in many cases, expanded and formalized. Implementation of arms control agreements already ratified will have high priority during this period.

- Because some countries will be prepared to cheat on their obligations associated with non-proliferation treaties and regimes, *effective* verification will continue to be the standard by which verification regimes will be judged. However, determining what constitutes effective verification in this new environment will be very difficult and controversial.

- Verification regimes involving emerging weapons states will require adversarial or coercive verification. Verification based on on-site inspections of *declared* facilities will do

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little to deter the use of covert facilities and activities for the development of weapons. Challenge inspections will not routinely be able to detect violations, but their existence will be a deterrent to cheating and may trigger a synergistic effect when combined with other collection methods.

- Verification regimes among developed, democratic nations will continue to be based on the assumption that there will be an increasing degree of co-operation.

- Economic and budgetary constraints will make verification synergies and greater inter-operability among verification regimes even more necessary.

- There will be an increased sharing of information from NTM and NIM among coalition partners and allies. More data from NTM will be declassified and available on a global basis. NIM, which includes HUMINT (collection by human sources) and the analysis of open-source information such as the media or commercial satellite photography, will be of great importance. Commercial sensors will be used for many monitoring functions, including monitoring unstable regions. There will be additional calls for the development of MTM and / or ITM.

- Increased transparency will not be without its costs. The extensive on-site inspections associated with the CWC and other agreements will raise concerns about loss of sensitive or proprietary information. Furthermore, challenge inspections will offer lessons to cheaters on how to avoid detection of non-compliant activities. The media may present the inspections as intrusions on sovereignty or individual rights, leading to public outcry.

- Arms control agreements that constrain proliferation will gain in importance. The NPT will be extended, the CWC will enter into force with minimum difficulty, and the BTWC will be strengthened by a verification regime consisting primarily of CBMs. In all

three cases, pariah states will either not sign or continue to cheat on these non-proliferation agreements.

- The CTBT will be negotiated and signed, but not yet ratified by all the key states. Pending ratification of a CTBT, a moratorium on testing may be observed. A ban on the production of fissile material for nuclear weapons will be negotiated during the latter half of this period of time.

- START I and II reductions will proceed, Russia and Ukraine will reach accommodation on key military issues, and Ukraine and Kazakhstan will accede to the NPT as non-nuclear weapons states. The *five* major nuclear weapons states will continue to be under international pressure to negotiate reductions in their nuclear arsenals.

- As CBMs increase in importance as measures for enhancing regional and local stability, differentiation will be made about their roles. In Europe, CBMs will be seen more as evidence of enhanced transparency than as a way to confirm compliance. In the less stable regions, for example, Asia and the Middle East, CBMs will be viewed as means to enhance security or to bring about and sustain peace.

- The pressures on the United Nations to respond in unstable regional situations will increase dramatically.

- The problems facing UN forces involved in peace operations will become more complex as the lines between the roles of preventive diplomacy, peacemaking, peacekeeping, peace enforcement, and peace-building become even more fluid.

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IV Verification Regimes for Present and Future Formal Multilateral and Regional Agreements, Reciprocal Measures and Unilateral Declarations

Sidney N. Graybeal

Introduction

In the context of arms control, a verification regime consists of the totality of measures, procedures and methods for acquiring information necessary to assure compliance by the parties with all the provisions of an agreement. Many assume that this totality is encompassed in the formal, negotiated verification provisions found in the text of an arms control agreement; however, these provisions are only a part, not the whole of a comprehensive verification regime. Rounding out and contributing to the verification package are several additional methods and processes.

The parties to a formal arms control agreement will supplement the information derived from implementing the negotiated provisions of a verification regime with data from their NIM, including NTM where available, and from any available CBMs. Because reciprocal measures and unilateral declarations or actions do not contain formal verification provisions, each party and outside interested observer nations will rely upon their NIM, including NTM, and data from available CBMs to ensure that an agreed-upon action is carried out in a timely, thorough and open manner.

When assessing the adequacy or effectiveness of a verification regime, the synergistic effects between elements of the negotiated regime and outside elements should be taken into account. A particularly important outside element is the utilization of CBMs. There is no formal relationship between provisions in a verification regime and CBMs; nevertheless, because CBMs can make an important contribution to enhancing confidence in the effectiveness of the formal verification regime, their informal, but significant relationship with verification techniques should be understood and taken into account. CBMs will be discussed more fully in the next chapter. The remainder of this chapter will be devoted to examples of verification regimes for arms control agreements, reciprocal measures and unilateral declarations.

Negotiators of verification regimes for future, formal *multilateral agreements* may draw upon the experiences associated with implementation of the recently completed CWC. The CWC contains one of the most comprehensive and complex regimes designed to date. Of the 280-page START I agreement, over 200 pages are directly or indirectly related to verification; its extensive, intrusive, "adversarial" verification regime reflects the fact that it was negotiated as a bilateral agreement during the Cold War. In contrast, the CWC seeks to have global membership. While it is not the product of the Cold War, its verification regime also is adversarial in nature. Implementation of the START agreement will be difficult, but implementation of the CWC poses the most complex problem ever faced by an arms control agreement. The extent of its success or failure will directly affect the nature and scope of verification regimes for future multilateral agreements, such as a CTBT, a regime for the BTWC, and possible environmental agreements.

Because the CWC bans all chemical weapons worldwide and imposes wide-ranging inspections to verify this ban, four major issues had to be resolved. Since these types of issues could affect future multilateral agreements, they should be briefly analysed:

1) the serious definitional problems associated with what constitutes "chemical weapons";

2) the efficient operation of the implementing bureaucracy;

3) the achievement of effective verification; and

4) the co-operation and support of the international chemical industry in implementing the verification regime.

For any arms control agreement to be effective, it is essential that all parties clearly understand what is prohibited and what is permitted. In the case of the CWC, chemical weapons are carefully defined, and there are three lists or "schedules" of controlled chemicals which

are subject to differing levels of verification. Determining which chemicals belonged on which schedule required agreement among qualified chemical engineers from participating parties; even so, the chemical precursors listed by the Australia Group fall in several different schedules in the CWC, and some are not included at all.

Article VIII of the CWC established the Organization for the Prohibition of Chemical Weapons (OPCW) to administer the treaty. The OPCW, in turn, comprises three segments. The Conference of the States Parties is the principal organ of the OPCW; it can take decisions on any questions raised by any of the parties. The Executive Council is the executive organ responsible for overseeing implementation and operation of the convention; it also is directed to consider compliance concerns and "cases of non-compliance." The Technical Secretariat is responsible for carrying out all the details of implementing and verifying the convention; it is responsible for negotiating arrangements for how inspections in each state will be conducted. Bringing OPCW and all of its subsidiary units into efficient operation by January 1995 is no small task. This was recognized and an OPCW Preparatory Commission has been meeting regularly to accomplish this purpose. When fully operational, OPCW could have a headquarters staff of about 800 people working in The Hague. Balancing the points of view represented by the countries from which these people come, reaching agreement on allocation of budgetary resources, and facing the responsibilities associated with dealing with ambiguous situations and clear cases of non-compliance will require diplomacy and patience exceeding that required to achieve the convention itself.

Normally, the criterion of determining effective verification is military significance. However, what constitutes military significance in a multilateral or regional context is quite different from that in the old bilateral world. Each party to a multilateral agreement will have its own view of what constitutes military significance and effective verification. It is partly

for this reason that the CWC verification regime is so detailed and comprehensive. Because of the relative ease with which a state can develop, produce and stockpile chemical weapons, and the difficulty of detecting such an activity, on-site inspections play an especially important role in the CWC verification regime. Of particular note are the "challenge inspections" which authorize any party to request an on-site challenge inspection of any facility or location if it suspects possible cheating. However, because of the necessity to protect sensitive installations and information, the inspected state can use "managed access" techniques to protect sensitive information. While challenge inspections appear to permit access to any facility or activity, the "managed access" technique can prohibit complete access; thus, there may remain a question of full compliance. That being the case, some may question whether challenge inspections are worth the "cost"—in all senses of the term.

The CWC establishes a verification regime that imposes unprecedented demands on private industry. Thousands of industrial companies around the world will be affected. Many of these companies have legitimate concerns over the loss of proprietary information on which their business is based, responsibilities for accidents during inspections, and responsibilities for stand-down costs. There will need to be continuing dialogues between the governments and the chemical industries of state parties in order to resolve or minimize the impact of these inspections. The U.S. Chemical Manufacturers Association has stressed its commitment to the goal of ridding the world of chemical weapons, while seeking to ensure the CWC is implemented in the most efficient manner.

Aspects of the four issues discussed concerning the CWC should be taken into account in formulating future multilateral regimes. Clear definitions will be a necessity in the negotiation of a CTBT, for example, the definition of a nuclear explosion; avoidance of the definition will create future problems. Discussions of a

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verification regime for the BTWC within the Group of Experts has already raised issues associated with whether it is possible to achieve effective verification. An agreed-upon definition of military significance when applied to biological weapons will be no easier to achieve than it is for chemical weapons. Pharmaceutical industry representatives will undoubtedly have concerns over the potential loss of their proprietary information similar to those of the chemical manufacturers. Bureaucratic structures for global regimes will be cumbersome and costly; in a period of defence budget cuts, questions will be raised about whether they are worth the expense. While these and other issues should be considered in formulating and negotiating future multilateral verification regimes, the problems associated with implementing these regimes will overshadow the highly visible negotiations, and they will affect the future of the whole arms control process either positively or negatively.

In addition to the formal verification regime associated with the CWC and information available from NIM, future CBMs could offer the potential for making a significant contribution to effective verification. For example, implementation of a global Open Skies agreement would provide both transparency and useful data on chemical weapons manufacturing facilities. There could also be established a pooled data system in which members of an international association of chemical manufacturers could exchange information and experiences associated with implementation of the CWC. While this should enhance verification, such exchanges could result in potential cheaters acquiring information which would facilitate their ability to violate the agreement.

Regional agreements, like multilateral agreements, are likely to take on increased importance because they can contribute to stability in several hot spots of the world, such as the Middle East, South Asia and the Korean Peninsula. Although the Rush Bagot Agreement of 1817 was one of the first modern regional agreements, a more useful example is the Latin American

Nuclear Free Zone Treaty signed in 1967. This treaty, commonly known as the Treaty of Tlatelolco, obligates Latin American countries not to acquire or possess nuclear weapons, nor to permit the storage or deployment of nuclear weapons on their territories by other countries. It appears that all Latin American countries, including Cuba, will ratify this agreement.

The Treaty of Tlatelolco establishes an organization to help ensure compliance with treaty provisions, the Organization for the Prohibition of Nuclear Weapons in Latin America (OPANAL), with a General Conference, a Council and a Secretariat as its permanent organs. A "control system" is used to verify treaty provisions. The system requires that each party negotiate an agreement with the IAEA for the application of IAEA safeguards to the party's nuclear activities. The control system also requires a series of reports and provides for special inspections; both measures are designed to assist in verifying compliance with the treaty.

In order to assure compliance with the treaty, each party will supplement these formal procedures with its NIM. CBMs can also contribute to regional arms control agreements. For example, under an agreement signed in December 1991, Brazil and Argentina have also put all their nuclear sites under the full international safeguards of the IAEA; this bilateral accord creates a joint agency for sharing information, the Brazilian-Argentine Agency for the Accountability and Control of Nuclear Materials. The CBMs originally included in the Contadora Treaty also encourage openness in the region.

The Tlatelolco Treaty and the CBMs cited above could serve as examples for other regional agreements. In more troubled areas of the globe, however, parties to an agreement establishing a nuclear-free zone might need the assurance associated with a strengthened IAEA inspection regime, including the implementation of authorized challenge inspections.

Reciprocal actions are also gaining in importance in contributing to stability and providing a foundation for formal arms control agreements.

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In 1988, the Joint Verification Experiment (JVE) was conducted by the United States and the Soviet Union to evaluate different monitoring techniques for underground nuclear tests in connection with the verification protocols for the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty. In this experiment, the Soviet Union monitored a nuclear blast in Nevada, and the United States monitored a blast in Semipalatinsk. The JVE included testing of on-site and remote seismic and tele-seismic monitoring techniques and the exchange of geological data for purposes of improving the calibration of seismic monitoring instruments. There were also visits to view ballistic missile re-entry vehicles during the START negotiations. The JVE and the visits to re-entry vehicles unquestionably contributed to the ratification of the verification protocols by both parties.

A more recent example of reciprocal actions involves the Russian-U.S. discussions on accelerated deactivation of nuclear weapons covered under the START provisions and the detargeting of nuclear missiles. While deactivation of ICBM launchers can be readily verified, the deactivation of nuclear weapons per se and the detargeting of nuclear ballistic missiles pose serious, if not insurmountable, verification challenges. It is unlikely that on-site inspections would be acceptable on security grounds and there do not appear to be any CBMs that would contribute to confidence that such actions were being carried out.

One of the most significant recent reciprocal actions has been the moratorium on nuclear testing. Four of the five acknowledged nuclear powers are abiding by the moratorium even after the nuclear test conducted by the fifth power, China. While the moratorium can presage a comprehensive test ban, the moratorium is not legally binding, and determining compliance with this reciprocal action has not posed a verification problem. However, a CTBT will be a legally binding agreement, and designing a regime that would ensure effective verification will pose serious challenges. Although NTM, including seismic detection, and NIM

will deter nuclear testing, these means alone will not provide the required confidence in a comprehensive test ban; some form of on-site inspections will be necessary to resolve ambiguous events. CBMs such as a global Open Skies and exchanges of geological and seismic data would enhance confidence in moratoriums on nuclear testing as well as contribute to monitoring formal testing bans.

Closely related to reciprocal actions are some recent statements on the part of the United States and Russia that have involved both *conditional proposals* and *unilateral actions*. Examples of these types of actions on the part of the United States include the removal of all tactical nuclear weapons from surface ships and multipurpose submarines; the taking off alert of 450 Minuteman II ICBMs; the taking off alert of all heavy bombers; and the deactivation of 19 nuclear missile submarines. These examples can be compared to strikingly similar unilateral actions on the part of Russia: removal of all tactical nuclear weapons from surface ships and multipurpose submarines; the taking off alert of 503 ICBMs; the taking off alert of heavy bombers; and the deactivation of 10 nuclear missile submarines. Verification for these actions, which come out of statements made by the leaders of the two countries rather than negotiated agreements, will be accomplished by NTM, NIM and reciprocal *invited visits*— not on-site inspections.

Summary

Designing a verification regime—whether it is intended to be a part of a negotiated arms control agreement or rather is intended to confirm reciprocal or unilateral actions—requires a number of steps. The nature and scope of the information required to assure adequate or effective verification should be determined first. Next, there should be an assessment of whether the needed information is and will continue to be available in a reliable and usable manner from existing sources. Lastly, the provisions of the verification regime should be formulated to assure the availability of accurate, timely data

necessary for determining compliance. The transparency and information resulting from CBMs and data available from NIM should be fully explored in the second step. Data resulting from CBMs could result in less intrusive and less expensive verification regimes while maintaining the required level of confidence in compliance. Such data can be utilized to challenge ambiguous situations without compromising sensitive sources and methods associated with some NIM.

In future multilateral and regional arms control agreements, an important part of the task of assuring compliance will involve designing and implementing a negotiated verification regime in a manner that will confirm compliance, resolve ambiguous situations, deter possible violations and detect non-compliance in sufficient time to take appropriate action. Although many current verification regimes are focused on assuring full compliance, it may become desirable in future regimes to include specific provisions on possible actions to be taken in the event of non-compliance; including such provisions could further deter cheating, provide a basis for action by other parties, and partially answer the to-date-unanswered question, "after non-compliance, what?"

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V   The Contribution of Confidence-Building Measures

George Lindsey

Confidence-Building

Throughout the ages, and especially during the recent Cold War, nations have wanted to be able to assess the prospects that their security would be endangered by the military power of other states. After collecting whatever intelligence they could, it was usual to evaluate the potential dangers by estimating the military *capabilities* of likely enemies, and also to appraise their *intentions* regarding the aggressive employment of these capabilities. For the short term, it was especially necessary to estimate present capabilities, which are unlikely to change very quickly. But intentions can change quickly, and attention had to be paid to the possibility of a surprise attack. For the longer term, forecasts were needed of what both capabilities and intentions would likely be in future years.

Arms control has been directed toward limitation of military capabilities. The parties to an agreement to limit armaments and not proliferate them will wish to be assured that the other parties comply with their undertakings, and for this purpose they will demand provisions for *verification*. To an increasing extent in recent years, arms control has been introduced through negotiated treaties, containing detailed provisions for verification.

Verification deals with military capabilities. It may not be possible to verify intentions, although a verified adherence to the conditions of an arms control treaty, especially if these involve substantial reductions in capabilities, provides an indication of the absence of aggressive intentions. Conversely, if verification reveals a build-up or repositioning of forces in a manner consistent with preparations for an attack, suspicion of aggressive intention will be heightened. Thus, while verification is aimed at the assessment of capabilities, it can make a contribution to the assessment of intentions.

Confidence-building measures are primarily directed toward the establishment of confidence in the benign *intentions*, rather than the military capabilities of states. The agreements tend to be politically rather than legally binding on the participating states. There may or may not be an element of verification of the steps agreed, but usually it will be more difficult to obtain convincing evidence of non-compliance with CBMs than with the undertakings agreed in a treaty to limit the numbers of arms.

As will be discussed in more detail in connection with confidence-building in Europe, another difference between arms control and confidence-building measures is that the former tends to concentrate on military structures, including weapons, while the latter is more often directed toward activities. Both are directed toward aspects of *threat perception*.

Two key factors that determine the potential usefulness of CBMs as stabilizing elements in an unstable area are the timing of their introduction and their applicability to the particular circumstances. When hostilities are proceeding or relationships are otherwise combative rather than co-operative, it will be peace operations that are required. There will be little opportunity for confidence-building until the parties are willing to offer some measure of co-operation. Given co-operation, the CBMs must address the security concerns considered to be the most vital by the participants.

In the case of India and Pakistan, active hostilities broke out in 1947, 1965 and 1971. UN observer missions were sent to the border areas in 1949 and 1965.[1] Sporadic violence short of war continued in Kashmir through 1990. But since then India and Pakistan have undertaken some confidence-building measures regarding the avoidance of attacks on nuclear installations, prevention of airspace violations, and notifications of military exercises and troop movements in border areas.

When relations are friendly and co-operative, in other words when confidence is probably justified, CBMs can indeed help in building it up. The measures may include voluntary

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[1]   UNMOGIP has been in Kashmir since 1949. Deployed in 1965, UNIPOM was withdrawn in 1966.

demonstrations of compliance. In conditions of adversarial relationships, it may still be possible to verify arms inventories, or to detect evidence of non-compliance, but it will not be easy, and will in fact be undesirable to build confidence where none is justified.

One theme common to verification and confidence-building is the enhancement of transparency, allowing trust to be established regarding the absence of threats. This demand is in direct opposition to the traditional desire for secrecy inherent in adversarial relationships, in which threats are probably very real and must be recognized. And, apart from the need to protect military secrets from potential enemies, most nations retain a jealous attitude toward preservation of their sovereignty, which generates resistance to foreign (or even agreed multinational) intrusion.

The interrelationship between verification and confidence-building is too close to treat them in isolation, and in the following paragraphs there are inevitable overlaps with the discussion of verification in the preceding chapter and elsewhere in this report.

Arms control in general, including its measures for verification, contributes to the general building of confidence regarding the peaceful intentions of various states, and verification strengthens the effectiveness of confidence-building. Nevertheless, within the realm of security matters, measures associated with the verification of agreements to limit, reduce or eliminate specific weapons systems usually can be distinguished from CBMs, whose primary purpose is to build confidence rather than to ensure the implementation of a particular agreement. However, verification can also be applied to confidence-building measures. The focus of this chapter is on the confidence-building *measures* associated with security, rather than with the general efforts to establish and strengthen confidence in the benign intentions of states.

Types of Confidence-Building Measures

Dozens of different proposals for confidence-building measures have been discussed, and many have been adopted. Most can be placed in one of three categories: information, constraint or declaratory.[2]

Information CBMs include the publication or exchange of data on the composition and equipment of forces, on defence budgets, and on defence industry, the holding of seminars on strategy and doctrine, consultations, demonstrations of equipment, exchange postings of military personnel, and establishment of standing consultative commissions and jointly manned centres for risk reduction or crisis management. An example is the Conflict Prevention Centre set up by the Conference on Security and Co-operation in Europe (CSCE) in Vienna, which is intended to serve as a clearing house for exchanges of military information, including explanation of unusual military activities, and a means to expedite co-operation in the handling of hazardous incidents.[3]

An important example of this type of information is the timely notification of activities such as army, air and naval exercises (including detailed information regarding the size and types of the units involved and the locations of the activity), tests of nuclear weapons, and mobilization exercises. Invitations to send observers, and granting of adequate facilities for those who come, are additional useful measures. Also; confidence can be built by the presence of observers at out-of-garrison activities apart from exercises, at facilities such as tank parks or airfields, or in border zones. A measure of verification of information is possible through provisions for inspection instituted by the Stockholm Document of 1986.

The efficient exchange of information is dependent on reliable communications. In addition to the normal and the diplomatic means, CBMs are supported by the creation and maintenance of reliable links between

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2   James Macintosh, *Confidence (and Security) Building Measures in the Arms Control Process: A Canadian Perspective*, Arms Control and Disarmament Division, Department of External Affairs (Ottawa, 1985), Chapter VI, pp. 68-84.

3   In 1991 the Centre attempted to forestall the upheavals in Yugoslavia, but the crisis management mechanism of the CSCE proved unable to do so, as did the political co-operation mechanisms of the European Community, Western European Union, the Council of Europe, or NATO. However, this should be charged as a failure of conflict management rather than of confidence-building. Nothing in the behaviour of the hostile factions in Yugoslavia gives grounds on which to build credible confidence.

capitals, such as dedicated "hot lines," as well as by the establishment and effective operation of jointly manned centres.

Constraint measures can include limits on the size, equipment, or area of manoeuvres, restrictions on threatening weapon tests, or restrictions on the deployment of "offensive" types of weaponry close to critical areas. Agreement not to interfere with means of gathering information, such as reception of telemetry, placing of unmanned sensors, or other uses of NTM, constitutes a constraint measure that contributes to confidence-building.

Unilateral *declaratory* measures which are not parts of a formal agreement may be "politically" although not legally binding. As is the case for negotiated measures, they are more likely to build confidence if they can be verified. A unilateral undertaking to remove or destroy some type of weapon can be accompanied by arrangements to have the removal or destruction observed. A pledge to cease production or testing of some large type of weapon may be verifiable. But a declaration of "no first use" of weapons still possessed and operable, or of a promise to abstain from some activity that is physically possible, cannot be verified, and may not do much to increase the confidence of a state suspicious of the intentions of the declarer state.

The CSCE and Confidence-Building Measures

The term "confidence-building measures" first came into common use as a result of the activities of the CSCE. Before the 1980s, quite a few discussions were held, but not many agreements reached, regarding matters that can be labelled as "confidence-building measures."[4]

In the long-drawn-out efforts to check the build-up of conventional armaments in Europe, and especially in an effort to reduce the possibility of successful surprise attack, two competing approaches emerged. The Mutual and Balanced Force Reduction (MBFR) talks, which were carried out in Vienna by delegates representing the countries of NATO and the Warsaw Pact, on a bipolar "Cold War" basis from 1973 to 1989, emphasized *the scaling down of military structures*. However, interest developed in *regulation of activities* as opposed to structures, concentrating on measures such as notifications and observation of military exercises. This approach was given the title of "Associated Measures," a supplement to the MBFR main goal of "Force Reductions." The reduction in structures represented control of capabilities, while the regulation of activities is related to intentions more than to capabilities.

The objectives of the MBFR talks to achieve and verify force reductions were eventually accomplished by the Treaty on Conventional Forces in Europe (CFE), negotiated between the NATO and Warsaw Pact countries and signed in 1990. While the most important provisions dealt with *reductions* and *verification*, quite a few of the undertakings dealt with notifications and information exchanges of a nature that could be described as *confidence-building measures*.

Thirty-five states[5] joined the CSCE in 1973, and agreed in Helsinki in 1975 to seek improvement in their political, economic, social, human, cultural and military relations. An undertaking was reached to notify one another of large manoeuvres of military land forces. This commitment was honoured in the following years, and in many cases observers were invited to attend the manoeuvres. However, there was no legal obligation to comply, and no notifications were given of naval or air exercises, nor of regular army movements such as troop rotations or alerts. These limited steps represented the birth of confidence-building measures.

In 1983, the CSCE established a "Conference on Confidence- and Security-Building Measures and Disarmament in Europe" (CCSBMDE, soon mercifully abbreviated to CDE). It began with

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4   Macintosh, *Confidence (and Security) Building Measures in the Arms Control Process*, Chapter II, pp. 16-26.

5   The founding membership of the CSCE was drawn from 33 European states plus the United States and Canada. Seventeen were aligned with NATO and Western Europe, seven with the Warsaw Pact, and 11 were neutral and non-aligned.

a conference in Stockholm, with a mandate to expand the existing set of CBMs in ways that were militarily significant, politically binding and adequately verifiable. A continuing series of negotiations and conferences has produced an increasing number of agreements[6] on confidence- and security-building measures in Europe.[7] These include the establishment of a Conflict Prevention Centre and a Forum for Security Co-operation.

Because of this history, the current approach to multilateral confidence-building measures has been shaped by the agreements on conventional armed forces made in Europe between 1986 and 1992. Except for the more recent additions, these were conceived and negotiated during the closing stages of East-West confrontation in the Cold War, beginning in an adversarial atmosphere, which gradually transformed into co-operation. A striking demonstration of this change is provided by the North Atlantic Co-operation Council (NACC), which joins NATO members with former (enemy) Warsaw Pact members, including successor states to the Soviet Union whose territory was included in the CFE Treaty. While the first business of the NACC was to adapt the provisions of the CFE Treaty to determine the obligations of the new members, they undertook to hold consultations on security and related issues such as defence planning, conceptual approaches to arms control, democratic concepts of civilian-military relations, civil-military co-ordination of air traffic management, and the conversion of defence production to civilian purposes. Consideration is being given to extension of this menu to include immigration, civil emergency planning, arms production and joint exercises. Many of these could be described as confidence-building measures that extend beyond the realms of security.

It may well be that these versions of confidence- and security-building, slowly forged in Europe as it emerged from the bipolar confrontation between the two powerful alliances of the Cold War, will have limited value in the changed circumstances of the mid-1990s, when facing adversarial situations of very different types, in troubled parts of the world far from Europe. Slow progress in attempts to establish security regimes in the Middle East, in Korea, in Asia and in Latin America suggests that general confidence-building may have to precede the application of specific confidence-building measures or the negotiation of agreements to limit or reduce armaments.

Confidence-Building Measures in Multilateral Arms Control Agreements

The growth of confidence-building measures in the last 10 years has been stimulated by the earlier gradual evolution of verification that took place during the Cold War. Even in the earlier adversarial climate, the need for arms control of strategic nuclear weapons became recognized. The associated requirement for verification was also appreciated, but as long as there was no inclination to offer some degree of co-operation it was necessary to depend on NTM and NIM. However, when the scope of arms control was extended to include intermediate nuclear forces and conventional weapons, verification posed problems that could only be solved by co-operation, including the acceptance of intrusive inspections. Once this degree of co-operation had been initiated, and its acceptability confirmed by amicable experience, it became possible to undertake more extensive forms of co-operative security measures, and CBMs took their place as one of the major approaches.

The multilateral Stockholm Accord of 1986 provided for on-site inspections as CBMs, which represented a significant breakthrough, although the number (three per annum in each country) and freedom of the inspectors to select communications and transport were constrained. But the bilateral treaty of 1987 on Intermediate

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6   The three major documents are commonly referred to as "Stockholm Document 1986," "Vienna Document 1990" and "Vienna Document 1992," and further steps were announced in Helsinki in 1992.

7   Because the CDE concentrated on security problems, while the parent CSCE included several other broader considerations as well as security, the CBMs agreed by the CDE were labelled "confidence- and security-building measures (CSBMs)." This paper is concerned with the security-building measures.

Nuclear Forces (INF), between the United States and the Soviet Union, contained extensive provisions for exchange of information and on-site inspections, and after this a similar acceptance of co-operative measures of a hitherto unacceptably intrusive nature was experienced in START.

Thus, the acceptability of intrusive on-site inspections was motivated primarily by the needs of verification rather than confidence-building, and by the bilateral needs for arms control of nuclear weapons. However, the multilateral CFE adopted intrusive on-site inspections for verification, as did the global CWC. The multilateral CSCE adopted them for confidence-building. It seems probable that intrusive activities such as on-site inspections will be key provisions of future confidence-building measures that may be agreed among other countries, whether multilateral or bilateral, regional or global.

While the BTWC of 1972 did not provide for any kind of verification infrastructure, subsequent arrangements have been made for confidence-building measures, including exchange of data on research centres and laboratories, declaration of vaccine production facilities, information regarding unusual outbreaks of infectious diseases, and other related information. States parties are encouraged to pass domestic legislation to criminalize the development, production, acquisition and stockpiling of biological and toxin weapons, and to undertake not to contribute to the proliferation of such weapons. Even more than for chemical weapons, a difficulty in verifying compliance and building confidence in regard to programs involving dangerous biological and toxin materials is caused by the very close similarity between the materials and technology needed for a wide variety of peaceful applications and those needed for the manufacture of weapons.

Even though a proposal made at the 1991 BTWC review conference for the establishment of an implementation or oversight committee for CBMs was not adopted, many of the efforts to monitor and to encourage compliance with the convention are taking the form of confidence-building measures. With the severe difficulties facing effective verification of the supply side of biological and toxin weapons proliferation, a major hope for restraint rests with the curtailment of demand through confidence-building. At the same time, the review conference established an Ad Hoc Group of Governmental Experts to identify and examine potential verification measures from a scientific and technical standpoint. That study was concluded in September 1993, and will likely lead to a Conference of States Parties to review the results and decide on any further actions.

The Open Skies Treaty, signed in 1992 by 25 NATO and former Warsaw Pact states, is primarily an agreement for confidence-building. All of the territory of the member countries is open for overflight, which includes the United States, Canada and eastern Russia, and is therefore much more extensive than the European territory open for inspection under the CFE Treaty, or for the application of the CBMs of the CSCE. Moreover, aerial inspection for verification of CFE awaits completion of the validation phase of the CFE Treaty. The aerial inspection for both CFE and CSCE is restricted to the area of the declared site being inspected.

Confidence-Building Measures in Bilateral Agreements

Most of the ground-breaking initiatives in arms control, verification, and the parts played by confidence-building measures, were made in the bilateral negotiations between the United States and the Soviet Union during the latter stages of the Cold War. While these will never be repeated, they hold lessons that could be of value when new approaches are being attempted, on either a bilateral or a multilateral basis, in the coming decade.

Even during the Cold War, when distrust between the United States and the Soviet Union was at its deepest level, their mutual desire to avoid a nuclear war led to proposals such as

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the American Open Skies initiative of 1955, discussions such as the Geneva Surprise Attack Conference of 1958, and a number of bilateral agreements primarily directed toward crisis management, but which contained large elements that could be considered as confidence-building. Examples include the series of agreements in 1963, 1971 and 1984 to establish "hot line" communications between heads of state in Washington and Moscow, to be used in the event of accidents or crises, the Accidents Measures Agreement of 1971, to facilitate rapid exchange of information in the event of a nuclear accident, the 1973 Agreement on the Prevention of Nuclear War, which promised consultation if circumstances arose in which there was a risk of nuclear war, the establishment in 1987 of Nuclear Risk Reduction Centres for the exchange of notifications and information, and the agreement on Notifications of Launches of Intercontinental Ballistic Missiles and Submarine-Launched Ballistic Missiles, signed in 1988. A similar bilateral measure, not related to nuclear weapons, was the agreement on the Prevention of Incidents on and over the High Seas. Signed in 1972, this accord sought to reduce aggressive behaviour during peacetime naval exercises.

The history of the bilateral negotiations on strategic arms control was very dependent on the capabilities of NTM to be able to verify the deployments of the weapons and to monitor tests. By the time that SALT I was signed in 1972, both sides were able to detect and count ICBM silos, strategic submarines, and heavy bomber aircraft using NTM employing sensors in orbiting satellites. They could also follow the flights and collect the telemetry during the tests of ballistic missiles. Consequently, when the SALT agreements checked the numerical increase in strategic nuclear delivery vehicles, adequate verification could be provided by NTM.

This mutual dependence on NTM brought about a first step towards co-operation in 1972, when the SALT I treaty included an agreement to abstain from deliberate concealment or other interference with NTM.

A radical change came with the INF Treaty of 1987 and START in 1991. By then many of the land-based missiles were mobile rather than being based in large and easily identifiable silos, and since the numbers were to be drastically reduced (in the case of INF, to zero) it would be necessary to verify the destruction of the surplus weapons and to demonstrate that replacements were not being manufactured. NTM would no longer suffice for verification, and it became necessary to introduce extensive data exchanges and intrusive on-site inspections. A high degree of co-operation was required, and many of the new measures could be categorized as the introduction of CBMs.

Apart from the bilateral CBMs arranged by the United States and the Soviet Union, there have been a few between pairs of countries with a long history of rivalries generating competitive arms build-ups. The case of India and Pakistan has been mentioned earlier, in which wars led to the establishment of UN observer missions in 1949 and 1965, but confidence-building measures were introduced in 1990.

Another example is offered by Brazil and Argentina. These two states, the largest in South America, have had a long history of rivalry in armaments. Both signed the Latin American Nuclear Weapon Free Zone Treaty in 1967, but did not proceed to full implementation. In 1991 they concluded a bilateral nuclear inspection agreement, undertook not to develop peaceful nuclear explosives, and strengthened domestic controls on the export of nuclear material and missiles. These developments provide a good illustration of the converging roles of non-proliferation and CBMs.

Another bilateral CBM agreement was negotiated in 1991 between Hungary and Romania, for mutual aerial reconnaissance, with no limitation on the quality of the photography, and independent of the Open Skies Treaty.

Possible Future Extensions of Confidence-Building Measures

Many of the numerical thresholds introduced into the CSBMs negotiated by the CSCE were chosen for the circumstances of Europe in the late stages of the Cold War. In coming years the sizes of military forces in Europe will be considerably lower, and problems arising in other parts of the world are likely to involve forces of different sizes and character than those of Europe in the 1980s. For example, alterations can be made to the sizes of military exercises for which notifications or invitations for observation are prescribed. Exemptions for short-notice "alert" exercises could be removed. More provisions could be introduced for the explanation of "unusual military activity."

Where there are areas that are the focus of some sort of crisis, or known to be of particular sensitivity for inter-ethnic conflict, a measure could be introduced to limit out-of-garrison activities, or the presence of offensive-type weapons.

Where there is suspicion regarding the development of some new type of weapon system, voluntary invitations can be extended for observers to visit demonstrations or attend tests.

More information could be included in exchanges of data regarding defence plans and budgets.

Unless and until some arrangements are made for verification of the BTWC, much will depend on its confidence-building measures. Experiences with the implementation of the CWC should be helpful in this regard. As (and if) confidence is built, and as methods of analysis and detection improve, there could be a gradual transition from confidence-building to verification.

While the Open Skies Treaty of 1992 has great potential for confidence-building, covers a very large area, and may be converted to verification

at a later date, it is a regional arrangement and does not exploit the full capability of aerial reconnaissance. But the potential of aerial surveillance as a generic means of obtaining accurate, detailed, up-to-date information about things and activities at a remote locality is very significant for confidence-building, verification, non-proliferation and the support of peace operations, especially if no restrictions are placed on the airborne sensors.

There is a great scope for further extension of confidence-building through aerial monitoring in regional arrangements among the less wealthy and industrialized states. The vehicles and the technology are far more accessible than surveillance from space, and the acts of observation are much less intrusive than on-site inspections on the ground.[8]

There are likely to be opportunities for confidence-building measures in the maritime dimension. Examples would be dissemination of information on naval exercises and naval weapon systems, invitations to attend naval manoeuvres, restrictions on entry into specified maritime "keep-out" zones, or transit through certain passages. Arrangements can be made for dealing with provocative or dangerous behaviour at sea.

If a treaty were agreed establishing arms control in space of a character much more restrictive than the Outer Space Treaty, it would require provisions for adequate verification. However, unless and until such a treaty is put into force—or if the Antiballistic Missile (ABM) Treaty were to be annulled—there will still be a legitimate desire by states to know if weapons are being put into space, or being designed to attack vehicles in space. Arrangements to demonstrate that vehicles about to be launched into space do not contain weapons, or that devices projecting energy into space are not able to damage satellites would constitute useful confidence-building measures. Specific measures could include notifications regarding

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8   See Michael Krepon and Amy Smithson (eds), *Open Skies, Arms Control and Cooperative Security* (New York: St. Martin's Press, 1992).

the characteristics of space vehicles, invitations to inspect space vehicles and ground control installations and attend launchings, and explanation of the behaviour of satellites whose activities raised concerns regarding their mission.

Thirty-seven states have joined in a registration convention initiated in 1975, according to which they are to report to the United Nations certain details of vehicles that they launch into space. In a study of the applications of confidence-building measures in outer space,[9] the United Nations noted suggestions that had been proposed by member countries for the creation of bodies to carry out functions likely to reduce the probability of having an arms race in space. These included an International Satellite Monitoring Agency and an International Space Monitoring Agency (both oriented toward verification and crisis monitoring as well as confidence-building); an International Trajectography Centre; a Satellite Image Processing Agency (for confidence-building rather than verification); and a World Space Organization (for the development of communications, navigation, rescue, remote sensing and weather forecasting). There was also a proposal for the building of a satellite (PAXSAT-A) designed to examine other satellites for evidence of the presence of weapons. And there was a proposal to establish an international code of conduct "to guarantee the security of space activities while preventing the use of space for aggressive purposes." Among other measures this could arrange procedures to prevent collisions between space vehicles.

In general, it is to be expected that if a country has no aggressive intentions toward a neighbouring state, and feels increasing confidence in the benign intentions of the neighbour toward itself, there will be motivation to demonstrate to the neighbour that it is facing no threat from that quarter, and little concern over exposure of military capabilities.

A very important action, which spans both arms control and confidence-building measures, is an un-negotiated unilateral declaration of the intention to eliminate certain armaments. As has been demonstrated in bilateral reductions between the United States and the Soviet Union, such a measure can generate a reciprocal act. There may be no verification of such reductions, but more likely the parties will take steps to demonstrate that they are in fact carrying out the reductions that they have announced. Such actions are excellent examples of confidence-building.

Confidence-building measures must be tailored to the circumstances of the relevant region and the security concerns of the parties involved. As confidence builds, the measures are likely to evolve, and may at some stage be converted into more formal undertakings.[10]

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9   *Prevention of an Arms Race in Outer Space. Study of the application of confidence-building measures in outer space,* Report by the Secretary-General (New York: UN General Assembly, document no. A/48/305, October 15, 1993).

10   One likely example of this evolution is with the confidence-building provisions of the BTWC being converted into verification of a modified treaty. Another is the use of Open Skies for verification of the CFE Treaty.

VI   Current and Potential Peace Processes

Douglas A. Fraser

Introduction

This chapter will review current processes and try to forecast potential processes that are or might be used in peace operations. The term "peace operations" may be new to some but it is becoming, at least in UN circles, accepted shorthand used to describe complex, interwoven and multidisciplinary actions undertaken by the international community in the search for international peace and security. For the most part the international community is the United Nations, and it is the Secretary-General of that body, Dr. Boutros Boutros-Ghali, who has articulated a new, broad-based approach to the search. He was responding to a request from the Security Council, meeting at the level of head of state/government on January 31, 1992, to prepare an analysis and recommendations on preventive diplomacy, peacemaking and peacekeeping. The result was his report, *An Agenda for Peace*.

In that report the Secretary-General added the concept of post-conflict peace-building and introduced the idea, in embryo form, of peace enforcement. Since it was issued there has been a great deal of debate on the report, within the UN and elsewhere, and many of the concepts and ideas have been refined. Nevertheless, the debate continues and there is as yet no consensus within the UN family on all aspects of the report. The two extremes of the debate come from the arguments that, on the one hand, there appears to be a growing gap of responsibility for the management of world affairs that must be filled, and, on the other, concern that a "world government" violates the idea of the sovereign state as guaranteed by the UN Charter. Therefore, one school argues for a more proactive, interventionist UN and the other for a UN that serves the interests of states as defined by the states concerned. Gradually a middle way is developing, and this refinement process will continue over time. Meanwhile, this chapter will use *An Agenda for Peace* as its starting point

and frame of reference for the peace operations processes discussed.

These processes then include preventive diplomacy, peacemaking, peacekeeping, peace enforcement and post-conflict peace-building.[1] In discussing these processes, it is inevitable that the emphasis be on UN operations, but an attempt will be made to capture other relevant experiences as well.

While this paper was being developed, the First (Disarmament and International Security) Committee of the UN General Assembly was being challenged to reform its agenda and working methods to better complement the initiatives begun by the Secretary-General in his report *An Agenda for Peace*. The Under Secretary General for Political Affairs, Marrack Goulding, advised the Committee that the Secretary-General had charged his staff to consider how confidence-building measures, verification and other techniques that have been developed and tested in the field of arms control and disarmament can be further developed and used as instruments for preventive diplomacy, the peaceful settlement of disputes and post-conflict peace-building.[2] This study will be a contribution to those considerations.

Process is defined as a "course of action"; thus this chapter will look at definable activities, current and potential, that seem to offer opportunities for synergy and harmonization. It takes into consideration the assumptions made in Chapter I and, again, takes its basic orientation from action in the United Nations. It recognizes that the UN will itself not always lead when it comes to peace operations, but assumes that the UN will "bless" in some way, usually through a Security Council resolution, the action taken by a region, a state or a coalition of states. In some circumstances, the UN will stand back in very much an oversight role; in other cases it will be a supporting player with the other entity playing the lead role.[3]

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[1]   See *An Agenda for Peace*, UN document no. A/47/277, June 17, 1992.

[2]   Statement delivered October 18, 1993, at opening of committee debate.

[3]   For example, the CSCE leading in Nagorny Karabakh, the UN in Georgia.

Preventive Diplomacy

Preventive diplomacy, as defined by the United Nations, is action taken to prevent disputes from arising between parties, to prevent existing disputes from escalating into conflicts, and to limit the spread of the latter when they occur.

It is hard to determine the success rate of the world community when it comes to preventive diplomacy, because the successes tend to be invisible; that is why they are successes—nothing happened! It is much easier to list the failures, the "what ifs," to use the advantage of hindsight to criticize.

In his report *An Agenda for Peace*, the Secretary-General identified four aspects of preventive diplomacy. A key element is *early warning* of potential disputes and flash points. Early warning is achieved by receipt of information through both technical and human means. States and organizations vary greatly in their capacity to acquire and analyse information and hence their capacity to use the information in support of preventive diplomacy. International organizations, for example, the UN, will always depend in large measure on the co-operation of member or like-minded states for the acquisition of information. This must be done with the appropriate mix of discretion, confidentiality, objectivity and transparency in the face of concerns related to sovereignty, territorial integrity and political independence.

Early warning provides general information on a potential crisis. What is needed is more specific information and that process is often referred to as *fact-finding*. This can be done on a formal or informal basis by an individual, usually designated as a Special Representative / Envoy, or a group. (On certain occasions the Secretary-General of the UN has taken on this role himself.) As with early warning, it requires the co-operation of the state where the mission is being carried out. Fact-finding is much akin to early warning, the distinction being that it

depends very much on the actual deployment on the ground of eminent and qualified experts who can conduct inquiries directly with those concerned and make informed recommendations on concrete steps to be taken. This type of personal diplomacy can be very effective, but it requires the right individuals whose competency and integrity are without question. This method also requires the political will to initiate the inquiry on the one hand and, as mentioned, the co-operation of the state where the inquiries are being made on the other. Fact-finding is also assisted by the willingness of third-party states to make information available on request or, indeed, to volunteer information they think might be valuable to appropriate organizations. As with information provided through other exercises in transparency, the information flowing from fact-finding needs to be analysed and processed properly before it is of use to conflict managers.

In his report *An Agenda for Peace*, the Secretary-General described the concept, or process, of *preventive deployment*, by which he meant dispatch of UN peacekeepers, at the request of a state or states, before a crisis had matured. Many states saw this type of action as potentially destabilizing but, while they were still considering the concept in the General Assembly, the Security Council was dealing with a real situation on the ground in the former Yugoslav republic of Macedonia. At the request of that government, a UN preventive deployment has taken place in order to ease tension and suspicion in the region, in particular by monitoring and reporting any developments on that country's borders with Albania and the Federal Republic of Yugoslavia that could undermine confidence and stability and threaten its territory. This first ever preventive deployment in the history of United Nations peacekeeping, utilizing a reinforced infantry battalion, military observers and civilian police monitors, forms the Macedonia Command of the United Nations Protection Force (UNPROFOR), which is also deployed in Bosnia-Herzegovina and

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Croatia. This preventive deployment, relying on presence and moral suasion for deterrence, but with the infantry component armed for self-defence, is considered to be one of the more successful aspects of the UN operation in the former Yugoslavia.

Another process under the heading of preventive diplomacy is the creation of *demilitarized zones*. DMZs are not new, of course, but what is novel is the idea of creating them in advance of a potential problem, again with the consent of one or more parties to the dispute. Like "conventional" demilitarized zones, these would require a verification mechanism or mechanisms, for example, regular inspections on the ground, overflight, human and/or electronic surveillance, etc.

The four foregoing examples of preventive diplomacy are more fully described, from a United Nations perspective, in *An Agenda for Peace*, and it is not the intention to dwell on them here, except to discuss possible improvements. Preventive diplomacy is in many ways another term for confidence-building, and the processes described are themselves confidence-building measures.

With respect to early warning, there is room for improvement in the quantity and quality of the information that is or could be made available to decision makers like the Secretary-General. Better advantage can be taken of existing UN and other international agencies, including regional and non-governmental organizations, by establishing formal and informal reporting systems and focal points for the analysis of the information provided. In addition, although the Secretary-General of the United Nations has made the point a number of times, individual states must be constantly encouraged to provide information that comes to their attention by whatever means, including NTM, giving their own analysis where appropriate. In all cases it is essential that the receiving organiza-

tion have its own capacity for analysis to ensure that an independent judgment can be made.

The UN now has two annual reporting instruments which can be improved to give greater transparency and as measures of early warning. The first is a *standardized system of reporting military expenditure*, which has been operating for some 12 years but with only some 30 or so states reporting. There is a need for more "peer pressure" on other states to report in order to improve the value of the exercise. This year's resolution at the General Assembly recognized this requirement, and it called upon all member states to "participate" and sought the views of states "on ways and means to strengthen and broaden participation in. . . ."[4] The value of this exercise is probably more psychological than practical, but there is merit in that alone, as it reinforces the concept of transparency in the broad sense. It remains to be seen whether participation will grow and the instrument will be amended to maximize its usefulness. It is of note that the CSCE countries have decided to exchange this information annually on the basis of the UN standardized reporting system. This in itself will increase the number of states reporting, and that growth will it is hoped be replicated in other regional forums.

The second instrument, termed the *Register of Conventional Arms*,[5] came into effect for the calendar year 1992, and calls on states to report the export and import of certain categories of conventional arms. This initiative is off to a successful start with over 80 countries reporting on an estimated 90 per cent of actual transfers worldwide. States were also asked to *voluntarily* provide *supplementary* information, for example, on military holdings, procurement through national production and relevant national policies regarding arms transfers. A good number of states provided this supplementary information, thus auguring well for future development of the Register.

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4   General Assembly Resolution 48/62 of December 16, 1993.

5   General Assembly Resolution 46/36L of December 9, 1991.

In that regard, action is now under way to study expanding the scope of the Register to include other categories of equipment and data on military holdings and procurement through national production. Based on the first year's experience, procedures are being put in place to better explain the methods of reporting, identifying categories of equipment, etc. It is also encouraging to note that suggestions have been made that equivalent regional systems be established, highlighting the unique requirments of particular regions. This instrument has real potential as a major confidence-building measure through greater transparency. Although there is no formal verification mechanism, the export/import aspect provides a self-check capacity. Data can also be compared with certain national reporting systems and with the work done in the same area by groups such as the Stockholm International Peace Research Institute (SIPRI).

These two practical steps are supplemented and reinforced by a UN document, *Guidelines and Recommendations for Objective Information on Military Matters*. These guidelines were developed and adopted unanimously by the United Nations Disarmament Commission and then endorsed by the General Assembly.[6] Reference to these guidelines is becoming more and more prevalent in both global and regional contexts as states and groups of states put more emphasis on preventive diplomacy and transparency.

As regards additional confidence-building measures (including both political and military matters), there have been a number of suggestions for new processes, one of the more common being the establishment of "War Risk Reduction Centres." This had been a favourite UN project of the former Soviet Union, but it had not gathered much support during the Cold War. Recently, there has been a lot of emphasis on improving the "conflict prevention" capacity of regional organizations—witness, for example, the CSCE and its Conflict Prevention Centre

and Forum for Security Co-operation. These two approaches are virtually identical and there is scope for tasking and equipping regional organizations to play a catalytic role, including acting as clearing houses for information received from all sources. These "centres" could also act as facilitators for exchanges of military officers, inspections of military facilities and the observation of military exercises, all techniques in use in Europe but which, taking local circumstances into account, could be exported to other areas of the globe.

A similar tasking could be given to UN offices currently established in the field. More and more, that organization is turning to its Resident Representatives and their offices for assistance in activities normally outside their area of responsibility. These offices could belong to the UN Development Program, be a UN Information Centre or be a part of any other agency. There is also the possibility of building on the three UN Centres for Peace and Disarmament in Africa, Asia and Latin America and the Caribbean, and equipping them for a preventive diplomacy role. A further step in UN terms would be the establishment of UN embassies where full-time accredited diplomats would be the "eyes and ears" of the organization and its front-line troops in the preventive diplomacy role.

Peacemaking

Peacemaking, as defined by the United Nations, is action to bring hostile parties to agreement, essentially through such *peaceful* means as those foreseen in Chapter VI of the Charter of the United Nations.[7] It is unfortunate that this term is also used in many quarters to define what the UN refers to as peace enforcement. This had led to some unfortunate confusion, especially in the media, when these terms are used interchangeably. It is to be hoped that the world's lexicon is orienting on the UN terminology as it becomes enshrined in various documents of the General Assembly, the Security Council, etc.

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6   General Assembly Resolution 47/54/B of December 9, 1993.

7   These means include negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice.

On the surface, there is little to distinguish processes taken under the heading of preventive diplomacy from those under peacemaking. The activities described in the UN Charter as peacemaking could all be exercised in the conduct of preventive diplomacy, and often are, but in the hierarchy of conflict resolution, the difference is that peacemaking *follows a conflict* while preventive diplomacy, for the most part, precedes and, ideally, avoids conflict.

The existing processes can be exercised by any individual or organization, with the exception that judicial settlement would usually be under the auspices of the World Court, and, of course, regional agencies and arrangements would apply only in the relevant region. It should be noted that the Secretary-General of the UN now often creates civilian observer missions for appropriate tasks (military observer missions are covered in the next section) as well as "Groups of Friends" or "Friends of the Secretary-General" to assist him in his peacemaking tasks. In some cases, this has been done on a co-operative basis with a regional organization, for example, with the Organization of American States with respect to the crisis in Haiti. The civilian observer missions are often made up of individuals in their own capacity, while "friends" are linked with states; however, the beauty of these approaches is that they are flexible and not locked into any particular status or process.

The UN "embassies" idea mentioned in the previous section is certainly applicable in the context of peacemaking, even if the "embassy" might have "failed" in its preventive diplomacy role. The advantage the embassy would have over an observer mission or "friends" would be intimate knowledge of the situation and the players on the ground, and it would be invaluable in assisting the deployment of a peacekeeping, humanitarian or disaster relief mission.

Peacekeeping

Peacekeeping, as defined by the United Nations, is the deployment of a (United Nations) presence in the field, *hitherto with the consent of all the parties concerned*, normally involving United Nations military and/or police personnel and frequently civilians as well. Peacekeeping is a technique that expands the possibilities for both the prevention of conflict and the making of peace.[8] This is the best known of the peace operations in the UN sense, although the term has become one of convenience in many cases. (For example, the actions of the Russian Federation in certain parts of the former Soviet Union are referred to by them as peacekeeping—not all those involved would agree!)

The question of definition has come to plague the United Nations as it attempts to define what it is trying to do in the new world situation, while, at the same time, it tries to remain loyal to its history and to a technique that it invented, has great experience in and with which it feels comfortable. Although "peacekeepers" can be used in a preventive posture, as discussed earlier, "peacekeeping" is after the event, after the parties to the conflict have consented to a role for, and the presence of, the peacekeepers. The roles can be, and are, varied. The consent of the parties can include the traditional ceasefire, disengagement, limitations on forces and armaments issues as well as more recent aspects such as the delivery of humanitarian assistance, the protection of human rights, the holding of elections, etc.

The post-conflict scenario, consent of the parties, use of force only in self-defence, transparency and the absolute neutrality of the peacekeepers are among the characteristics that clearly identify a peacekeeping operation from other peace operations such as preventive deployment, establishment of pre-conflict demilitarized zones and peace enforcement.

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8   See also the definition of peace enforcement (which came along after *An Agenda for Peace*). Obviously the UN will want to clear up the distinction.

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Nevertheless, peacekeepers can be employed in many ways, and they can employ techniques often thought of under the headings of verification and confidence-building measures. Table 1 attempts to show some of these interrelationships. (The table should be seen as illustrative only; it does not attempt to cover all possible combinations.)

Classic peacekeeping missions were almost always concerned with supervising agreements between sovereign states. Operations of this type still ongoing include two observer missions: UNTSO, the Truce Supervision Organization in the Middle East, and UNMOGIP, the Military Observer Group in India and Pakistan. Observer missions employ unarmed military officers operating in small teams in observation, liaison and investigation roles. UNMOGIP operates on the ceasefire line (the Line of Control) between India and Pakistan in the state of Jammu and Kashmir. It observes and reports, investigates complaints of ceasefire violations and submits its reports to both parties and to the Secretary-General. Originally deployed in 1949, in the aftermath of post-independence conflict, UNMOGIP has survived two additional wars (1965 and 1971) and now is concerned with the terms of the ceasefire of December 1971.

There are also three classic peacekeeping forces: UNDOF, the Disengagement Observer Force on the Golan Heights; UNIFIL, the Interim Force in Lebanon (with some qualifications on Israeli consent and co-operation); and UNFICYP, the Force in Cyprus (in this case a combined internal and external—Greece and Turkey—conflict). Peacekeeping forces are armed units usually employed in an inter-positional role to separate combatants and thus reduce the possibility of incidents. UNFICYP, established in 1964 after an outbreak of communal fighting, has a mandate to use its best efforts to prevent a recurrence of fighting and, as necessary, to contribute to the restoration and maintenance of law and order and a return to normal conditions. Following the Turkish invasion of 1974, UNFICYP also controls a buffer zone between the ceasefire lines, using a combination of static outposts and foot and vehicle patrols. In the buffer zone it ensures strict adherence to the military status quo as at the time of the 1974 ceasefire. Violations are reacted to by troop deployments, written and verbal protests, and follow-up action to ensure each violation has been rectified or will not recur. UNFICYP has a major humanitarian role, especially in encouraging normalcy of civilian activity in the buffer zone.

The classic techniques and tasks of the observer missions and peacekeeping forces are now being used more and more in combination, in situations of internal conflict, and involve non-traditional tasks as mentioned above. The linkages and similarities to certain types of confidence-building measures, verification and compliance monitoring are therefore becoming more apparent.

The UN operation in Angola, UNAVEM (Angola Verification Mission), is a good example. UNAVEM was first established in 1988 to verify the withdrawal of Cuban troops from Angola in accordance with an agreement brokered by the United States, the Soviet Union and Portugal. That task was completed in May 1991. Meanwhile, the Angolan government and its armed opposition, UNITA, had arrived at a peace settlement to end the 16-year war. The UN was asked to extend the life of UNAVEM, thereafter known as UNAVEM II, in order to verify the ceasefire and the activity of the Angolan police during the ceasefire period. The foregoing tasks were in preparation for elections planned for the fall of 1992. UNAVEM's unarmed military observers and police monitors were deployed throughout the country to supervise the joint monitoring groups established by the two sides, who were primarily responsible for implementing the agreements. Duties included investigating alleged violations of the ceasefire, fostering dialogue and resolving problems within monitoring groups, counting troops and weapons in the agreed assembly areas, overseeing the demobilization, monitoring the development of the new armed forces, assessing the neutrality of the police, etc.

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Table 1
Peacekeeping/Peace Enforcement Missions: Peace Operations/Verification/CBM Linkages

Mission	Preventive Diplomacy	Peacemaking	Peacekeeping	Peace Enforcement	Post-Conflict Peace-Building	Verification	Confidence-Building Measure
UNTSO			X				
UNMOGIP			X*				
UNFICYP			X*				X
UNDOF			X			X	X
UNIFIL			X				
MFO	X		X			X	X*
UNIKOM			X				
UNAVEM II			X		X	X*	
ONUSAL	X		X		X	X	
MINURSO			X		X	X	
UNPROFOR	X*		X	(X)		X	
UNTAC	(X)		X		X*	X	
ONUMOZ			X		X	X	
UNOSOM II				X*	X		
UNOMUR/UNAMIR			X		X	X	
UNOMIG			X				
UNOMIL			X		X		
UNMIH			X		X		

Notes: * *See description in text.*
        (X) Subjective characterization

In the meantime, the mission mandate had been expanded to assist the government to prepare for and conduct the elections, and to provide observers to monitor those elections. The mission was enlarged to cope with the additional responsibilities, and a civilian Special Representative was appointed as Head of Mission. The election was held in September 1992, but UNITA refused to accept the results, which favoured the existing government. Thereafter, the situation completely deteriorated and the size and role of the mission have been reduced pending progress among the parties to the ongoing conflict.

The failure of the peace process in Angola has been attributed to, inter alia, less than effective demobilization and storage of weapons, the delay in the creation of the unified Angolan Armed Forces, failure to establish effective civil administration in many parts of the country, and the delay in setting up a neutral police force. It must be remembered that these were all responsibilities of the parties, not the UN. The UN gained more experience in multifaceted missions and took note of the shortcomings in planning and execution. The lessons learned have been applied in a very similar mission in Mozambique, ONUMOZ, which began in early 1993. It is too early to judge the outcome of the Mozambique mission, but early indications are that indeed lessons have been learned and the prospect of a successful outcome is good.

Before leaving this aspect of peace operations it is necessary to remember that peacekeeping has not been exclusively a UN undertaking. Joint operations with other entities were conducted as early as 1965 (with the Organization of American States in the Dominican Republic) and continue today, for example, with the Organization of African Unity in Liberia. Non-UN peacekeeping missions were mounted by the international community in Indo-China (1954) and in Viet Nam (1973). Regional and sub-regional organizations are becoming more and more involved, as will be seen in Chapter VII of this study.

A major ground-breaking operation was the establishment of the Sinai Field Mission (SFM) in 1976 and its successor, the Multinational Force and Observers. The SFM was established and operated by the United States, at the request of Israel and Egypt, in order to provide monitoring and verification of the disengagement of forces following the 1973 Israeli-Arab war. Israel had expressed concern with a United Nations role, concern stemming from the abrupt withdrawal of the first United Nations Emergency Force (UNEF I), an event that had contributed to the outbreak of the 1967 war. In order to sooth these concerns and provide a confidence-building measure, the United States agreed to establish and man a ground-based early warning system at strategic passes in the Sinai desert and to conduct aerial reconnaissance missions over the area of disengagement. The early warning system would be based on electronic sensor fields, remote imaging and manned watch stations, all employing civilian personnel. Further, the United States would help establish an Egyptian surveillance station to match one already in operation by Israel, and monitor the operation of both. Procedures were developed for co-operation and responsibility sharing with the UN Emergency Force (UNEF II) operating in the same area.

This system worked well for the next three years, until a further withdrawal of Israeli forces following the peace treaty of 1979 (the Camp David accords) and the decision not to extend the presence of UNEF II. The original intent had been to deploy UN forces to police security arrangements along the common border, but this idea was vetoed by the Soviet Union. The SFM mandate was then adjusted to provide more frequent overflights, and a system of on-site inspections was developed. When the final Israeli withdrawal occurred in 1982, and there was still no possibility of a UN presence, the United States agreed to organize an alternative multinational force, which came to be known as the Multinational Force and Observers (MFO). The MFO took over the SFM verification role and systems, adding to the largely technical and

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civilian-operated mission the presence of armed military personnel in order to carry out reconnaissance and man checkpoints and observation posts. (Three infantry battalions provide the bulk of the force, while civilian personnel are the backbone of the observer role.)

The MFO is unique as the only peacekeeping force not under control of the UN or a regional or subregional organization. It is also unique in the degree of its use of advanced technology to complement the human presence. It is one of the best examples of the use of peacekeeping as a confidence-building measure.

Peace Enforcement

Peace enforcement, as defined by the United Nations, involves peacekeeping activities that do not necessarily involve the consent of all the parties concerned. There is no doubt that peace enforcement is covered by Chapter VII of the UN Charter, but the linkage with peacekeeping as we understand it today was not envisaged by the drafters of that document. As mentioned earlier, there are obviously some adjustments needed to the set of UN definitions, with the most obvious being to drop the "hitherto" reference in the definition of peacekeeping and let peace enforcement stand as is, with possibly some reference to Chapter VII of the UN Charter being added. In any case, for the purposes of this paper, the current definition of peace enforcement will suffice.

Peace enforcement falls short of the full range of military action allowed by Chapter VII, although that may not be very apparent to the practitioners on the ground. The definitional linkage to peacekeeping clearly implies that minimum force will be used at all times, but force will be used, and not just for self-defence. Essentially, the degree of force will be driven by the political situation and reflected in the mandate assigned, in the case of the UN, by the Security Council. Subsequent orders to the troops, including the rules of engagement, must be consistent with the situation and the mandate.

The United Nations had not conducted a peace enforcement operation on its own until the second phase of its efforts in Somalia. The initial efforts, now known as UNOSOM I (UN Operation in Somalia) were launched as a conventional peacekeeping operation. When the lead elements became tied down in Mogadishu as the UN tried to negotiate with the various factions, the world community protested the inaction. At that point, the UN had neither the resources nor the mandate to impose peace. As matters evolved, the United States took the lead and organized the multinational Unified Task Force (UNITAF), which eventually broke the back of resistance and allowed the delivery of aid to the worst-affected parts of the country. The Security Council approved this action in advance and assured itself of a political oversight role, an improvement, from the UN standpoint, on previous situations in Korea and the Gulf.

Once the situation had stabilized, planning began for a transition from UNITAF to a new UN force, designated UNOSOM II. This new force would be large, heavily equipped and, most important, or so it was thought, mandated to use force under Chapter VII of the UN Charter. This use of force extended to the forcible disarmament and demobilization of renegade factions. In the event, for a number of reasons—many related to factors beyond the control of UNOSOM II, and most related to the role the United States was playing both in and outside UNOSOM—the mandate, in particular the disarmament aspect, has never been executed in full. Despite the problems, there have already been a large number of lessons learned with respect to peace enforcement operations.

The main lessons relate to questions of command and control—there can only be one executive authority—and unity of command—there can only be one set of operating procedures. These can only be in place when there is unanimity of political will among all members of the Security Council and all participants in the force. It is also clear that the UN currently has difficulty in establishing the necessary field

headquarters and providing adequate logistics, particularly in the early days of an operation.

Somalia has not been a good test case for this first UN attempt at peace enforcement, but this is certainly not all due to institutional problems. Given the political will and the resources, it is possible to see the UN developing a modest but effective capacity for peace enforcement, including the ability to disarm, demobilize and verify, without necessarily having the consent of all parties. Inherent in this is risk and the willingness to take casualties as a result.

When referring to Chapter VII of the UN Charter, it must be recalled that it is not only the "use of force" chapter. It also covers coercive measures not involving the use of armed force, such as complete or partial interruption of economic relations and all means of communications, as well as the breaking of diplomatic relations, but these are outside the scope of this study.

Creation of a new category of UN peace operation does not rule out future coalition actions such as that authorized by the Security Council for the Persian Gulf War and the Unified Task Force operation, Restore Hope, in Somalia. The UN, in Korea, in the Gulf and, for a time, in Somalia, has been content, for varying reasons, to stand back and let coalitions lead. That leadership has been provided with varying amounts of "political cover" provided by the Security Council or the General Assembly. This will probably continue to be the situation for the foreseeable future.

Post-Conflict Peace-Building

Post-conflict peace-building, as defined by the United Nations, is action to identify and support structures that will tend to strengthen and solidify peace in order to avoid a relapse into conflict. "It must be linked to the comprehensive development efforts of the UN, political, economic, social and cultural . . . reinforcing the

confidence necessary for the creation of lasting peace."[9] In that light the Secretary-General of the UN has taken steps toward a more integrated policy between the Security Council and a rejuvenated Economic and Social Council. The UN has also recognized that many of the techniques used in preventive diplomacy are applicable in post-conflict peace-building. Central to the process will be the strengthening of democratic institutions. Although this is a fairly new concept for the United Nations, the organization has embraced it in full measure in recent operations, most significantly in Cambodia, but also in Central America, Angola and Mozambique.

In Cambodia the aim was to establish conditions for the holding of "free and fair" elections. In order to do that, the UN had to go well beyond any mandate executed up to that time. In the most extreme case, the UN accepted temporary governmental powers and hence responsibility for the running of key ministries during the transition phase between the political settlement and the elections. In addition to actually organizing and conducting the elections, it had responsibility for monitoring human rights, ensuring the return of refugees, rehabilitating the infrastructure, assisting economic development and supervising the police force. All of those actions were vital to the election process but, more important, were essential to the long-term survival of the country. It is in the post-transitional phase that these efforts toward post-conflict peace-building will really bear fruit or not.

Cambodia will be a major test for the organization. It is here that the most elaborate planning and preparation have gone on in order to give the new government a chance to survive, and to allow the development of democratic institutions in concert with economic and social development.

In all the operations cited above, the tasks, in addition to post-conflict peace-building per se, also involved the repatriation of refugees and

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9   *Report of the Secretary-General on the Work of the Organization*, document no. A/48/1, September 10, 1993.

the demobilization of combatants—including reducing the levels of armaments—as a part of the process. These latter arms control measures have good potential for stabilizing post-conflict situations by removing some of the resources necessary for a resurgence of fighting. Controls may have to be put in place to ensure long-term adherence to agreements. Regional organizations can play a role in that regard and it should be noted that, for example, the Organization of American States and the Organization of African Unity have co-operated with the UN in some of these post-conflict peace-building exercises, a process that should be encouraged at all times.

Conclusion

The five categories of peace operations developed by the United Nations seem to be adequate to cover potential harmonization and synergies with arms control verification and confidence-building measures. Each category will continue to evolve, and their overall flexibility and inter-relationship will be an asset. Priority should be afforded to preventive diplomacy and peace-making in order to avert and lower the level of conflict, but it will probably not be possible to suffocate conflict completely in the near term. Therefore, it will be necessary to rely on other types of peace operations processes as well.

Peacekeeping and post-conflict peace-building will remain important tools of the international community. Peacekeeping will continue to develop as a multifaceted exercise, and its use in the practical application of voluntary arms control will grow. Peace enforcement operations will be much more problematic and will require a great deal of thought and marshalling of political will by the mandating authority, usually the UN Security Council. This process will be used sparingly but, when it is, participating states must clearly understand that it is not peacekeeping and there are potential consequences, including the acceptance of choosing sides and the possible casualties that might result. The separate considerations related to using peace enforcement in support of arms control and disarmament per se are covered in Chapter VII of this study.

Peace operations will continue to expand beyond the ambit of the UN, particularly as regional organizations come into their own in the development of security arrangements. Nevertheless, the Security Council will maintain an oversight role to try and ensure some consistency in the application of these processes, particularly those involving the use of force.

VII Roles Currently Played by the United Nations, Other International Bodies, Agreements and Regimes in Contributing to International Peace and Security

Douglas A. Fraser

Introduction

Until quite recently, the concept of arms control was almost totally voluntary and usually resulted from bilateral, and in some cases multilateral, arrangements. There is now a trend emerging wherein arms control forms part of intrastate arrangements that are monitored and/or enforced by a third party, usually but not necessarily an impartial party. In almost all cases, the United Nations has played a lead role, either in the creation of new instruments or in the modification of existing ones. This leadership has also begun to have resonance in regional organizations, including those beyond Europe, who recognize more and more how region-specific approaches can replace or reinforce the global to better advantage. In addition, the evolving "new world order" has given rise to reviews of existing treaties, agreements and regimes related to non-proliferation with the aim of determining their interrelationships, effectiveness and relevance in today's situation. Further, there is a growing need to find the right balance between the discriminatory aspects of supply-side controls and the positive aspirations of, in particular, developing states seeking "equitable and responsible access."

This chapter reviews the roles of these bodies in the context of arms control and disarmament, both voluntary and enforced. Where possible, it discusses the implementing agency that actually carries out the arms control and disarmament role; for example, the International Atomic Energy Agency carries out the verification of the Non-Proliferation Treaty. This review should then allow further exploration of possible areas of harmonization and synergy.

The United Nations

With respect to arms control and disarmament, the roles of the United Nations are executed through its organs and related institutions. The General Assembly, through its resolutions, has lent moral weight and political will to various approaches and arrangements. The Security Council has reinforced that weight and will through its prestige and the implicit understanding of the possibility of enforcement. The creation of situation-specific arrangements and/or organizations, for example, peacekeeping missions, or instruments such as the Register of Conventional Arms, is the result of decisions taken by the Council or the Assembly.

The General Assembly. This body is currently engaged with the Security Council in a certain amount of "creative tension" in the whole area of international peace and security. While the Charter is clear that the Security Council has primary responsibility, the Assembly, in the face of a rejuvenated, proactive Council, is trying to ensure its own voice is heard. At the root of the tension are differences among states as to what constitutes a threat to international peace and security, and what actions are suitable, bearing in mind the provisions of the Charter, especially concerning sovereignty. The Assembly is more conservative or traditional in its actions in comparison with the Security Council. The vast majority of states who for whatever reason have concerns about an activist UN are represented only in the Assembly, and they want to keep a tight definition on "threat." They are wary of the veto in the Council, believe its membership is no longer relevant or representative and, in sum, feel there is too much power vested there. The co-ordination now being exercised there by the P-5 (the five permanent members), the influence being exercised by the P-3 (United States, United Kingdom and France) and the ultimate power of the United States are all seen as threatening by some.

The Assembly will generally adopt resolutions that are concerned with voluntary confidence-building measures, for example, the Register of Conventional Arms, but is very hesitant when it comes to more intrusive regimes of verification and enforcement. The Assembly can be counted on to provide overall support to the Council and the Secretary-General, but it will move slowly and with deliberation. In the area of security, it will be more reactive than proactive, except

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where it is protecting the position of states relative to Article 2.7 of the Charter concerning domestic jurisdiction/internal affairs.

The Security Council. This body has always had a role in arms control and disarmament through Article 26 of the Charter of the United Nations, where it is "responsible for formulating, with the assistance of the Military Staff Committee . . . plans . . . for the establishment of a system for the regulation of armaments." For well-known historical reasons that has not happened; nevertheless, where the political will has existed, the Council has found alternative ways to exercise something akin to that particular mandate. At the historic meeting of the Council at the level of heads of state and government on January 31, 1992, it devoted a large portion of its concluding statement to "Disarmament, arms control and weapons of mass destruction." The Council reaffirmed its role in the area of arms control and non-proliferation by linking it to the maintenance of international peace and security.

The Council urged member states to "resolve peacefully in accordance with the Charter any problems concerning these matters," but also hinted at stronger measures in the event peaceful means failed. In the case of the Non-Proliferation Treaty the Council referred to "appropriate measures" for the enforcement of its provisions. The Council was laying down a marker that it was willing to use all measures available, including the use of force, when there was, in its opinion, a clear threat to international peace and security resulting from the abrogation of an arms control/disarmament agreement.

One of the principal means the Council has adopted to execute its role of maintenance of international peace and security is the creation of peacekeeping and other peace operations missions. Chapter VI of this study described the various peace operations in a generic sense. Here we will examine more directly the roles played by peacekeeping and peace enforcement missions as they relate to arms control and disarmament.

Peacekeeping Missions. Peacekeeping as a concept was not envisaged in the Charter but has been one of the most successful innovative techniques of conflict control and resolution arrived at by the Council to execute its mandate, including its role in arms control, disarmament and non-proliferation. In recent years, as the scope of peacekeeping operations has expanded, the mandates have more and more included provisions for arms control and disarmament. The tasks have ranged from the traditional such as the monitoring of troop withdrawals and disengagement zones, the conduct of weapons inspections, etc., to newer aspects such as the supervision of demobilization and the disposal or destruction of weapons.

Although the UN has gained a great deal of experience in the supervision of the arms limitations aspects of peace agreements, especially in the Middle East, it is only recently that its peacekeepers, and those of some regional organizations, have been directly involved in other areas of arms control and disarmament. This is due, in part, to the fact that many of its operations are now intrastate rather than interstate and are happening in areas where there have been horrifying accumulations of conventional arms. There are also instances where, pending a settlement, the UN or other third party, often in co-operation with individual states or groups of states, has participated in the enforcement or surveillance of arms embargoes in order to assist in "suffocating" the situation.

In peace settlements ranging from Central America to Asia and Africa, most now have provision for cantonment and disarmament of combatants, demobilization, establishment of demilitarized zones and, in some cases, destruction of surplus weapons or at least their gathering into depots. Assistance in de-mining has also become a major contribution as death and injury due to mines is the principal source of casualties in many of these regional conflicts. This is arms control in its purest form. Some agreements put the onus on the parties to the conflict to police

themselves, with, for example, the UN in an oversight role. Others have provision for direct hands-on action by the third party. In all cases, the "peacekeepers" are reliant on the information provided by the parties when it comes to determining numbers of personnel, weapons, locations of mines, etc.

The track record has been mixed. Generally speaking, the operations in El Salvador and Cambodia have gone well. Angola has been a dismal failure to date, and Somalia has seen mixed results. Large areas of the Somali countryside have been rehabilitated while in certain of the cities, especially Mogadishu, pockets of anarchy remain. Authorities are trying to learn from these experiences and avoid some of the same pitfalls in Liberia, Mozambique and Rwanda. The jury is still out, but at the very least, concepts are being developed and experience gained. More importantly, the idea that practical, real arms control and disarmament should be part of settlements is a significant breakthrough.

Peace Enforcement Missions. With respect to arms control and disarmament and the enforcement aspect of peace operations, there is a common perception that this is a new role, particularly for the United Nations. While this is understandable, it is, in fact, not the case. The UN operation in the Congo in the early 1960s involved, inter alia, a disarmament aspect when the mandate was extended to the forceful expulsion of mercenaries from the separatist province of Katanga once it was determined that the UN would support, indeed enforce, the concept of a single unified state. In the intervening years, this aspect, enforcement, has been nascent, but, with the end of the Cold War and the flexibility displayed by the permanent members of the Security Council, it could be possible again, given the right set of circumstances.

We saw in Chapter VI a description of a peace enforcement operation, UNOSOM II, one aspect of which involved various disarmament measures. For the reasons described, that effort has not been successful to date. The Secretary-

General has, however, gone beyond the voluntary arms control aspects of peacekeeping missions, and the ill-fated attempt in Somalia, to ruminate on the idea of using peacekeepers, in some circumstances, in a peace enforcement role specifically in support of an arms control agreement.

The theme was introduced in October 1992 when, in his report *New Dimensions*, he made specific reference to enforcement in the section entitled "Integration: Disarmament in the New International Environment." In that section he picked up on the concept originally introduced in his report *An Agenda for Peace*. In *New Dimensions*, he makes a direct reference to "another domain of conflict resolution where the use of disarmament measures may be required: peace enforcement." He made two points in that context. The first was that enforced disarmament, such as the measures being undertaken with respect to Iraq under Resolution 687, should not be confused with the measures arrived at through negotiation. Nevertheless, he went on to say, "let us resolve that, in the face of grave violations of disarmament agreements or of other threats to peace, this Organization will be ready to act in accordance with its responsibilities under its Charter."

Beyond that, he was introducing for the first time the idea of using military forces to ensure adherence to an arms control arrangement freely entered into by a party or parties but which they subsequently violated. In terms of synergies, it is this possible use of peace enforcement operations in support of arms control and disarmament that is most relevant to this study; however, it remains to be seen if the right combination of circumstances will appear and allow the UN to pursue this idea.

The United Nations Special Commission and the International Atomic Energy Agency. Another aspect of arms control and disarmament enforcement was brought into sharp perspective when the UN Security Council adopted Resolution 687 on April 8, 1991, in effect dictating the terms for the end of the

war in the Persian Gulf, a war conducted—to a limited extent—with oversight by the Council. Resolution 687 is a very comprehensive document, one without precedent in UN terms. Part C of that document spells out the procedures by which Iraq would be divested of its weapons of mass destruction, their missile delivery systems and the capacity to rebuild them. Long-term monitoring and verification provisions are also included. The resolution established the UN Special Commission (UNSCOM) which, along with the IAEA, would execute the mandate. UNSCOM is responsible for chemical and biological weapons and missile systems capable of delivering all weapons of mass destruction. The IAEA is responsible for nuclear weapons. Both groups, using their unparalleled intrusive powers for on-site inspections, have been quite successful in accomplishing the identification and destruction aspect of their mandates. Arrangements for long-term monitoring are being put in place.

The activities under Resolution 687 are unique and the product of a situation where there was little or no doubt concerning Iraq's guilt in the invasion of Kuwait. The ability of the United States to build the necessary political will in the Security Council was also unique. Some argue that these circumstances are unlikely to be repeated and therefore care must be taken in drawing lessons and conclusions from this ongoing experience. Others believe that it is a practical example of what can be accomplished and that the investigation, inspection, destruction and monitoring techniques developed and used are good precedents for use in other regimes and situations, and not only those of a coercive nature. The IAEA, in particular, has profited from this experience, which could be applied, in part, in some future arrangement with, for example, North Korea.

Other International Bodies

Regional and subregional organizations and arrangements were foreseen in Chapter VIII of the UN Charter but have not, until recently,

played a large role in the maintenance of international security. This is now changing, not least because the central agency, the UN, is stretched beyond its physical and financial capacity. Moreover, the nature of current conflict with its ethnic, religious, tribal, etc. roots means that regional and subregional groups may well play a central role in intrastate conflict. In any case, most of the techniques are the same, and experience gained on the broader scene can be applied to the more specific. Meanwhile, the regional entities have to establish the requisite machinery and gain experience in both the prevention and, worst case, management of conflict before they can fully take on the tasks. The UN is ready to assist and has already done so. Regional and subregional groups should be able to become a more integral part of the process in the future. The following is a representative group having relevance to the issue of arms control and disarmament in the international security field.

The Conference on Security and Co-operation in Europe. The CSCE is by far the most developed regional organization in terms of arms control, disarmament and confidence-building measures. The combination of agreed confidence-building measures and the creation of the Conflict Prevention Centre and the Forum for Security Co-operation have at least laid down a framework for crisis management. The CSCE took a formal decision to declare itself a regional organization as per Chapter VIII of the UN charter, thus underscoring its intent to work closely with the UN. The CSCE and the UN have begun to work out co-operative actions in an effort to best apply the capabilities of both organizations and avoid duplication. Whether operating jointly, as in the former Yugoslavia, or splitting responsibility for taking the lead, as in the former Soviet Union, the two organizations are developing experience and expertise which will enhance their capacity to deal with both current and potential problems.

The North Atlantic Treaty Organization. Although "alliance" is the term of choice among its members, in UN parlance NATO is described

as a subregional organization, in this case of the CSCE. The situation in the former Yugoslavia has given rise to formal arrangements between NATO and the UN with respect to certain guarantees of military support, for example, arrangements for air cover and support on an as-required basis and under rules of engagement mutually agreed. Indeed, this form of co-operation followed on the heels of a temporary arrangement entered into when the situation in Bosnia-Herzegovina appeared to be beyond the resources of the UN and at a time when it was preoccupied with Somalia. NATO, in effect, was mandated by the Security Council to run that aspect of the Yugoslav peacekeeping/humanitarian operation—and to pay for it. This latter point then led to confusion on terms of reference, command and control and a multitude of other factors that only served to reinforce the time-honoured concept of "unity of command."

This arrangement was soon terminated and UNPROFOR II, as it was called, was integrated into the overall mission in the former Yugoslavia. This particular exercise highlighted some of the pitfalls with "disjointed" operations and has augured well for the clearer definition of duties since that time between the UN, the CSCE and the European Community Monitoring Mission (ECMM), not to mention NATO. NATO continues to provide those forces for which it is uniquely suited vis-à-vis the UN, that is, the maritime and aerial surveillance and combat forces assisting in sanctions enforcement of the "no-fly zone" and, if required, the air-ground support for the relief of UN forces and other tasks. Sanctions enforcement is a major contribution to arms control in the region of the former Yugoslavia. The requisite UN resolutions are in place to authorize the use of appropriate force in support of these and other tasks.

The implementing body for NATO is the North Atlantic Council, which in turn has a full range of subordinate commands under the Supreme Headquarters Allied Powers Europe to actually execute tasks. The Southern European Command is executing air operations for the

United Nations in the former Yugoslavia, for example.

The Western European Union. The political dimension of the NATO/Western European Union (WEU) situation is interesting but does not add much to the discussion here. Nevertheless, the WEU—another subregional organization—is co-operating with the UN (and with NATO) in the enforcement of sanctions in the former Yugoslavia, especially in the use of maritime forces as part of the blockade in the Adriatic Sea. Its role, like NATO's, is to provide military support to the UN in accordance with a Security Council granted mandate that calls upon regional organizations and arrangements to contribute, at their expense, but with UN oversight, to the overall aim.

The WEU, like NATO, has as part of its charter the concept of enforcement, and the resources to employ that force, something that not all regional/subregional organizations do.

The North Atlantic Co-operation Council. This grouping of NATO, former Warsaw Pact, former Soviet Union successor states is yet another (mostly) European-based organization whose mandate is just developing. Except for the membership of the "neutral states," the distinction between it and the CSCE, for example, has yet to be fully defined. It has the potential to temporarily fill gaps created by the demise of the Soviet Union and the Warsaw Pact until alternative arrangements are agreed to ensure coherent implementation of agreements entered into earlier. It is unlikely to develop any enforcement aspect, although it could assist in peacekeeping and compliance monitoring. The NACC is still evolving, and the operative aspect is now closely related to the principles of co-operation worked out under the heading "Partnership for Peace" and agreed in Brussels in January 1994. The provisions for NACC and other CSCE countries to join in UN and CSCE operations including peacekeeping, search and rescue, and humanitarian operations may be a precursor for future actions in the arms control and disarmament field.

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The Organization of African Unity. The OAU has only recently returned to playing a role in security-related matters on the continent after a hiatus of some years. Historically, modern African states have been very reluctant to enter into any discussions that might prejudice the question of sovereignty, particularly with respect to international borders. The OAU has no provision for the enforcement of peace and security and must rely on the moral suasion of its membership. Thus, the Mediation, Conciliation and Arbitration Commission has been largely dormant. In the last few years, however, the OAU has been active in two major conflict areas. One of its subregional groups, the Economic Community of West African States (ECOWAS), has been the main proponent of a settlement in Liberia, including the mounting of a significant peacekeeping force. This force is now being expanded to give it a more Pan-African character and has been joined by a UN observer mission in the first joint effort where the UN has become part of an operation set up by another organization.

In the second case, the OAU helped broker the so-called Arusha Accord, which is attempting to end the civil war in Rwanda. These accords call upon the UN to provide the peacekeeping mission and to incorporate in it the OAU Neutral Military Observer Group (NMOG). Both missions, Liberia and Rwanda, incorporate provisions for disarmament among the aspects of the settlement. It is too early to tell if these initial efforts by the OAU, first alone and then in conjunction with the UN, will be successful and serve as models for future missions. At this time it appears that the UN may have to be the implementing agency for agreements reached at the OAU.

The Organization of American States. The OAS was for many years one of the "background" regional organizations in the global system. Its collective security systems, including the Rio Treaty, place emphasis on preventive diplomacy and peacemaking rather than peacekeeping or peace enforcement. Although the Treaty of Tlatelolco created the first nuclear-free zone in a populated part of the world, and the OAS has the experience of mounting a peacekeeping mission (in the Dominican Republic in 1965-66, in part in co-operation with the UN), it was not until the publicity surrounding the various agreements leading to the Central American peace accords that this regional organization began to be noticed.

The physical disarmament carried out under the supervision of UN peacekeepers in Nicaragua and El Salvador, but with close co-operation of the OAS, is, as mentioned earlier, one of the success stories in this area. Like the OAU, the OAS may have to call on the UN to actually implement some of its agreements, especially where there is a requirement for a military or police presence. In the Central American region, ongoing efforts have centred on the Esquipulas II agreement, which established goals for the limitation of arms by country, based on legitimate defence needs. Although actual progress in this regard has been slow, the concept remains valid and is accepted by the subregional states. More recently the OAS has been working with the UN in developing the political and security apparatus designed to restore President Aristide to power, an effort that seems unlikely to come to fruition in the near term. Nevertheless, like the OAU, the OAS is gaining experience in working with the UN and benefiting from the latter's broader experience in peace operations and arms control.

The Asia-Pacific Region. This major region of the world does not have a regional organization of the same scope as Europe, Africa and Latin America and the Caribbean. There appears to be a move toward developing subregional organizations first, the best known of which is the Association of Southeast Asian Nations (ASEAN). This group of six nations, traditionally focused on development matters, has now begun to venture into the political/security field. It has established, along with its seven

so-called dialogue partners, an annual Post Ministerial Conference of Senior Officials to discuss security issues. As this aspect matures, ASEAN may well set the example for other subregional groups such as the South Asian Association for Regional Co-operation (SAARC).

Treaty-Based Organizations

There are a number of international treaties that have integral bodies with varying degrees of responsibility for implementation, verification and dispute settlement under the terms of the treaty. Others have none and depend on external and/or ad hoc support in the event of a dispute. Depending on the treaty, the scope could be global, as is generally the case for United Nations treaties, or it could be confined to a specific region.

Nuclear Non-Proliferation Treaty. The most important control on nuclear proliferation is the Non-Proliferation Treaty of 1968. Verification of the NPT requires a considerable degree of co-operation on the part of the Non Nuclear Weapons States (NNWS) in providing the international verifying body (the IAEA) with detailed information regarding the operation of their declared nuclear reactors, access to nuclear installations, and the right to install unmanned sensing devices.

However, as was discovered in Iraq,[1] it is possible for a country to be in compliance at its declared sites while accumulating fissile material and designing and developing nuclear weapons at sites not declared and consequently never inspected.[2] As a result, confidence in the ability of IAEA safeguards to uncover activities associated with nuclear proliferation has been undermined. Moreover, new demands are being placed on the IAEA, while its resources are not being correspondingly increased. Recently, growing concern over nuclear proliferation in some newly developing countries brings into question the distribution of effort of the IAEA,

which has been directing 90 per cent of its safeguards budget into inspections of Japan, Germany and Canada.

The IAEA itself does not deal with non-compliance; rather it reports to the United Nations Security Council which is then responsible for any follow-up action.

Treaty for the Prohibition of Nuclear Weapons in Latin America. This document (commonly referred to as the Treaty of Tlatelolco and opened for signature in 1967) established an organization known as OPANAL to help ensure compliance with treaty provisions. OPANAL consists of a General Conference of all states parties, a Council of five states elected by the General Conference, and a Secretariat (located in Mexico City). Non-compliance deemed a violation of the treaty is reported simultaneously to the United Nations General Assembly and Security Council, and to the Council of the Organization of American States. The treaty has provision for "Special Inspections" on demand. The inspections, depending on the situation, are conducted by the Secretariat or the IAEA, under the general direction of the Council.

South Pacific Nuclear Free Zone Treaty. This is only the second such zone established in a populated area of the world. Like Tlatelolco, this treaty, signed in 1985 and also known as the Treaty of Rarotonga, relies on the IAEA for verification,[3] with the South Pacific Forum (a regional intergovernmental co-ordinating mechanism) as the final arbiter of disputes. The Forum can authorize special inspections with the consent of two thirds of the parties. This treaty requires 12 months' notice before any party can withdraw, thus underscoring the strong political commitment of the parties.

Partial Test Ban Treaty. This treaty, which bans all but underground nuclear explosions, whether for military or peaceful purposes, has no provisions for verification beyond the use of NTM.

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[1]   See John Simpson, "The Iraqi Nuclear Programme and the Future of the IAEA Safeguards System," Chapter 28 in *Verification Report 1992*, J.B. Poole and R. Guthrie, eds. (London: VERTIC, 1992), pp. 249-253.

[2]   The NPT allows the IAEA to request special inspections of undeclared sites, but it has not been the practice to exert this right.

[3]   It should be noted that the Treaty of Rarotonga does not prohibit ships or aircraft of non-participating states that are carrying nuclear weapons from transiting South Pacific waters or stopping at ports or airfields in the territory of the states parties.

Chemical Weapons Convention. Whereas the Geneva Protocol of 1925 banned the use of chemical weapons in warfare it allowed the manufacture of chemical weapons, and it had no provisions for verification. The Chemical Weapons Convention of 1993 is incomparably stronger. It prohibits the development, production, stockpiling and use of chemical weapons, and provides for their destruction. The greatest difficulties in the long process of negotiations arose from the arrangement for verification, which, in order to be effective, demanded an unprecedented degree of co-operation by the inspected party and intrusion by the inspecting agency.

The ultimate objective of permitting challenge inspections to be allowed "anywhere, anytime" proved unacceptable, and the agreement puts limitations described as "managed access." However, even with this restriction, the provisions for verification of the CWC are the most intrusive of any international agreement in force today.

The CWC provides for the Organization for the Prohibition of Chemical Weapons (OPCW), which will be responsible, via its Executive Council, for verifying compliance. Article XII of the convention provides for recommendations for collective measures in the event of serious non-compliance and for reporting to the General Assembly and the Security Council in cases of particular gravity. (See Chapter IV of this study for more detail on the CWC.)

Biological and Toxin Weapons Convention. This 1972 convention prohibits the development or production of biological agents and toxins. There are no provisions for verification, and no specific body is charged with the "management" of the convention. States parties have recourse to the Security Council if they believe there is a breach of obligations. Several review conferences of the states parties have undertaken to establish a number of confidence-building measures to increase transparency. An ad hoc Group of Governmental Experts to investigate potential verification measures recently concluded its study. Efforts are in progress to convene a conference of the states parties to examine the experts' report and decide on any further action.

Antarctic Treaty. This 1959 treaty offers free access to any place in the relevant area, and verification of the absence of military activity is provided by the right of on-site inspections any time and anywhere, accompanied, if desired, by unlimited aerial inspection. This treaty has no provision for a body to manage compliance, but there are so few worries over accumulation of armaments or conduct of military activities in the Antarctic that interest has shifted to co-operative scientific projects and to concerns over the environment.

Outer Space Treaty. This 1967 treaty, which prohibits the presence of weapons of mass destruction in space[4] or on celestial bodies, contains no provisions for verification and no specific body for management. However, states parties are asked to publish information regarding their space activities, and the technical facilities of several countries should be able to detect launchings and follow the trajectories of space vehicles.[5]

Seabed Treaty. This 1971 treaty stipulates the right of any participating state to verify the absence of any weapon of mass destruction from any installation on the seabed beyond the 12-mile limit of national sovereignty. While only a few states have the technology or equipment that would enable them to inspect a structure on the bed of the deep ocean, a state can seek the co-operation of another participating state for the purpose of pursuing an investigation. There is no body per se for the management of the treaty.

Environmental Modification (ENMOD) Convention. This 1977 convention has no provision for verification, but encourages consultations if compliance questions arise. It encourages

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4   A nuclear-armed ballistic missile that transits through space on its way to a terrestrial target is not considered to be a space vehicle.

5   While it is usually possible to track space vehicles, it is much more difficult to ascertain what is inside them.

transparency through exchange of information and of scientists. It also allows for establishment of a Consultative Committee of Experts to address compliance concerns.

Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (Inhumane Weapons Convention). A provision of the convention requires each state party to disseminate the provisions within their country and to include them in their programs of military instruction.[6] There is no permanent body for the management of the convention; nor are there verification provisions.

Treaty on Conventional Forces in Europe (CFE Treaty). This treaty limits the NATO states and former members of the Warsaw Pact (or their successors) to specific levels of specified military equipment. It also requires the destruction or conversion of holdings beyond those limits. Extensive on-site inspection provisions permit signatories to monitor whether other parties are fulfilling their obligations during the implementation phase, and a more modest level of inspections will continue after that. As a result of the dissolution of the Warsaw Pact, and in particular the Soviet Union, there are a number of non-forecasted problems that have arisen. Fortunately, a Joint Consultative Group was established by the treaty for the resolution of treaty-related difficulties.

Treaty on Open Skies. This major confidence-building measure was signed in March 1992 and will come into force when the requisite number of instruments of ratification are deposited. This treaty opens the airspace over signatory states to flights by unarmed surveillance aircraft. Using the range of sensors agreed, states can use its provisions in their own right or in support of other agreements; therefore, it can have a great synergistic effect. The treaty is overseen by an Open Skies Consultative Commission.

Agreement-Based Organizations

In addition to formal organizations and treaty-based bodies, the world community has established a great many ad hoc groups to deal with specific problems. These groups may exist for the short or long term, have a fixed or flexible composition and structure, and employ different methods of management. They may be independent, stand-alone bodies or, as is more common, work in co-operation with some other established entity or entities. They can be global or regional in character. Their decisions are usually more politically binding than legal. Some examples are the Esquipulas II agreements, which provide the guidance for the peace process in Central America, the Vienna and Stockholm documents of the CSCE process, and the International Conference on the Former Yugoslavia (ICFY or the London Conference), which attempts to co-ordinate the international effort to bring peace to that region.

In the latter case one finds a good example of an ad hoc arrangement that utilizes existing structures toward a common goal. By mid-1992 the (then) European Community efforts to arrange a settlement in the former Yugoslavia had faltered. The UN Security Council invited the Community to join with the Secretary-General to discuss ways of broadening and intensifying the European initiatives. The Community asked its then-President of the Council of Ministers (Prime Minister Major of the United Kingdom) to co-chair, with the Secretary-General, an international conference on the problem. The Conference convened in London in August 1992.

The Conference adopted the "Statement of Principles" for a negotiated settlement. It created, under the overall direction of the Permanent Co-Chairman of the Conference, a Steering Committee co-chaired by the Personal Envoy of the Secretary-General and the European Community mediator. The Steering Committee

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[6]   Commonly abbreviated to "CUSHIE weapons."

directs six working groups, meeting in continuous session at the United Nations offices in Geneva, who are responsible to prepare the basis for a general settlement and related matters. The "on the ground" tools of the Conference are provided by the UN and the European Community, for example, the UN Protection Force (UNPROFOR), the European Union Monitoring Force, the UN High Commission for Refugees, etc.

In order for these ad hoc processes to work well there are three requirements. First of all they need strong leadership; second, there has to be complete co-operation among the bodies making up the group; and third, they must have the full support of all the parties involved. When all these requirements are met, these ad hoc agreements and arrangements can be a positive asset to the international community.

Regime-Based Organizations

Apart from the bodies established by international treaties or other multinational negotiated agreements, there are groups and committees organized by a limited number of countries that are intended to exert some co-ordination and control over the proliferation of various types of armaments. These "suppliers' regimes" have some power to control the export of technology to states that do not observe the rules established by the regime.

A common feature of the regime-based organizations is that they are not bound by any treaty[7] and have no legal powers to enforce their wishes. However, in the cases where the organizations possess a near monopoly of the relevant armaments or technology, they have the de facto power to prevent other states from obtaining more of them.

The effectiveness of these groups is very dependent on information, some of which is easily available, some of which is subject to commercial secrecy, and some of which can

only be obtained by the operation of intelligence services. As stated by Peter van Ham: "By promulgating guidelines and control lists, non-proliferation regimes provide clarity and transparency as to which exports are allowed, and which are not. Without information about the export of sensitive goods, as well as intelligence concerning the intentions of states, no non-proliferation regime can work properly."[8]

The significance of regimes is that they "contribute to cooperation not by implementing rules that states must follow, but by changing the context within which states make decisions based on self-interest."[9]

Co-ordinating Committee for Multilateral Export Controls (CoCom). This regime was formed in 1949 by NATO countries, together with Japan and Australia, to control the export of technology of strategic significance. It was directed primarily against the Soviet Union, China and their allies, but subsequently made less discriminatory. CoCom is to be replaced by another, even less discriminatory organization, not polarized along East-West lines, early in 1994. Membership will be open to all states meeting certain norms, that is, established export control systems; adherence to the guidelines of the Nuclear Suppliers Group, the Australia Group and the Missile Technology Control Regime (see below); adherence to the NPT, the BTWC and, where applicable, the START Treaty. The new, shorter control list will include civilian and military strategic items, including dual-use items, and be focused on containing the threat of proliferation by states or regions of concern.

The P-5. This group consists of the five permanent members of the UN Security Council, whose collective export of conventional armaments exceeds 85 per cent of the global total. This group concentrates on non-proliferation of weapons of mass destruction, their delivery systems, and massive build-ups of conventional

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7   The only non-proliferation regimes that are based on a treaty are the IAEA (under the NPT), OPANAL (under the Treaty of Tlatelolco) and the OPCW (under the CWC).

8   Peter van Ham, *Managing Non-Proliferation Regimes in the 1990s: Power, Politics and Policies* (London: Royal Institute of International Affairs, 1993), p. 38.

9   Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 1984), p. 13. Quoted in Peter van Ham, *Managing Non-Proliferation Regimes in the 1990s: Power, Politics and Policies* (London: Royal Institute of International Affairs, 1993), p. 37.

weapons. After a strong start following the Gulf War, this grouping has not been very active of late. These states continue, however, to play significant roles in other regimes and forums.

London Nuclear Suppliers Group/Zangger Committee. These groups, organized originally mainly by Western countries but now including East European states, address exports of nuclear materials and technology. The Zangger Committee (the Non-Proliferation Treaty Export Group) was formed in 1970. It supplied the "trigger list" of sensitive items to the IAEA. Export of any item on that list would have triggered the imposition of safeguards on them. The "London Club" was formed in 1974 but had not met for 15 years until 1990. In 1992 it updated its control list and introduced new guidelines for dual-use items. IAEA safeguards are a condition of supply. Members would "consult" about sanctions in the event of a test by a non-nuclear weapon state.

Australia Group. This ad hoc entity, formed in 1985 and with some 26 member countries, takes a similar interest in chemicals which could be used for weapons to that described above for the nuclear field. Since 1992 it has also concerned itself with the proliferation of biological and toxin weapons. It normally meets twice a year. It is expected that the Group will continue its activity after the CWC (see above) comes into effect, not only because it has some additional controls on chemical weapons related equipment but because of its interest in the biological and toxic weapons area.

Missile Technology Control Regime (MTCR). This is a voluntary arrangement among countries sharing a common interest in the control of the proliferation of ballistic missiles. Initially it concerned only those missiles with a nuclear capability but now it includes those that might be capable of carrying chemical or biological warheads. The MTCR is not based on a treaty, and has no mechanism established for verification or enforcement. It divides its concerns between complete missile systems and major subsystems on the one hand, and dual-use[10] technology and components on the other. It updated its guidelines in 1993.

Summary

This review has demonstrated the number and scope of the various bodies, treaties, agreements and regimes contributing to international peace and security. The number of bodies seems to be increasing, as is co-operation among them. Interstate confidence is enhanced through increased transparency. Recognition of the value of exchanging techniques developed separately, for example those developed for arms control purposes with those developed for peace operations, is on the rise. Nevertheless, the numbers of organizations and techniques seem to call out for some form of harmonization and synergy. The review also points out the lack of verification mechanisms in many cases and, in particular, the lack of enforcement options.

Some type of enforcement of compliance has been envisioned from time to time in various arms control agreements, particularly the NPT, but this has rarely been defined in any detail. A specific aspect of peace enforcement that needs attention is the notion of enforcing arms control agreements per se using peace enforcement forces. This is probably only an option in a very specific set of circumstances. The world community is going to have to develop some norms in this area if the concept continues to be advanced.

The role of the Security Council has been mentioned from time to time in connection with the implementation of compliance, and this will continue to be the case in the future. Sanctions have been the main weapon to date but, as we have seen, use of force is not impossible where the political will exists. Sanctions of course are a two-edged sword, often harming the innocent more than the guilty. This would also often be the case for one of the other two "non-use of force" options under Chapter VII of the UN

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[10]   The other uses are for space launchings and scientific probes of the upper atmosphere.

Charter, the cut-off of all communications. (The other option is the severing of diplomatic relations.) The need for co-operation between the permanent members of the Council will be paramount if the Council is to be an effective force in this area.

Regional organizations must continue to develop their capacity to undertake peace operations, including, in particular, the ability to require compliance with local or global norms. The "supply-side regimes" must also continue to adapt and to find the right balance between security concerns and equitable access for developing states. Finally, states parties must re-examine the requirement for verification and compliance bodies within existing and forthcoming treaties.

The main institutions, bodies and regimes are listed in Table 4, together with an indication of whether they are global, regional or exclusive in their scope. Table 5 reflects the roles of the various bodies and regimes. Possible harmonization and synergies are explored in following chapters.

Table 4
Scope of Existing Multilateral Bodies/Regimes

Existing Body/Regime	Treaty Specific	Global	Regional	Exclusive
UN Security Council	T	G		
IAEA	T	G		
OPCW	T	G		
ENMOD Committee of Experts	T	G		
CFE Joint Consultative Group	T		R	
CSCE Forum for Security Co-operation	T		R	
CSCE Conflict Prevention Centre	T		R	
OPANAL	T		R	
Open Skies Consultative Commission	T		R	
UN Arms Register		G		
UN Peacekeeping Missions		G		
P5 Group				E
Nuclear Suppliers Group				E
Zangger Committee				E
Australia Group				E
MTCR				E
CoCom				E

Table 5
Roles of Existing Multilateral Bodies/Regimes

Existing Body/Regime	Implementing Agreements	Handling Non-Compliance	Non-Proliferation	Enhancing Transparency
UN Security Council	I	NC		
CSCE Conflict Prevention Centre	I	NC		T
OPCW	I		NP	T
OPANAL	I		NP	T
IAEA	I		NP	T
CFE Joint Consultative Group	I			T
ENMOD Committee of Experts	I			T
CSCE Forum for Security Co-operation	I			T
Open Skies Consultative Commission	I			T
Nuclear Suppliers Group		NC	NP	
Zangger Committee		NC	NP	
Australia Group		NC	NP	
MTCR		NC	NP	
CoCom		NC	NP	
UN Arms Register			NP	T

VIII Opportunities for Harmonization

George Lindsey

Harmonization

The number of treaties, agreements, organizations, bodies and regimes attempting to deal with the problems of international security is growing, as is the number of nations participating in many of the international groups. Each body is concerned with a particular purpose, but as the number increases and the activities extend, there is the increasing possibility of unnecessary overlap, involving expense and perhaps resistance to what could be interpreted as unreasonable intrusion. There is also the potential for useful synergy, when there is some element of commonality between or among the roles and interests. Some of the data gained by one group can be shared with others, and assessments carried out by the most knowledgeable analysts on the basis of a maximum of information obtained from many diverse sources. The pooling and combination of information can be made more efficient if the reporting, dissemination, storage and retrieval of the various sets of data can be harmonized into a minimum number of homogeneous data banks using standardized formats and a common system for communication and processing.

The relevant bodies that exist today have been described in the previous chapter. They include organizations created by the United Nations, organizations of a regional scope involving security, organizations based on arms control treaties or other international agreements, and regimes established for the purpose of controlling proliferation. There are opportunities for harmonization among some of these. But as new bodies appear, there will be an increasing desirability of harmonization within this enlarging set of organizations with roles converging on the various aspects of co-operative world security.

There are factors acting against extensive harmonization among the different sources of information and analysis. Secrecy thrives on rigid compartmentalization, and there are likely to be subgroups within the larger organizations that wish to withhold some of their information from members not in their subgroup. However, even if an organization receives no more than the "lowest common denominator" of information, harmonization should help it to make the best possible use of what it does have, and to build up the data banks and common experience in analysis over time.

Internationalization of Security Organizations

Throughout the ages, sovereign states have handled matters of their own security on a national basis, usually protected by secrecy from their own citizens as well as from foreigners. Some relaxations are made in a close security alliance, with outstanding examples being among the Western allies in World War II, and among the members of the North Atlantic Alliance during the Cold War. Nevertheless, each nation jealously guards the right to make its own assessments, and also to determine its own actions, subject to whatever agreements may have been made with respect to common actions.

Two trends have been developing as regards collection and assessment of intelligence information. One is caused by the increased dependence on collective security by groups of states that bring very different capabilities into an alliance. The weaker members become increasingly dependent on the stronger for collection of intelligence, but still reserve a right to participate in a joint effort of assessment, although they may not have very strong capabilities for this purpose. Thus there are joint efforts superimposed on the national activities.

The other trend has been caused by technology, which now permits the most powerful nations to deploy NTM with extraordinary capabilities for collection of intelligence. The major technology of this nature is dependent on sensors of many types installed in satellites, and provides the owners with information far more extensive, detailed and worldwide than

anything possible prior to the space age. However, full utilization of this capability requires a large, well-trained and well-equipped staff for its data reduction and analysis, and a large data bank collected, stored and displayed using current technology. Indigenous development of both the physical equipment for collection and the organization for its analysis is beyond the capability of small nations. However, commercial organizations are beginning to offer for sale imagery of a very high quality.

The signing of multilateral arms control treaties has brought the need for their verification, and the process of confidence-building and the measures to combat proliferation have added other demands for collection of information and its assessment on a multinational, rather than a national basis. Moreover, many of the same capabilities that have made NTM so valuable for the gathering of intelligence are directly applicable to these new multinational requirements.

A number of plans have been offered for the creation of multilateral or global organizations to carry out such functions as the monitoring of disarmament, the verification of arms control agreements, or the general building of confidence, on a collective basis.[1] However, the recommended responsibilities do not extend as far as condemning violators or meting out punishments.

We have already seen reference in Chapter VII to "new" bodies (tasks) with which experiments have been made, but which have not become part of the daily lexicon. These include the "special" bodies established for a specific task, such as the UN Special Commission under Security Council Resolution 687 charged with the disarming of Iraq. During the past year we have also seen the establishment of UNOSOM II as the first UN-conducted peace enforcement operation (including a significant disarmament aspect). Finally, we have seen the Secretary-

General muse about using peace enforcement forces to deal with compulsory disarmament per se.

It is very difficult to imagine any of the foregoing in the future without a clear mandate from the Security Council, including the mobilization of the necessary political will to stay the course until success is achieved or the mandate changed. Provisions for enforcement must be written into the mandate.

With respect to differences between the roles and necessary composition of the various types of body, it is possible to foresee the "special commission type body" as dealing with problems involving high technology and thus requiring the necessary range of human and machine skills. When there is a large military aspect to the mission, such as disengagement, containment or disarmament, a "peace enforcement" mission would be required. The basic military skills, which are probably reasonably uniform among most countries, will be essential for execution of this type of mission. However, the use of a peace enforcement mission to assist in the implementation of an existing treaty or regime, as suggested by the Secretary-General, has not been tried as yet. If it is, effective co-operation among the personnel provided by different nations with different backgrounds in the roles of military and police in enforcing regulations in an unco-operative environment is likely to require a considerable degree of cross-national harmonization.

The prospect of establishing peace enforcement missions to compel the execution of internationally mandated disarmament raises sensitive questions of sovereignty and law. Depending on the specific task, implementation could require a mix of military and civilian specialists. Time will show whether states are willing to accept this enforcement approach. A possible test may be provided by the current situation in North Korea.

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[1] An International Disarmament Organization was proposed in 1962 to the Eighteen-Nation Disarmament Committee. Later suggestions carried the names of Limited International Disarmament Organization (intended to co-ordinate the efforts of various verification groups) and International Verification Organization. A study undertaken by the UN General Assembly in 1990 produced little support for an integrated international multilateral verification system. However, in 1993 the First Committee of the General Assembly recommended a review by a group of qualified governmental experts of the conclusions of the 1990 study, to seek ways in which "the United Nations might facilitate verification through relevant procedures, processes and bodies for acquiring, integrating and analyzing verification information from a variety of sources."

Potential New Bodies, Agreements and Regimes—A UN Verification Agency

In principle, the ultimate degree of harmonization and synergy should be attained by establishing under the United Nations an overall body charged with preventive diplomacy, implementing arms control agreements, handling non-compliance, limiting proliferation, and monitoring peacekeeping. However, although these functions are gradually converging toward a common goal of co-operative security, they are sufficiently different, their state of development is so far incomplete, and national acceptance of such a degree of sharing responsibility for security is sufficiently inadequate for such an overall and universal integration to be practical at the present time.

Somewhat closer to earlier feasibility would be an International Verification Agency, confining its activity to verification, both for compliance with negotiated treaties and for the less stringent undertakings of confidence-building and non-proliferation measures, and perhaps with some functions in support of peace operations. Many of the objections to a multilateral system for verification would disappear if its responsibility were restricted to monitoring, and did not include legal or political assessment of compliance. But, discussing the prospects for a universal mechanism for verification, it is the judgment of Serge Sur that "the obstacles for a successful implementation of such a mechanism remain overwhelming, and are likely to do so for the foreseeable future."[2] In 1990 a UN Group of Experts was unable to come to agreement on specific recommendations for a general UN system, judging that it would be more practical to support agreement-specific and region-specific verification organizations.

Studies of possible United Nations activities in various specific types of verification have suggested a number of new bodies, regimes or agreements that would combine the efforts of many countries for the conduct or improvement of one aspect or application of verification.[3] In addition to consideration of international verification systems, the 1990 UN study focused on potential developments in the fields of data collection capability, exchanges between experts and diplomats, the role of the Secretary-General in fact-finding and related activities, and the use of aircraft and satellites for verification purposes.

On a regional scale, there is some support for a European Verification Agency. If confined to the verification of arms control agreements covering conventional military forces in Europe, it could deal with the verification aspects of the CFE Treaty and the confidence-building measures in CFE, CSCE and Open Skies. It could be integrated into the CSCE Conflict Prevention Centre at Vienna. A prime task would be to harmonize the definitions and counting rules incorporated into these agreements.[4]

A BTWC Verification Regime

The Biological and Toxin Weapons Convention, signed in 1972, contained no provisions for verification, but some for confidence-building (such as consultations, and exchanges of scientific information, materials and equipment). Subsequent arrangements have added to the scope of the CBMs, but, while verification has been studied by an ad hoc group of government experts (in an exercise labelled "VEREX"), no agreement for the establishment of a regime has yet been reached.[5] The experience of the Chemical Weapons Convention has been very

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2   Serge Sur, "UN Activities in the Area of Verification of Arms Control and Disarmament," Chapter 33 in J. Altmann, H. van der Graaf, P.M. Lewis and P. Markl, eds., *Verification at Vienna: Monitoring Reductions of Conventional Armed Forces* (Philadelphia: Gordon & Breach, 1992), pp. 316. See also "International Verification Organizations: Proposals for General Overview Organizations," Chapter 6 in Ellis Morris, *International Verification Organizations* (Toronto: York University Centre for International and Strategic Studies, 1991), pp. 149-173.

3   It must be remembered, of course, that the IAEA and the UNSCOM organizations are UN organizations

with a considerable history of verification, the former for global nuclear non-proliferation, the latter specifically for verifying compliance with UN resolutions involving Iraq.

4   See Johan Tunberger, "Prospects for a Future All European Verification Agency," Chapter 32 in J. Altmann, H. van der Graaf, P.M. Lewis and P. Markl, eds., *Verification at Vienna: Monitoring Reductions of Conventional Armed Forces* (Philadelphia: Gordon & Breach, 1992), pp. 302-313.

5   There are plans to assemble a conference to examine the VEREX reports.

different. Signed in 1992, following protracted negotiations over verification, extensive provisions for intrusive verification were agreed.

The principal difficulty over verification of the BTWC is caused by the fact that the activities that would be necessary for the development of an arsenal of offensive biological weapons are virtually identical to legitimate activities in the field of microbiology.[6] Some leading authorities believe that this problem of "dual use" will render it impossible to achieve a satisfactory degree of verification. Others disagree, and advocate the negotiation of a verification protocol. The dangers may escalate as a result of advances in the science of genetic engineering, and the early results of the CBM requesting information exchanges have been disappointing.

- It seems clear that verification would be critically dependent on inspections, both at declared sites and with a right of challenge to visit undeclared locations.[7] UNSCOM succeeded in discovering evidence of BTWC transgressions in their inspection of facilities in Iraq. However, it is likely that the means of assuring compliance with the BTWC are going to rely on confidence-building and non-proliferation measures, unless and until a BTWC verification regime is established. If such does occur, the regime will have a considerable task of harmonizing the products of CBMs and non-proliferation measures with those arranged for verification.

Multinational Spaceborne Surveillance

One type of organization that would exploit the capabilities of space surveillance and make it available to states unable to afford the technology for themselves was first proposed by France in 1978, in the form of an International Satellite Monitoring Agency (ISMA), followed in 1988 by the suggestion of a Satellite Image Processing Agency.[8] The Soviet Union proposed an International Monitoring and Verification Agency in 1988. Canada has investigated the possibilities of space surveillance for multinational monitoring of space vehicles (PAXSAT A), or of military deployments in Europe (PAXSAT B). Sweden circulated a proposal in 1988 for a Tellus surveillance satellite, and in 1991 the WEU conceived of a Satellite Data Interpretation Centre for verification of arms control and the monitoring of crises and of the environment.

Technology now permits hugely expensive and highly capable national space surveillance systems (already funded and operating) to provide a multinational centre with some of their data. The information shared with the multinational organization could be degraded in both quality and quantity from the full capability transmitted to the national centres. Analysis could be performed by a multinational staff, with the results reported to either a multinational organization charged with handling non-compliance, or to the United Nations. The same information would be sent to the participating nations. Alternatively, the multinational organization could acquire its own satellites, and perhaps other technical means of data-gathering (multinational technical means), using funds provided by the member states.

If the surveillance was used to contribute to the verification of several different arms control treaties, confidence-building measures, or non-proliferation regimes, there would be a need for harmonization of the scheduling of image collection and distribution. Moreover, if a multinational service is to be available to different

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6   Erhard Geissler, "Strengthening the Biological Weapons Convention through Greater Transparency," Chapter 8 in J.B. Poole and R. Guthrie, eds., *Verification Report 1992* (London: VERTIC, 1992), pp. 71-84.

7   Matthew Meselson, Martin Kaplan and Mark Mokulsky, "Verification of Biological and Toxin Weapons Disarmament," Chapter 9 in F. Calogero, M.L. Goldberger, and S.P. Kapitza, eds., *Verification: Monitoring Disarmament* (Boulder, Colorado: Westview, 1991), pp. 149-164.

8   See Caesar Voute, "The Use of Satellites for Verification," Chapter 2 in Frank Barnaby, ed., *A Handbook of Verification Procedures* (London: Macmillan, 1990), pp. 7-36.

member states it will be necessary to harmonize the procedures by which they make requests for the collection, analysis and dissemination of information, and by which the tasking of the organization is determined.

These considerations will also apply to other potential multinational bodies dedicated to the collection of information helpful for verification, confidence-building, non-proliferation and peace operations, but they are especially important for spaceborne surveillance, with its global scope and ability to amass detailed information on short notice.

Multinational Aerial Surveillance

Somewhat less ambitious than multinational exploitation of space surveillance would be aerial surveillance. In this case the vehicles are within the financial capability of most states, and the opportunity is present for observers from different countries to be present during the surveillance flights.[9] Although Open Skies is considered to be a confidence-building rather than a verification measure, it would not require much of a change to employ it for verification or the monitoring of peacekeeping. Also, the opportunity exists for overhead surveillance to provide valuable assistance in the planning and execution of on-site inspections, for choosing the sites most appropriate for a visit, for ensuring that no last-minute removals are conducted between the announcement of the visit and the arrival of the inspectors and, possibly, for real-time consultation between the inspectors on the site and aircraft overhead. Clearly such application will demand effective harmonization between the scheduling of the overflights and of the ground parties. In cases where both airborne and spaceborne surveillance are co-operating, cloud cover will produce circumstances in which optical spaceborne sensors will not be able to collect images, while airborne photogra-

phy will be possible if made at altitudes below the cloud. Again, harmonization of scheduling will be required. Or if cloud, fog or rain made optical surveillance impossible, coverage may be obtainable using spaceborne or airborne radar sensors.

As has just been discussed for spaceborne surveillance, there will be a need for harmonization of the requests for collection and analysis of information, and of the process of tasking. Harmonization will be all the more necessary as the number of countries, the number of types of aircraft, and the variety of airborne sensors increases.

A Multinational Centre for Verification of a Comprehensive Nuclear Test Ban

As the prospects improve for the signing of a comprehensive nuclear test ban, increased attention will be paid to the problem of effective verification. It seems clear that verification will require, as well as other facilities, a worldwide network of seismic sensors, with much depending on integration of the information collected from sensors at widely dispersed locations, almost certainly in many countries. Following the long-standing practice of geological research (e.g. into earthquakes), it should be possible to establish an international organization to collect, analyse and distribute the information obtained from the seismic network.

A Multinational Centre for Monitoring Arms Control in Space

While there may be little probability of early negotiation of a global agreement for the control of weapons in space,[10] the subject may well come up some time in the future. By then many nations will have satellites in orbit, and any meaningful treaty would have to be multinational. Implementation would be strengthened by the establishment of a multinational

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9   See Michael Krepon and Amy Smithson, eds., *Open Skies, Arms Control, and Cooperative Security* (New York: St. Martin's Press, 1992). Also Michael Slack and Heather Chestnutt, eds., *Open Skies: Technical, Organizational, Legal, and Political Aspects* (Toronto: York University Centre for International and Strategic Studies, 1990). While these, and most of the other recent references to aerial surveillance for arms control, concentrate on the Open Skies Treaty, many of the considerations should have application to other arrangements

for aerial surveillance among other participants, in other regions, and under other circumstances.

10   The multilateral Outer Space Treaty prohibits the placing of "weapons of mass destruction" in space, and the bilateral ABM Treaty prohibits space-based antiballistic missile weapons. But there are no agreements to ban non-nuclear space-to-space or ground-to-space weapons.

centre for circulation of notifications, monitoring, verification, observation of launches, and other necessary functions.

A Multinational Centre for Monitoring Arms Control at Sea

Arms control has not developed very far in its maritime dimension, other than the provisions in the SALT and START treaties for limitations and reductions on ballistic missile submarines, and in unilateral withdrawals of maritime tactical nuclear weapons. And yet some of the first attempts at arms control early in this century were focused on naval limitations. If developments in this area were to occur in the future they would almost certainly be multinational and global in scope, and would probably require some sort of multinational centre for effective implementation.

Multinational Centres for Development of Equipment, Methodologies and Training

As more experience is gained with multilateral operations, and as more states enter into the activities of monitoring compliance with treaty undertakings and contributing to confidence-building and transparency, a requirement will arise for multilateral centres for the development of equipment and methodologies, and for training of inspectors, operators, interpreters and analysts from many countries.

Such a development would be especially important for the efficient functioning of bodies involving personnel from many countries with different backgrounds and technical qualifications, and should aid in the establishment of confidence on the part of less-developed partners in conclusions reached by groups in which their representation is proportionately small. A prime objective of a centre should be to promote harmonization of the equipment and procedures to be employed by the various regimes.

Categories of Needs and Opportunities for Harmonization

As has been described earlier, and depicted in tables, the organizations, bodies and regimes can be grouped in several different ways. The needs and opportunities for harmonization can be *within* one regime (e.g. within the UN Arms Register, the MTCR or a Conflict Prevention Centre) or *among* the various regimes within a group.

One grouping is by functional areas. Existing groups include nuclear, chemical, biological and conventional weapons, and missiles, indicated in Table 6. When two or more regimes operate within the same functional area there are likely to be opportunities for harmonization among the regions. For example, as illustrated in Table 6, there is ample opportunity for harmonizing the reporting and analysis conducted by the IAEA, the London Nuclear Suppliers Group, the Zangger Committee, OPANAL, and the successor to CoCom, since all deal with nuclear proliferation. Similarly, bodies dealing with the proliferation of conventional weapons that would benefit from harmonization include the CSCE Forum for Security Co-operation, the UN Arms Register, the successor to CoCom, and any body using aerial surveillance such as the Open Skies Consultative Group, should it be authorized to undertake monitoring or verification. Regimes operating in different functional areas are likely to have fewer needs for harmonization.

Another grouping is by geographical areas. At the present time the obvious opportunities would seem to be among the regimes operating in Europe. Geographical groups such as Antarctica, the seabed and outer space are so different in their nature that there may be few opportunities for harmonization until new regimes are added.

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A third grouping is by methods of obtaining information. Examples are NTM, NIM, space surveillance, aerial surveillance, on-site inspections, invited observation of military exercises, exchanges of various types of information, joint operation of centres for risk reduction or crisis management, perimeter portal and entry/exit point monitoring, tagging, and employment of a variety of sensing devices. Here opportunities are offered for harmonization of technology, training and procedures.

When the objects of concern are weapons systems, these normally survive through a long life cycle, beginning with research and development, and proceeding through preliminary design, testing, evaluation, production, issue to armed forces, training and operational deployment. Eventually the weapons will be expended, destroyed, stored or transferred to another user. At these different stages of their life cycle the weapons offer different opportunities for observation by interested foreign agencies. As

Table 6
Functional Areas of Existing Multilateral Bodies/Regimes

Existing Body/Regime	European Arms Control	Nuclear Proliferation	Chemical Proliferation	Missile Proliferation	Conventional Proliferation
CSCE Forum for Security Co-operation	A				CP
CSCE Conflict Prevention Centre	A				
CFE Joint Consultative Group	A				
CoCom		N	CW	M	CP
IAEA		N			
Nuclear Suppliers Group		N			
Zangger Committee		N			
OPANAL		N			
Organization for the Prohibition of Chemical Weapons			CW		
Australia Group			CW		
MTCR				M	
UN Arms Register					CP
Open Skies Consultative Commission	(A)				(CP)

indicated in Table 7, the best opportunities are likely to be found at the stages of production, issue to the armed forces, training and operational deployment, which are the ones on which verification and CBMs are focused. However, any information obtained in the early stages of the life cycle, such as might be gained from NIM or observation of testing, should be made available to aid in the interpreting of information concerning production. Similarly, indications that equipment was being withdrawn from operational deployment should be combined in a harmonious form with evidence needed to determine whether it had been expended, intentionally destroyed, put into storage or transferred to another country.

Opportunities for harmonization and synergies in the converging roles of arms control, confidence-building measures and peace operations are presented by proper combination of the means of collecting information throughout the life cycle of major weapon systems.

Types of Harmonization

Some aspects of the operations of the regimes being discussed in this paper are more amenable to harmonization than others, and more likely to profit from it.

By its very nature, the exchange of information among a number of different sources and recipients in different countries in different parts of the world could resemble the Tower of Babel unless a considerable degree of harmonization is introduced. Apart from language, the problem of amassing, managing and presenting a large volume of data in such a way as to permit rapid access to the most recent material, as well as the capability for analysis of records extending over a long time span, is a formidable one, but is well suited for the modern techniques of data-processing. This is likely to demand harmonization of reporting procedures and formats, communications and data-processing equipment, and adoption of a common terminology.

For both information exchange and judgments regarding compliance, it would be advantageous to harmonize the definitions of various weapon systems among different regimes. For example,

the CFE and CSCE have well-harmonized definitions of various types of armoured fighting vehicles, combat aircraft and artillery weapons. Future agreements for arms limitation in other regions, and regimes intended to control proliferation of conventional arms should adopt definitions in harmony with those already in effect. As technology improves and new systems are designed, problems can arise as to the categories into which new weapons should be placed, as they work their way through the life cycle of testing, production, training, deployment, transfer and elimination.

Another aspect of harmonization is maximization of the opportunities to exploit the synergy available from the combined operations of several activities that have a common goal. An example is the scheduling of aerial or on-site inspections so as to extract the best information, to be able to notice significant changes, and to make it as difficult as possible for non-compliance to escape detection. Unless there is real reason to suspect non-compliance at a particular site, repeated inspections at short intervals are unlikely to uncover new information, and could cause considerable inconvenience to the site. On the other hand, rigid timetables remaining unchanged over a long time may offer an opportunity for escaping the detection of illegal activity. The synergy of the combined programs of the several nations that have quotas for overflights of the same territory under the provisions of the CFE and Open Skies treaties can be maximized by proper harmonization of their flight schedules.

As new regimes of multilateral but less than global scope are formed, their effectiveness will be influenced by their membership. Harmonization of CFE with CSCE is made more difficult by the larger membership of the CSCE. The presence of tiny states with little power or responsibility is likely to introduce added costs and make procedures more cumbersome, without contributing much to the efficiency of the regime. Addition to the membership of a non-proliferation regime of states more interested in selling than controlling armaments is unlikely to improve the effectiveness of its operations.

Table 7

Applicability of Different Methods of Obtaining Information Regarding Different Stages of the Life Cycle of a Weapon System

Stages in Weapon Life Cycle	Source of Information					
	NTM / NIM	Space Surveillance	Aerial Surveillance	On-Site Inspection	Invited Observers	Information Exchange
Research	NIM					IE
Development	NIM					IE
Preliminary Design						
Testing	NTM	SS			IO	IE
Evaluation	NIM					
Production	NIM	SS	AS	OSI	IO	IE
Issue to Armed Forces	NTM	SS	AS	OSI		IE
Training	NTM	SS	AS	OSI	IO	
Operational Deployment	NTM	SS	AS	OSI	IO	IE
Expended	NTM					IE
Stored	NTM				IO	IE
Destroyed			AS	OSI	IO	IE
Transferred	NTM	SS	AS	OSI	IO	IE

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Summary

As the number of multinational bodies, and of countries, engaged in verification of arms control treaties, peace operations, and confidence-building and non-proliferation measures increases, and as their roles converge on a common objective of co-operative international security, there is going to be an increasing need for harmonization of the definitions, the reporting, the data-processing and the analysis of the huge mass of information passing through the many organizations engaged in these activities. Without harmonization it will not be possible to attain the full benefits of the synergy that is possible by the combination of all of these efforts toward a common objective.

Another example of the advantages of harmonization is offered by the scheduling of overflights, or of on-site inspections, intended to verify multilateral arms control agreements, when the quotas assigned to several countries can be programmed to maximize the ability to confirm compliance or detect non-compliance.

Among the new bodies that may be created by the growing needs for verification, peace operations, and confidence-building and non-proliferation measures are the following examples:

- a UN verification agency;

- a BTWC verification agency;

- an agency for multilateral spaceborne surveillance;

- an agency for multilateral airborne surveillance;

- a multinational centre for the verification of a comprehensive nuclear test ban;

- a multinational centre for monitoring arms control in space;

- a multinational centre for monitoring arms control at sea; and

- a multinational centre for development of equipment, methodologies and training for the functions of verification, peace operations and confidence-building.

The greatest needs and opportunities for harmonization will be present among regimes operating in the same functional areas (nuclear, chemical, biological, missile, conventional), in the same geographical areas (with Europe offering the best opportunities at the present time), and using the same means of obtaining their information (multinational intelligence means, space surveillance, aerial surveillance, on-site inspections). It will be desirable to track the history of major weapons systems throughout their entire life cycle, from initial research and development to eventual expenditure or destruction, and including transfers to other countries. But different means will be needed to observe the different phases of the life cycles.

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IX Opportunities for Synergies

Sidney N. Graybeal and Patricia Bliss McFate

Introduction

Many multilateral agreements and activities form the foundation of international security, including those that reduce or limit arms; constrain proliferation of weapons of mass destruction, their delivery systems, and destabilizing accumulations of conventional weapons; build confidence and trust; prevent, dampen and help resolve regional or local conflicts; and enforce sanctions, arms limitations, or disarmament imposed under resolutions of the UN Security Council. While the processes associated with these agreements and activities—arms control verification, confidence-building measures and peace operations—may take place in separate venues, the linkages among the processes can, if properly utilized, enhance their benefits individually and collectively.

In support of international security, arms control verification, confidence-building measures and peace operations require certain common actions: they seek to verify compliance, resolve ambiguous activities or events, and deter or possibly detect non-compliance. These actions take place whether the operational context is a formal arms control agreement such as the Chemical Weapons Convention, a regional non-proliferation agreement such as the Treaty of Tlatelolco, an approach to confidence-building such as the Open Skies Treaty, or one of the many efforts involving UN personnel for the purposes of prevention, containment or resolution of an interstate or intrastate conflict, for example, the peacekeeping force in the former Yugoslavia. The ultimate goal of the three processes is to reduce the likelihood of armed conflict or reduce its severity if it happens.

The Methods and Activities Associated with Arms Control Verification, Confidence-Building Measures and Peace Operations

A number of methods and/or activities have been developed to assist in the implementation of arms control verification, confidence-building measures and peace operations.

Arms Control Verification

From a notional perspective, monitoring arms control agreements is primarily a function of intelligence collection and analysis, using all information available concerning a particular activity or location. In certain developed countries, this function is mainly accomplished by NTM, which includes reconnaissance satellite systems using photographic, infrared, radar and electronic sensors; ground-, air- and sea-based radars and other sensors; seismographs; communications collection stations; and underwater acoustic systems.

Countries that do not have NTM or access to data collected by NTM rely on their NIM, which includes the sum of the country's intelligence collection and analysis capabilities minus the technical systems described above which these countries do not possess. NIM is concentrated in the area of HUMINT, the collection by human sources, and the analyses of open-source information such as media coverage or commercial satellite photography. Countries that lack NTM and have minimal NIM capabilities must rely on international authorities or other countries to do the monitoring for them.

NTM and/or NIM are complemented by *co-operative measures*, which include data exchanges, notifications, on-site inspections and aerial inspections. Comprehensive sets of information covering the numbers and locations of treaty-limited equipment (TLE) or treaty-limited items (TLIs), technical characteristics, site diagrams, and information regarding force structure and location are among the items shared during *data exchanges*. *Notifications* include advance information on planned activities, movements of TLE/TLIs, changes in number of TLE/TLIs, planned changes in personnel or existing units, conversion or elimination of TLE/TLIs, and requested or planned on-site inspections. There are four general types of *on-site* or *on-the-ground inspections:* pre-agreement trial inspections, routine or short-notice inspections of declared facilities, challenge inspections

of undeclared or suspect sites, and invitational inspections. *Aerial inspections* include inspections of sites and TLE/TLIs using a wide variety of platforms and sensors for overhead inspection purposes.

Confidence-Building Measures

Confidence-building measures can be grouped in a number of different ways. What follows is a grouping into eight generic categories: information, communication, notification, observation, inspection, activity constraint, deployment constraint, and technology constraint measures.

Information measures include publication of defence information, weapon system and force structure information exchanges, consultative commissions, publication of defence budget figures, publication of weapon system development information, and doctrine and strategy seminars. Hot lines, joint crisis control centres and "cool lines" (for regular distribution of required and requested information) would be forms of *communication measures.*

Notification measures include advance notifications of military exercises, force mobilization and deployments, and information on the nature and type of forces involved. *Observation of movement* measures allow for observation of specified military activities or exercises. *Inspection measures* include special observers for sensitive movements of equipment or personnel, on-site inspections and special sensing devices. Included in this category would be "Open Skies," a type of co-operative aerial monitoring involving sensors and human observers.

Like arms control provisions, confidence-building measures can also provide constraints of activities or behaviour. *Activity constraint measures* include assurances to avoid or limit provocative military activities, for example, no harassing activities on the high seas or near territorial boundaries. *Deployment constraints* prohibit threatening manoeuvres or equipment

tests, threatening deployments near sensitive areas, and specified equipment; they may also include manpower limits or weapons limitations such as nuclear-free zones. *Technology constraint measures* mandate no replacement of deployed military equipment of certain types with new, more advanced types; no modernization of deployed military equipment; no training with new systems; no field testing of new designs; no production of specified new systems or subsystems; and no military use of a "dual-use" technology or process.

Peace Operations

Certain measures are common to peace operations taken as a whole. Of major importance in the area of preventive diplomacy is the collection of *early warning information*, that is, information received through technical and human means (NTM and NIM) of member states. Based on that information, *fact-finding* takes place; during this procedure, an individual or group gathers information on a formal or informal basis. This is a measure similar to the collection of early warning information except that it depends upon actual deployment on the ground of experts who conduct inquiries directly with the parties concerned. *Preventive deployment* involves the dispatch of military personnel (with the consent or request of a state) to ease tension and suspicion. *Demilitarized zones* can be created in advance of a potential conflict, with the consent of states parties; creation of these zones requires supporting verification mechanisms such as ground inspections, overflights, and human and/or electronic surveillance.

Information or data exchange is also a measure associated with peace operations. The UN system of *reporting military expenditures* is open to all states (although only some 30 report at present). The recently formed *UN Register of Conventional Arms*, a report of export and import of certain categories of conventional arms, has started out with an encouraging response from

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over 80 participating countries. Those countries that have responded to the *Register* are also asked to supply supplementary information on military holdings, procurement through national production and relevant policies.

Since early warning is of great importance in the area of preventive diplomacy, two other measures have been proposed to strengthen the UN efforts in this area. One, the establishment of *risk reduction centres*, would provide clearing houses for information received from all sources; the centres could also serve for holding periodic consultations with parties to potential conflicts, facilitate exchanges between military officers, and arrange inspections of military facilities and observations of military exercises. Another measure would expand the mandate of the *UN Field Offices* to include gathering early warning information, building on the manner

in which the three Centres for Peace and Disarmament in Africa, Asia, and Latin America and the Caribbean operate.

Peacemaking operations employ *observer missions* to collect information. This has led to proposals for creation of UN "embassies" which would gather facts and provide on-the-ground assistance in deployment of peacekeeping relief missions. Peacekeeping operations also employ observers, although in this case they are *military observers*.

Peace enforcement missions can be used to support operations where the limited use of force is required to ensure, for example, the delivery of humanitarian relief or protection of human rights. They are also envisaged for possible use in ensuring adherence to arms control arrangements freely entered into but subse-

Table 2
Similarities in Functions

Arms Control Verification	Confidence-Building Measures	Current and Potential UN Peace Operations
National Technical Means, Multilateral Technical Means	Space & Airborne Sensors	International Technical Means
National Technical Means	Information Measures	Early Warning & Fact-Finding Information
Data Exchange	Information Measures	Arms Register, Military Expenditure Reports, etc.
Notifications	Notification Measures	Activity Reports
On-Site Inspections	Invitational Inspections & Observations of Movement	IAEA activities, special observers, fact-finding missions, UNSCOM
Aerial Inspections	Open Skies	Aerial surveillance during peace operations, including UNSCOM
Implementing Bodies, Nuclear Risk Reduction Centres, etc.	Crisis Prevention Centres, Communication Measures & Implementing Mechanisms	UN War Risk Reduction Centre, Field Offices ("embassies"), UNSCOM-type activities, peacekeeping and peace enforcement missions

quently violated. Post-conflict peace-building employs political, economic, social and cultural measures to solidify peace and avoid a relapse into conflict.

Synergistic Effects among Methods or Activities Developed for Arms Control Verification, Confidence-Building Measures and Peace Operations

As Table 2 indicates, while the methods developed for the three processes have different names, their functions, when viewed generically, are very similar. Co-ordinating and combining these generic functions provides numerous opportunities for synergies. The following sections outline some potentially useful synergistic relationships. Table 3 presents in tabular form the conclusions reached in the following sections.

Technical Means and National and International Intelligence Sources

There are high value synergies between these categories. Data from technical means, including space sensors, can be used to focus national intelligence sources and other sources of early warning information; these data can also con-

Table 3
Synergies among Methods Associated with Arms Control Verification, Confidence-Building Measures and Peace Operations

	Technical Means	Intelligence, Information, Fact-Finding Means	Data Exchanges & Registers	Notifications & Declarations	Inspections & Observations	Aerial Surveillance	Implementing Bodies
Technical Means	—	H	M	L	H	M	H
Intelligence, Information Fact-Finding Means	H	—	H	L	H	M	H
Data Exchanges & Registers	H	H	—	L	H	M	H
Notifications & Declarations	H	M	L	—	H	H	H
Inspections & Observations	H	H	H	M	—	H	H
Aerial Surveillance	M	H	L	M	H	—	H
Implementing Bodies	M	M	M	M	H	M	—

Helps or Impacts Items Listed Vertically

Helps or Impacts Items Listed Horizontally

H = High Value Synergies
M = Medium Value Synergies
L = Low Value Synergies

firm information received through human sources such as experts on exchange visits or UN fact-finders in the field. Data from intelligence and fact-finding sources can be used to target technical collection resources. An enhanced CBM such as exchange visits of scientific experts may provide information that can be used to target suspect biological weapons facilities with NTM or other technical means.

Technical Means and Data Exchanges/Registers

Data from technical means provide modest but useful information about the nature and scope of information expected to be found in data exchanges, information exchanges and information data bases compiled by the UN. On the other hand, data and other information exchanges provide highly useful information for enhancing present and future monitoring capabilities. The UN Register of Conventional Arms, for example, has the potential to provide important transparency input for conventional arms verification activities.

Technical Means and Notifications/Declarations

While technical means have only a modest effect on notification, declarations and other activity reports, these methods have a substantial effect on technical means. Technical means can provide insights regarding what should be expected in the notifications, and in some cases technical means can confirm that the notified action has taken or is taking place. Declarations or notifications can trigger a variety of technical collection activities; while it is unlikely that a country would declare a prohibited activity, for example the existence of a chemical weapons facility, non-declaration of a site already identified through technical means would raise compliance concerns.

Technical Means and Inspections/Observations

The synergistic effects between technical means and inspections or observations are very high in both directions. Information from technical means can be used to trigger, focus and evaluate on-the-ground inspections. Inspections can provide "ground truth" for a variety of

technical systems, which reinforces their credibility. Technical means can provide information necessary for directing the location and timing of inspections associated with a future CTBT. Inspections and technical measurements made on the ground can provide valuable data for calibrating seismic measurements carried out by technical means.

Technical Means and Aerial Surveillance

Aerial surveillance can frequently cover sites that may not be accessible on a timely basis by space-based technical collection systems. Aerial overflights can fill in gaps in space surveillance coverage by operating at lower altitudes, often under the weather, at times when space satellites are not within the detection or observation range of the suspect activity or facility. On the other hand, technical collection systems can be used to target aerial surveillance flights for the acquisition of more precise or timely information.

Technical Means and Implementing Bodies

Technical means provides invaluable information to bodies responsible for implementing arms control agreements, confidence-building measures, and peace-related activities. In the UNSCOM experience, data from space-based sensors have been used to cue on-site inspections, thus creating an effective use of limited resources in person-intensive operations. On the other hand, while the activities of an implementing body such as a nuclear risk reduction centre or a crisis prevention centre could provide some requirements for technical means, the synergistic effects would not be as great in this direction because the information is not suitable for targeting technical means on a timely basis.

Intelligence, Information and Fact-Finding Means, and Data Exchanges/Registers

The synergies are high in both directions because the data obtained by these methods provide valuable cross-checks, thus enhancing confidence in both methods. For example, information supplied for the UN global arms register can be checked by intelligence means for accu-

racy; similarly, information obtained through intelligence sources can be checked against data in the register.

Intelligence, Information and Fact-Finding Means, and Notifications/Declarations

While notifications are useful in targeting intelligence means, intelligence means contribute little to the notification activity. Activity reporting, for example, will be a useful input to intelligence, but intelligence is normally not the basis for notifications.

Intelligence, Information and Fact-Finding Means, and Inspections/Observations

The synergistic effects between intelligence and information sources and on-site inspections are very high. Information from a "whistle blower," for example, has provided UNSCOM inspectors with the information necessary to know that material was being moved clandestinely out of an area in advance of an inspection. In future regional agreements associated with non-proliferation, HUMINT will be extremely important when planning authorized inspections, such as IAEA challenge inspections. Information or complaints from informants, followed by "inspections" by peacekeepers, can be very valuable in peace operations.

Intelligence, Information and Fact-Finding Methods, and Aerial Surveillance

Information from intelligence and other information sources can provide clues about activities that merit closer inspection by aerial surveillance. Such information can provide advance warning of activities to schedule flights over specific geographical areas. Conversely, aerial surveillance such as the overflights associated with the Open Skies Treaty may detect suspect activities which can become the focus of attention by certain intelligence sources.

Intelligence, Information and Fact-Finding Methods, and Implementing Bodies

Just as technical means provide highly useful information for implementing bodies, so intelligence means can also offer valuable information. The implementation of a complex multilateral agreement, such as the Chemical Weapons Convention, will definitely benefit from intelligence and other informational sources. In some instances, the findings of implementing bodies such as the OPCW may be useful in targeting information gathering; in other cases, the findings could be critical in directing specific information gathering.

Data Exchanges/Registers and Notifications/Declarations

There are a few opportunities for synergies between notifications and data exchanges. While notifications are not dependent upon data exchanges, data exchanges may get some help from notifications. However, they are essentially two independent methods with separate purposes.

Data/Information Exchanges and Inspections/Observations

Data exchanges and inspections are mutually reinforcing in many different ways. Data exchanges can pinpoint locations that can be targeted for inspections; inspections can confirm data provided in the exchanges or detect inconsistencies. Information exchanged under a global cut-off agreement will provide valuable information for inspecting parties and, in turn, data acquired by inspectors will be useful in confirming or detecting anomalies in the information provided under data exchanges.

Data/Information Exchanges and Aerial Surveillance

Aerial surveillance will benefit from information provided under data exchanges. Data exchanges will obtain limited benefits from aerial inspections. The synergistic effects will consist primarily of confirming information.

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Data/Information Exchanges and Implementing Bodies

Data exchanges are very useful to implementing bodies. The information exchanged under a series of confidence-building measures established for the BTWC is valuable to the parties involved and to the United Nations because it improves transparency concerning compliance with obligations under the convention. In many instances, implementing bodies can help assure the completeness of data exchanges.

Notifications/Declarations and Inspections/Observations

Notifications are particularly helpful in determining the timing, scope and nature of inspections. For example, notifications of troop movements or exercises called for in the Stockholm and Vienna agreements have been essential to assuring timely, effective inspections. The inspections are useful in confirming the accuracy of the notifications.

Notifications/Declarations and Aerial Surveillance

Notifications can trigger aerial surveillance; in turn, aerial overflights can confirm the accuracy of the notifications. Aircraft continue to be employed to good effect by the Multinational Force and Observers (MFO) deployed in the Sinai Peninsula to monitor the Egypt-Israel peace treaty. The MFO monitors the obligations of the two countries to locate their forces in such a manner as to prevent accidental confrontations. Notification of troop movements can be monitored by the MFO. Another example would be found in the Vienna Document, which allows for aircraft during CSCE inspections.

Notifications/Declarations and Implementing Bodies

Notifications are extremely useful to implementing bodies because they provide the basis for the bodies to initiate actions to assure compliance. The multiparty START I agreement requires extensive notifications on a variety of activities associated with treaty-limited items,

including movements, conversions, eliminations, flight tests, reductions in warheads, operational dispersals, transfers of items, and open displays. These notifications will be essential to the ability of the Joint Compliance and Inspection Commission to discharge its implementing functions. Conversely, implementing bodies are responsible for assuring that the required notifications or declarations are provided in an accurate and timely manner.

Inspections and Aerial Surveillance

There are very high synergistic effects in both directions because the two methods are mutually reinforcing. For example, UNSCOM is making good use of high resolution aerial imagery from specialized U-2 aircraft. In addition, helicopters are being employed during on-site inspections as an aerial platform for close-in, hand-held photography. In the future, aircraft or helicopters equipped with specialized sensors could be used to detect effluents from plants, indicating possible chemical weapons production; in turn, this information could be used to implement a challenge inspection under the CWC.

Inspections/Observations and Implementing Bodies

Inspections frequently provide critical information to implementing bodies responsible for assuring compliance with agreements limiting arms. Inspections confirmed the destruction of missiles in the INF agreement; they could confirm the required disposition of fissile materials under a cut-off agreement. Implementing bodies will frequently find it necessary to utilize inspections to investigate and resolve anomalous events or activities.

Aerial Surveillance and Implementing Bodies

Data from aerial surveillance can be extremely vital to UN peace operations in situations of regional instability and limited on-the-ground access. The United Nations has called upon NATO to monitor no-fly zones in the former Yugoslavia and to assist in monitor-

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ing arms embargoes to the area. NATO has deployed Airborne Early Warning and Control System (AWACS) aircraft containing advanced monitoring sensors and analysis equipment in order to undertake this assignment. Implementing bodies can request or provide direction to aerial surveillance platforms, as in the case of the Open Skies Consultative Commission.

Synergies Associated with Global Agreements

In suggesting how synergies might be exploited among arms control verification, confidence-building measures and peace operations, this section will focus first on future global agreements and then look at potential regional arms control, non-proliferation and confidence-building agreements, and peace operations.

The NPT, with its associated IAEA safeguards, is designed to prevent the spread of nuclear weapons, to provide assurance that peaceful nuclear activities are not diverted to the making of nuclear weapons, and to promote the peaceful uses of nuclear energy. The treaty faces an uncertain future when it comes up for review and extension in March 1995. The achievement of two potential multilateral arms control agreements—the CTBT and the cut-off—could make a significant, positive impact on the outcome of the NPT review. There are clear synergistic relationships among the three agreements: each agreement reinforces the others.

Whether achieved or still under serious negotiation, the cut-off and the CTBT will reinforce efforts to extend the NPT. The compatible thrusts of all three agreements and the overlapping implementation of the three verification regimes offer unique opportunities for synergies which will both enhance their effectiveness and reduce the required resources. Efforts to extend the NPT will also be strengthened by the ratification of the START I agreement, significantly reducing strategic offensive arms as called for in Article VI of the NPT. Ratification of START I will also permit START II to enter into force, further reducing the strategic forces of the United States and Russia.

Verifying a Cut-off in the Production of Fissile Materials and a Comprehensive Test Ban

Negotiations are likely to begin soon on a global ban on the production of plutonium and highly enriched uranium for weapons or explosives purposes, a fissile materials cut-off for short. In many respects, a cut-off would be more effective in constraining proliferation of nuclear weapons than a CTBT. The technical knowledge required to develop and produce a nuclear device or weapon is well known; efforts to deny such knowledge are unlikely to be successful. It is also no longer necessary to actually test a nuclear device/weapon to have confidence that it will function close to the design yield. The critical requirement for a prospective nuclear country is access to nuclear materials. Therefore, increased attention should be paid to a cut-off agreement, even though more publicity has been focused on a CTBT. A cut-off agreement should include a strong non-transfer provision to deny access to fissile materials by countries lacking indigenous capabilities.

A cut-off agreement will pose major verification challenges and technology needs. Particularly demanding challenges could include monitoring permitted production of highly enriched uranium and plutonium for non-weapons purposes to assure some material is not diverted for military purposes; detecting covert nuclear materials production involving military use of commercial reactor facilities; and detecting covert production of nuclear weapons materials at undeclared military reactors or facilities.

NTM—or possibly ITM—would play a large part in verifying a cut-off. But NTM would not be able to provide assurance that permitted production is being conducted only for approved end uses or detect production of fissile materials at undeclared facilities. For these monitoring tasks, co-operative monitoring by on-site inspection would be required, whether by an expanded and enhanced IAEA, by a new organization, or by a mix of institutions.

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Several techniques of current IAEA safeguards inspections, including materials accounting, containment of materials to specific locations, and use of surveillance cameras and seals, would provide a baseline in monitoring a fissile materials cut-off agreement. But traditional technologies may need to be adapted and new ones developed to reflect the unique requirements of monitoring former weapons facilities, while tracking sensitive but permitted military end uses. In both cases, how to provide needed information without unacceptable loss of sensitive information or health and safety concerns will be a key issue. (This problem also arises in the related initiative of putting surplus U.S. and FSU nuclear weapons material resulting from the START reductions under IAEA monitoring.)

Negotiations of a CTBT began on January 25, 1994, within the UN Conference on Disarmament (CD), with many issues, most particularly verification, to be settled. Verification of a CTBT will require consideration of a number of factors. The areas to be monitored are widely distributed, increased access to previously restricted areas will be needed, the potentially different nature of the tests to be monitored as well as the possibility that a potential proliferator will test: all need to be reflected in the design of a monitoring regime. The cost and feasibility of the monitoring and analysis operations also are likely to figure prominently. NTM, MTM, ITM, data exchanges, notifications and on-site inspections are all among potential CTBT verification tools.

Both generally and in terms of specific proposals, as thinking has begun about designing a CTBT monitoring regime, the concept of *co-operative monitoring* figures prominently. The Ad Hoc Group of Scientific Experts to Consider International Co-operative Measures to Detect and Identify Events, a group established by the CD in 1976, has issued a progress report in which it proposes the development, testing and evaluation of an experimental International Seismic Monitoring System (ISMS). The envisaged ISMS has three main elements: a global network of seismic stations, national data centres and an international data centre. The Ad Hoc Group proposes that the ISMS be the core of the CTBT verification regime, but that it be reinforced by other techniques, including national and international technical means and other means of overhead imagery.

A combination of seismic techniques and overhead imagery would permit a two-pronged co-operative monitoring regime for the CTBT. A CTBT verification regime based on seismic detection would be triggered after a violation had occurred; thus, it is an example of "reactive verification." The addition of overhead imagery—whether NTM or perhaps ITM—provides an opportunity to detect an anomalous situation, for example, construction of a test cavity, positioning of ancillary test equipment and facilities, unique communications, and other pre-test activities, before a violation may occur, allowing time for investigation and response; it could be called "proactive verification." On-site inspection techniques could be employed to add precision to the verification process once it had been triggered by an anomaly, either prior to or after a suspect nuclear test.

Synergies Associated with Regional Agreements

While proliferation concerns have exacerbated tensions in the Middle East, South Asia and the Korean peninsula, they are only one of several causes of regional instabilities throughout the world. Other factors include ethnic rivalries, rising nationalism, religious conflict, severe economic problems, scarce natural resources and border disputes. Complete resolution of the underlying sources of these instabilities will be long in coming. More hopeful are intermediate steps, for example, the adoption of confidence-building measures and/or the acceptance of peace operations under the auspices of the United Nations. Political breakthroughs or the weariness of past enemies may also sometimes permit limited but significant political settlements.

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The Middle East

The application of a system of multi-method, interlocking verification procedures ensured compliance with the Sinai II Agreement and the Egypt-Israel peace treaty following the 1973 October War. The methods included ground-based early warning systems, aerial and satellite reconnaissance, and on-site inspection undertaken by the parties themselves and by third parties, including the United States. To perform its early warning detection, identification and reporting functions, the United States established three watch stations staffed with civilian personnel and four unmanned sensor fields equipped with line, point and imaging sensors to scan the entrances to the passes, fixing positions and determining the size, speed, nature and direction of intruders. The automatic sensors incorporated the detection principles of seismic, acoustic, infrared, magnetic, electromagnetic, pressure, electric, and earth strain disturbances. In addition, and in accordance with the Sinai II Agreement, the United States carried out aerial reconnaissance, utilizing the Lockheed TR-1 tactical reconnaissance aircraft, every seven to 10 days, or whenever it received a special request from Egypt, Israel or the United Nations Emergency Force. Finally, Egypt and Israel maintained national surveillance stations located in the Sinai and provided their own aerial surveillance.

By its very design, the multi-method verification system in the Sinai created mutually reinforcing interlocking responsibilities which strengthened the viability of the disengagement process, and the synergies produced by the integration of individual monitoring components contributed to the creation of an effective verification system.

The peace process now under way in the Middle East will offer a number of monitoring opportunities and challenges. Palestinian self-rule in the West Bank and Gaza could require demilitarized border zones and monitoring of exit/entry points to ease regional security concerns. Return of the Golan Heights to Syria would most likely require demilitarized or "thin-out" border zones subject to international monitoring. Israeli troop withdrawals from southern Lebanon could likewise require monitoring and demilitarized zones which would need to be monitored.

Future operational constraints might include creating a demilitarized strip east of the Jordan River and banning deployment of surface-to-air missiles (SAMs) in that zone. A total regional ban on ballistic missile testing, production or acquisition may take some time to negotiate; however, if a ban were to be considered, co-operative monitoring applied to flight testing, production facilities and possible deployment areas could contribute to confidence in such an agreement. Monitoring the deployment of mobile missiles poses real challenges. While advanced technologies could assist in the process, technologies that could reveal the location of mobile missiles on a real-time basis could also provide useful targeting information, and thus they would be destabilizing.

Creation of a nuclear-weapons-free zone in the region will require a long-term effort, but some first steps might be considered. In the context of significant steps toward regional peace, efforts at restraining Israel's nuclear weapons program could become more feasible. A freeze on the production of fissile materials within the region would be a start. It might be monitored by the IAEA, assisted by additional co-operative technologies. Over time, greater transparency might be desirable and possible across all weapons of mass destruction. This would call for such CBMs as exchanges of observation teams, seismic and non-seismic monitoring, monitoring by third-party NTM, aerial overflights for purposes of photo reconnaissance, or on-site inspections.

South Asia

Political and religious clashes, punctuated by border skirmishes and wars, have greatly constrained the development of political and military dialogue between Pakistan and India.

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Kashmir continues to be a potential flash point, but compromise by either side would threaten natural cohesion and political stability. But neither side wants war, and both have affirmed their desire to avoid it. In this context, co-operative monitoring of several types warrants closer assessment. A rich menu of possible opportunities, depending on how political conditions evolve, exists.

At least for now, formal and negotiated reductions in conventional forces seem unlikely; however, CBMs such as operational constraints have been put into effect, including notification of major troop movements and exercises and joint patrols in border areas such as Punjab and Rajasthan and information exchanges on the movement of major equipment into training areas. A further step could be demobilization of border forces, which would markedly reduce regional tensions; India and Pakistan could request UN peacekeeping operations to monitor the troop reductions along the borders. A potential agreement could be co-operatively monitored, including possibly limited "Open Skies" overflights and NTM or ITM.

A bilateral nuclear test ban would be a good step toward slowing and capping nuclear proliferation in South Asia. It might be pursued as an adjunct to CTBT talks and then could be formally linked to the CTBT. Interest in Delhi and Islamabad in signalling a desire to avoid all-out nuclear competition could provide a needed incentive. The verification regime for a test ban might include use of existing seismic stations, backed by upgraded capabilities and new stations, non-seismic monitoring, data exchanges, co-operative monitoring, and on-site inspections. Co-operative monitoring could include aerial surveillance, joint seismic stations, limited aerial overflights and, possibly, invitational inspections conducted by UN personnel. The overflights would be conducted at regular intervals as part of a confidence-building regime or after anomalous seismic events. The invitational inspections could be used to clarify ambiguous events or activities.

Turning to another area, progress toward a global cut-off may open new opportunities in South Asia. In particular, verification experiments on monitoring plutonium production and uranium enrichment, with application of suitable technologies, could help build confidence in the technical feasibility of verifying a freeze on the production of fissile materials. This could foster greater readiness to join a global cut-off or to take parallel regional actions. Specifics could include experiments on plutonium production, measuring isotopic concentrations, or total thermal power output using infrared aerial detection. Invitational inspections also could be conducted to build confidence in verification. As a starting point for monitoring uranium enrichment facilities, experiments in sampling of uranium enrichment—in return for access to reprocessing—could be initiated. Still another possibility could include a U.S.- or UN-sponsored joint verification experiment at U.S. facilities for India, Pakistan and other countries.

Should Delhi and Islamabad choose to avoid a regional missile race, co-operative monitoring could also assist in curbing ballistic missile proliferation. Monitoring of a ban on ballistic missile production or a freeze on long-range missile testing and deployment could benefit from the application of space or aerial surveillance and on-site inspections utilizing a variety of sensor technologies.

Korean Peninsula

The current tension over North Korea's possible possession of nuclear weapons poses major diplomatic, military and monitoring challenges. It remains uncertain whether North Korea will accept comprehensive IAEA inspections, as required under the NPT, to provide assurance that its future nuclear program will be peaceful. But even if North Korea accepts more intrusive IAEA inspections on its nuclear production and waste facilities, questions will remain about its possible operational nuclear capabilities.

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Nonetheless, assuming North Korea's decision to stabilize the situation, the Joint Declaration for a Non-Nuclear Korean Peninsula, signed and ratified in 1992, provides a starting point. This calls for using nuclear energy solely for peaceful purposes and renouncing possession of reprocessing and enrichment facilities. Both Koreas agree not to test, produce, receive, possess, store, deploy or use nuclear weapons. Mutual, agreed inspections are to be used to verify compliance. If North Korea accepts its responsibilities under this declaration and under the NPT, there will be numerous opportunities for the United States, Canada and the United Nations to make available co-operative monitoring techniques.

Should political conditions improve, bilateral conventional arms control may become more practical, as well. In the context of new political ties with the United States, Canada, Japan and others, North Korea could be willing to engage in serious negotiations on limiting conventional military capabilities and CBMs. Efforts to reduce forces near the demilitarized zone could be a first step. An exchange of information on force levels, force structure and force posture would be useful; notification of military exercises and limits on size and duration of exercises would also lead to greater transparency. South Korea has proposed a number of transparency measures which might be strengthened by co-operative monitoring, for example, observations of military exercises, military data and intelligence sharing, direct communication lines with field armies, peaceful utilization of the DMZ, and redeployment of major weapons systems and troops to the rear.

Future Expansion of the Open Skies Treaty

The Preamble of the Open Skies Treaty, signed in 1992, explicitly refers to the possibility of employing overflights "to facilitate monitoring of compliance with existing or future arms control agreements and to strengthen the capacity for conflict prevention and crisis management."

There has been considerable interest in the use of this confidence-building measure because of its potential application to peace operations and regional stabilizing activities and because of the synergies inherent in combining monitoring from aircraft with ground- and space-based monitoring.

Exploiting Synergies to Expand the Role and Effectiveness of the United Nations

In the period of the Cold War, verification, more particularly effective, intrusive verification, was considered the province of arms control agreements. In the post-Cold War world in which control of arms is a multinational challenge, verification is an essential requirement of all agreements that seek to preserve global and regional security. As the institution that most closely embodies the concept of global rule of law, the United Nations should take a more active role in capitalizing on the synergies associated with arms control verification, confidence-building measures and peace operations. Taking on these responsibilities is not a new assignment; indeed, the fact-finding associated with preventive diplomacy can be seen as a variant of the information-gathering activities associated with confidence-building measures, and the experiences associated with UNSCOM inspections will provide useful lessons for future global and regional agreements where there is not full co-operation on the part of every signatory.

In a report tabled at the 1990 session of the General Assembly, a UN Group of Experts argued that the UN's virtually universal membership made it well suited to consider the possibilities associated with six verification-related activities: data collection, promotion of exchanges between experts and diplomats, expansion of the fact-finding role of the Secretary-General, use of aircraft for verification purposes, use of satellites, and potential development of an international verification system.[1]

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[1] *Study on the Role of the United Nations in the Field of Verification*, United Nations Report No. 20, document no. A/45/372 (New York, 1991).

Certainly the data collection, processing, analysis and dissemination capability of the United Nations has not been fully exploited. While the UN Register of Conventional Arms and the efforts associated with the development of confidence-building measures to strengthen the BTWC are important steps, many other opportunities exist for the collection, processing, analysis and dissemination of data related to arms control verification, confidence-building measures and peace operations. In research previously sponsored by Canada's Verification Research Program, three authors of the present study have suggested that the United Nations might perform a valuable service by establishing a capability "for acquiring, integrating, and analyzing information from a variety of sources to assist in verifying compliance with multilateral and regional agreements."[2]

Other verification activities cited by the UN Group of Experts that would further enhance peace operations included aerial and space surveillance. Aerial surveillance has been used in a variety of contexts, ranging from the use of AWACS aircraft to monitor no-fly zones in the former Yugoslavia to aircraft used by the Multinational Force and Observers in the Sinai Peninsula. While the costs associated with development of a UN satellite remain a stumbling block, verification-related information has been received from commercial satellites and from some national resources. In addition, the Western European Union has explored the possible development of a multilateral verification satellite capability, and the resolution of data available from commercial satellites has improved dramatically. Perhaps under UN Security Council auspices, co-operative space surveillance in the form of ITM or MTM is still a possibility, especially for verification of agreements involving potential proliferant states, as well as for increased transparency and global and regional stability. There are high value synergies associated with the combination of ITM/MTM and data exchanges, notifications,

on-site inspections, confidence-building measures, and activities associated with peace operations. Development of ITM/MTM systems involving technologies that can be shared on a global basis will increase the confidence of countries that do not have their own NTM or access to NTM data that all parties to an agreement are in compliance.

The UN General Assembly has recently requested that the Secretary-General undertake an in-depth study on the ways in which verification can facilitate UN activities with respect to confidence-building, conflict management and disarmament. The Clinton Administration has already begun developing proposals for strengthening the UN's intelligence-gathering and research capabilities, for example, by upgrading the UN's command, control and communications facilities to ease the transmission of up-to-date intelligence between New York and field operations. It appears likely that the United States will be declassifying more of its data from NTM and also permitting U.S. defence industries to provide high quality data from space-based sensors on the open market.

More sharing of verification technologies and capabilities could further strengthen UN peace operations. Kofi Annan, UN Under Secretary General for Peacekeeping Operations, has asked NATO countries for technological support of monitoring tasks associated with peace operations:

> The sheer size and complexity of peacekeeping operations makes it imperative to explore new avenues of cooperation with regional organizations such as NATO. . . . Most members of NATO are among the most technologically advanced countries in the world, and many of the sophisticated technologies developed for NATO could usefully be employed in peacekeeping operations. For example, technical means for surveillance ranging from rela-

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2   Patricia Bliss McFate et al., *Constraining Proliferation: The Contribution of Verification Synergies*, Arms Control Verification Studies No. 5 (Ottawa: Department of External Affairs, March 1993), p. 40.

tively simple drones to advanced satellite remote sensing technologies could help to make some of the routine tasks in peace-keeping, such as observing and monitoring, more cost-effective and reduce the number of peacekeepers exposed to a dangerous environment on the ground.[3]

Co-operative aerial surveillance—concepts for using sensors on airborne platforms such as airplanes, helicopters, unmanned aerial vehicles, or lighter-than-air craft—is another example of a co-operative collection system. Under the UN or another international body, co-operative aerial surveillance could be used for mutual confidence-building; for aerial monitoring of specific targets, sites or activities associated with arms control or demilitarization agreements; or for enforcement of peace operations. UNSCOM inspections have clearly demonstrated the multiplier effects associated with observations from satellites, aircraft, helicopters and on-the-ground inspections.

Another area for co-operative monitoring, broadly defined, concerns future efforts to increase the transparency of military postures, budgets, doctrine and global arms transfers. In addition to surveillance techniques, technologies to be used in methods for data collection, data reduction, analysis and organization are needed. There will also be a need for the development of management information systems to handle the volume of data that could become available via the various collection means and via registers of arms transfers or military budgets.

The United Nations has had extensive experience with all three of the processes discussed in this study: arms control verification, confidence-building measures and peace operations. The Group of Scientific Experts associated with the CD and the United Nations are designing a global monitoring system for the verification of a possible Comprehensive Test Ban. UN personnel have already gained experience with confidence-building measures during the imple-

mentation of the Sinai Disengagement Process and with peace operations during the Sinai II Agreement and Egypt-Israel peace treaty.

With its membership throughout the world, the United Nations can help integrate the global, regional and local dimensions of each of these processes, and thus each geographical dimension can build on the other two. Regional measures that constrain proliferation may depend upon global implementing bodies to assure compliance. Local agreements to reduce arms may lead to treaties promoting regional stability. Experiences on a local level with monitoring provisions associated with UN resolutions may contribute to verification of new multilateral arms treaties.

With increased logistical support, the United Nations could become an "umbrella" verification body providing timely early warning of potential crises and conflicts. Its knowledge, experience and capabilities provide the United Nations with unique opportunities to achieve synergies among these processes to the net benefit of international security.

While it makes sense to centralize within the United Nations many tasks associated with multilateral arms control verification and confidence-building measures, many bureaucratic obstacles remain, such as the resistance of certain member states. The "window of opportunity" for centralization afforded by the War in the Gulf has probably shut. Thus, it is likely that the present segmented approach will continue, with the UN playing a somewhat marginal role. For example, any future verification role for the BTWC will probably be assigned to a specialized implementing body like the OPCW. One potentially useful development might be to bring bodies such as the OPCW, CSCE and an expanded MTCR more closely into the UN family. A forthcoming study, requested by the UN General Assembly, "Verification in All Its Aspects, Including the Role of the United Nations in the Field of Verification," offers an

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3   "UN Peacekeeping Operations and Cooperation with NATO," *NATO Review*, October 1993, pp. 5, 7.

opportunity to further develop guidelines and principles for the involvement of the United Nations in verification.

Clearly the process of UN peace operations has many linkages to arms control verification and confidence-building measures. Like arms control and non-proliferation agreements, peace operations often include actions resulting in disarmament. In particular, peacekeeping operations have been mandated to perform a number of disarmament-related tasks, such as the verification of agreements on the control and non-resupply of weapons and the non-return of foreign forces, as in Cambodia, or the supervision of heavy weapons restrictions and no-fly zones, as in the former Yugoslavia. In the Golan Heights, El Salvador and Angola, among many sites, UN peacekeepers have learned the mechanics of conducting weapons inspections, monitoring troop withdrawals and monitoring disengagement zones. In addition, in order to identify crises in a timely fashion, the UN is currently exploring the development and use of region-specific confidence-building measures to be used as a conflict prevention approach in unstable areas.

Peace operations not only have benefited from lessons learned in the development of arms control verification and confidence-building measures, but they in turn benefit those processes. To verify Iraqi compliance with UN Security Council Resolution 687 (1991), the Security Council established UNSCOM, which drew heavily on the United Nations Secretariat as well as member states for its staff. In the nuclear area, UNSCOM shares the functions of monitoring compliance and the destruction or removal of proscribed material with the IAEA. The UNSCOM verification package capitalizes on synergies associated with the combination of many methods: space imagery from NTM and commercial satellites; aerial imagery at both high and medium/low altitude; on-site inspections of declared and undeclared sites; ground imagery associated with helicopters and inspectors; and NIM, including information from defectors and from collateral sources.

The UNSCOM experience is an example in which lessons learned by UN-mandated disarmament inspections have developed methodologies that will be useful in the context of conflict prevention and peacekeeping; these lessons in "coercive" or "mandated" verification will also be of importance in developing non-coercive verification regimes for multilateral arms control agreements such as the BTWC in which there will be the potential for non-compliant states parties. The development of techniques to dispose of arms and to detect and remove land mines is another example of cross-fertilization between technologies for arms control verification and post-conflict peace-building.

Peace operations, most especially those associated with preventive diplomacy, like arms control and confidence-building agreements, require enhanced access to information about deployments of military forces, arms and equipment and about the intentions of states parties— in short, transparency. Multiple independent sources of information, operating synergistically, make transparency more convincing.

Appendix A
Definitions and Concepts

Patricia Bliss McFate

In order to assure understanding of terms often loosely used in discussions in the field of international security, the authors have agreed upon the following definitions of concepts and terms used in this study.

Confidence-Building Measures (CBMs) are actions undertaken by state parties that produce transparency (see definition below) by reducing or eliminating misperceptions of and concerns about potentially threatening military capabilities and activities. CBMs include consultations, voluntary hosting of visits, demonstrations of equipment, notifications prior to certain potentially destabilizing military activities and/or restrictions on such activities, observations of military exercises, risk reduction centres, "hot lines," and information exchanges. While CBMs are not part of a formal verification regime, they may complement or precede the implementation of a verification regime for an arms control agreement, for example, the measures instituted by the United States and the Soviet Union prior to the entry into force of the START I agreement. While CBMs can contribute to the viability of the arms control process, they are not verification means or methods; their implementation is monitored by NTM or NIM and not usually by formal verification regimes. (The Stockholm Document, however, allows on-site inspection of certain of its provisions.)

Co-operative Monitoring comprises activities such as shared information monitoring; data exchanges; remote sensing; techniques for sampling, identification, observations and auditing; and on-site inspections. Co-operative monitoring can be an integral part of arms control and non-proliferation agreements, military disengagement, confidence-building measures and peace operations. Examples of co-operative monitoring include IAEA safeguards, the monitoring methods associated with the Sinai Disengagement Agreements and the Egypt-Israel peace treaty of 1979, and the U.S.-Soviet Joint Verification Experiments which preceded the verification protocols for the Threshold Test Ban and Peaceful Nuclear Explosions Treaties. Future applications would include measures

associated with the CWC, a cut-off in the production of fissile materials for weapons purposes, a CTBT, new confidence-building measures, and strengthened UN peace operations.

Cost-Effectiveness, when applied to arms control verification, confidence-building measures and peace operations, stresses that the processes must achieve their aim—that is, they must be effective and they must be worth their cost, with cost measured in terms of not only currency, but also human resources, equipment, potential losses of sensitive and proprietary information, and the goodwill necessary to generate co-operation. As a general principle, the cost of the measure should not be greater than the cost of living with the problem it is intended to correct.

Effective Verification is the standard to which verification of arms control agreements should be held. It is based on the criterion of military significance; that is, verification regimes are termed "effective" if they enable a party or parties to detect actions on the part of another party that go beyond the limits of an arms control agreement in any militarily significant way and if they permit the detection of any such violation in time to respond effectively, thereby denying the other party the benefit of the violation. What constitutes military significance will vary with each agreement and with the views of the country or international organization making that judgment.

Harmonization is the exploitation of areas of commonality between organizations, agreements and regimes. In this study, it is argued that verification, confidence-building and peace operations have a common objective, which is to create transparency; this study concludes that multilateral processes should be harmonized to take advantage of common elements, avoid duplication and equalize obligations.

Monitoring involves the gathering of information. It is essentially a function of intelligence collection and analysis using all information available concerning a particular activity or location. Monitoring includes national, multilat-

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eral or international technical means (see below); the gathering of information as part of on-site inspections; the legitimate functions of diplomats, military attachés and scientists; and the analysis of open-source literature and photography. Among the many purposes of monitoring, it can be used as a method for determining compliance with arms control agreements. Monitoring using only NTM is generally considered a unilateral method—the co-operation of the observed party is not required. However, the ABM Treaty prohibits interfering with NTM and the use of deliberate concealment measures that impede verification by NTM.

National Intelligence Means (NIM) is the sum of a country's intelligence collection and analysis capabilities. NIM includes HUMINT, the collection by human sources, and the analysis of open-source information such as media or commercial satellite photography.

National Technical Means (NTM) includes reconnaissance satellite systems using photographic, infrared, radar and electronic sensors, ground- and sea-based radars, seismographs, communications collection stations and underwater acoustic systems under the control of a single country. Multilateral Technical Means (MTM) and International Technical Means (ITM) refer to similar systems shared on a multilateral or an international basis.

Peace Operations encompass preventive diplomacy, peacemaking, peacekeeping, peace enforcement and peace-building.

> *Preventive Diplomacy* is action taken to prevent disputes from arising between parties, to prevent existing disputes from escalating into conflicts, and to limit the spread of the latter when they occur.

> *Peacemaking* is action to bring hostile parties to agreement, essentially through such peaceful means as those foreseen in Chapter VI of the Charter of the United Nations.

> *Peacekeeping* is the deployment of a United Nations or other multinational presence in

the field, hitherto with the consent of all the parties concerned, normally involving UN military and/or police personnel and frequently civilians as well. Peacekeeping is a technique that expands the possibilities for both the prevention of conflict and the making of peace.

> *Peace Enforcement* involves peacekeeping activities that do not necessarily involve the consent of all the parties concerned. Peace enforcement is foreseen in Chapter VII of the Charter of the UN.

> *Peace-building* is action to identify and support structures that will tend to strengthen and solidify peace in order to avoid a relapse into conflict.

Non-Proliferation, Counter-Proliferation, Anti-Proliferation are terms that are often used interchangeably.

> *Non-proliferation* is a form of arms control that includes a wide mix of policies developed to check, cap or rollback, or respond to and deal with different aspects of proliferation of weapons of mass destruction, advanced delivery systems, and advanced conventional weaponry. Timely intelligence, supplier co-operation and export controls, diplomatic initiatives, alliances and security guarantees, security assistance, international non-proliferation treaties and agreements, confidence-building measures, inducements and sanctions, active or passive defensive measures, covert action, and military action are included in the policy tools available as non-proliferation measures.

> The objectives of *counter-proliferation* are to prevent further proliferation and to rollback proliferation where it has occurred. Included in counter-proliferation are "defusing" measures such as co-operative dismantlement, safety and security enhancements, stabilizing measures, and CSBMs. The alternative of using military action to counter proliferation threats is included under counter-proliferation.

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Anti-proliferation—a term coined by Dr. Brad Roberts—combines political, economic and military elements into an integrated strategy that includes diplomatic and military responses to the reality of a world in which proliferation is slowly progressing. It emphasizes co-operative approaches to international security problems associated with proliferation.

Proliferation is the diffusion of weapons, associated knowledge, or expertise that produces an adverse effect on local, regional or global stability and security. In many analyses, *proliferation* of weapons refers to the adverse diffusion of nuclear, chemical, biological and advanced conventional weapons and the advanced delivery systems for such weapons, such as ballistic missiles, cruise missiles and modern aircraft.

Synergies are the multiplier effects associated with the combination of separate elements; when combined, the total effect is greater than the sum of the effects taken independently. This study analyses the synergies among arms control verification, confidence-building measures and peace operations, and concludes that the appropriate combination of methods, techniques, regimes and organizations associated with these processes will produce an effect greater than that of the processes taken independently.

In the context of arms control verification, confidence-building measures and peace operations, **transparency** is the voluntary or involuntary, formal or informal sharing of information that makes an event, activity or pattern of behaviour more clear, open and predictable.

Verification is the establishment of the truth or correctness of an assertion, data, situation, etc., by examination or demonstration. Arms control verification can include the determination of compliance with existing agreements; policy decisions about what constitutes adequate or effective verification; the design and negotiation of regimes to meet security requirements; the implementation of verification provisions of

completed agreements; and the determination of appropriate responses to ambiguous situations or to clear-cut non-compliance with specific provisions of the agreement. Verification measures include NTM, ITM, MTM and NIM, data exchanges, notifications, and on-the-ground and/or aerial inspections. With the exception of NTM and NIM, co-operation of the parties participating in arms control verification regimes is essential for the success of the agreement.

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Appendix B
Suggestions for Future Research
Sidney N. Graybeal and George Lindsey

The following suggestions, presented here in the form of a few questions that attempt to sketch the topic, are not necessarily in order of priority. They represent potential areas for future research.

- In the new international security environment, what criteria should be used for evaluating arms control agreements and the arms control process?

- How applicable is the criterion of "military significance" to multilateral and regional non-proliferation agreements? What other criteria might be considered?

- What steps can or should be taken after non-compliance with arms control agreements, confidence-building measures or peace operations? Should potential actions, for example, economic sanctions or military actions, be sketched out and agreed to in advance of non-compliance?

- What criteria should be used to judge the effectiveness of a verification regime for the Comprehensive Test Ban Treaty?

- What criteria should be used to determine what constitutes destabilizing levels of conventional weapons in various regional contexts?

- What technologies can and should be shared in co-operative monitoring of multilateral and regional arms control, non-proliferation and transparency agreements?

- What verification measures could be utilized to assure that *dual-use* technologies and processes are not applied to military purposes?

- With the wide-scale proliferation and deployment of land mines, what multilateral agreements or measures could be implemented to remove or minimize their destructive effect?

- What are the pros and cons associated with attempting to control military budgets? Could such controls be effectively monitored?

- What are the requirements for a UN information/intelligence centre? What are the practicalities associated with achieving such a centre? How would it operate? What criteria should be used to judge its effectiveness?

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Appendix D
Authors' Résumés

Patricia Bliss McFate

Dr. McFate serves as Senior Scientist and Program Director of the Center for National Security Negotiations, at Science Applications International Corporation (SAIC). Her former positions include: President of the American-Scandinavian Foundation; Deputy Chairman of the National Endowment for the Humanities; Vice Provost, Professor of Engineering and Applied Science, and Associate Professor of Arts and Sciences, the University of Pennsylvania; and Academic Associate Vice Chancellor and Associate Professor, the University of Illinois. She has served as a member of the research staff of Columbia University School of Engineering and Applied Sciences, Columbia Medical School, and Rush Medical School. She is a Fellow of the New York Academy of Science and a member of the Council on Foreign Relations. She has previously served as Chairman of the Committee on Science, Engineering, and Public Policy of the American Association for the Advancement of Science, and she has been a member of the AAAS Committee on Science and International Security. She is a director of CoreStates Financial Corporation and CoreStates Bank, N.A. She has received decorations by order of the heads of state of six European countries. At SAIC, she works on national security policy, treaty verification, treaty compliance, and defence technology issues. Her degrees and postgraduate training were taken at Michigan State, Northwestern, Illinois and Columbia universities.

Col. (Ret'd) Douglas A. Fraser

On his departure from the Canadian Mission to the United Nations in August 1993, Col. Fraser retired, having completed over 34 years of commissioned military service. He is now with the Centre for Disarmament Affairs, Department of Political Affairs, United Nations Secretariat in New York. Col. Fraser was commissioned as an Infantry officer in 1959 on graduation from St. Francis Xavier University. He has had wide command, operational and staff experience in Canada and abroad, having served with NATO and United Nations forces and in bilateral, secondment and exchange positions, in Germany, Cyprus, Ghana, Australia and the United States. He commanded the Second Battalion, the Royal Canadian Regiment from 1975 to 1977. Col. Fraser is a graduate of the Canadian Land Forces Command and Staff College and the U.S. Army War College and was also an instructor for two years at the Australian Staff College. Following three years with the Policy Branch of National Defence Headquarters, he was posted to the Canadian Mission to the United Nations in 1989 as Military Adviser. During the period 1989-1993, the United Nations experienced a period of unprecedented growth in the number and scope of UN missions, and in that same period, Canada was a member of the Security Council during 1989 and 1990.
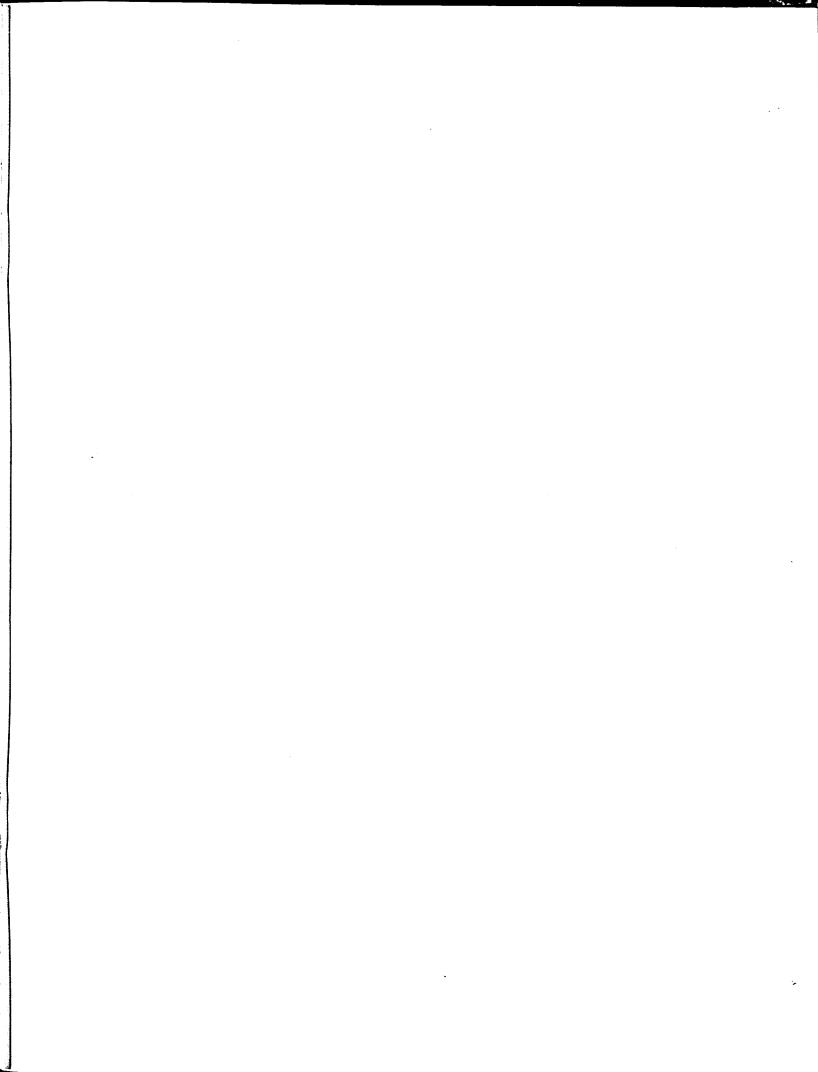
Sidney N. Graybeal

Sidney N. Graybeal is Chief Scientist and Deputy Director of the Center for National Security Negotiations, Science Applications International Corporation (SAIC). He has had a career in U.S. government service spanning over 30 years. Between 1976 and 1979, he was Director of the Office of Strategic Research of the Central Intelligence Agency (CIA). He also served in the CIA between 1950 and 1964, starting as a guided missile intelligence analyst and becoming chief of the Guided Missile and Space Division. During 12 years in the Arms Control and Disarmament Agency, he served as Alternate Executive Officer of the U.S. SALT Delegation through SALT I, was appointed a delegate to SALT II, and then served as the first U.S. Commissioner of the Standing Consultative Commission, the body responsible for implementing the SALT I agreements. He has received the President's Award for Distinguished Federal Civilian Service. At SAIC, he manages and contributes to analysis related to national security issues involving arms control, intelligence, security, proliferation and long-range resource planning. He is Chairman of the Committee on Science and International Security of the American Association for the Advancement of Science. His undergraduate and graduate degrees are from the University of Maryland.
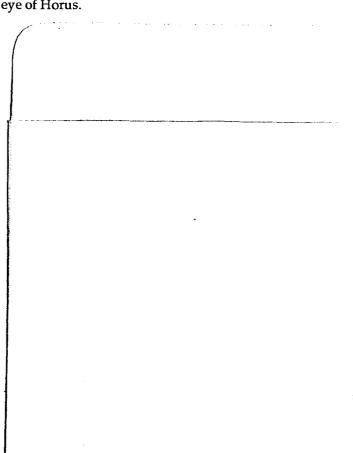
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George R. Lindsey

A Senior Research Fellow of the Canadian Institute of Strategic Studies, George Lindsey has been pursuing research on arms control verification, defence against ballistic missiles, security and stability in space, aerospace surveillance, and modernization of weapon systems. Dr. Lindsey served in the Royal Canadian Artillery in World War II, with the British Army Operational Research Group, and the Canadian Army Operational Research Group. From 1950 to 1987 he held various appointments with the Department of National Defence, and was Chief of the Operational Research and Analysis Establishment from 1967 to 1987. From 1978 to 1987 he was leader of the Canadian delegation to the High Level Group of NATO's Nuclear Planning Group. He is a graduate of the universities of Toronto, Queen's, and Cambridge (obtaining a PhD in nuclear physics), and of the National Defence College. He is an Officer of the Order of Canada.

The graphic on the back cover is based on an ancient Egyptian hieroglyph representing the all-seeing eye of the powerful sky god, Horus. Segments of this "eye in the sky" became hieroglyphic signs for measuring fractions in ancient Egypt. Intriguingly, however, the sum of the physical segments adds up to only 63/64 and, thus, never reaches the equivalent of the whole or perfection. Similarly, verification is unlikely to be perfect.

Today, a core element in the multilateral arms control verification process is likely to be the unintrusive "eye in the sky," or space-based remote-sensing system. These space-based techniques will have to be supplemented by a package of other methods of verification, such as airborne and ground-based sensors, as well as some from of on-site inspection and observations. All these physical techniques add together, just like the fractions of the eye of Horus, to form the "eye" of verification. Physical verification, however, will not necessarily be conclusive and there is likely to remain a degree of uncertainty in the process. Adequate and effective verification, therefore, will still require the additional, non-physical element of judgment, represented by the unseen fraction of the eye of Horus.

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