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Verification in a Global Context: The Establishment and Operation of a United Nations Centre for Information, Training, and Analysis (CITA)

by
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prepared for

The Non-Proliferation, Arms Control and Disarmament Division
Department of Foreign Affairs and International Trade
Ottawa, Canada

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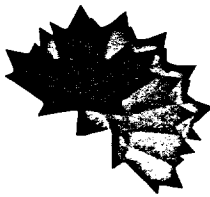
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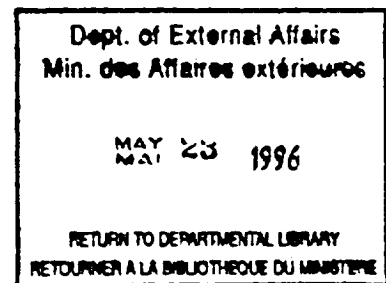
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List of Abbreviations

BTWC	Biological and Toxin Weapons Convention
CDA	Centre for Disarmament Affairs (United Nations)
CITA	Centre for Information, Training and Analysis
CTBT	Comprehensive Test Ban Treaty
CWC	Chemical Weapons Convention
DHA	Department of Humanitarian Affairs (United Nations)
DPA	Department of Political Affairs (United Nations)
DPKO	Department of Peace-Keeping Operations (United Nations)
IAEA	International Atomic Energy Agency
INF	Intermediate Range Nuclear Forces
LTBT	Limited Test Ban Treaty
MTCR	Missile Technology Control Regime
NATO	North Atlantic Treaty Organization
NPT	Non-Proliferation Treaty
OMV	On-going Monitoring and Verification
OPCW	Organization for the Prohibition of Chemical Weapons
OSCE	Organization for Security and Co-operation in Europe
OSI	On-site Inspection
SALT	Strategic Arms Limitation Treaty
SIPRI	Stockholm International Peace Research Institute
TLO	Treaty-Limited Object
TTBT	Threshold Test Ban Treaty
UN	United Nations
UNITAR	United Nations Institute for Training and Research
UNSCOM	United Nations Special Commission
WHO	World Health Organization
WMO	World Meteorological Organization

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Abstract

To assist in developing a practical mechanism in support of the United Nations Secretary General's activities in the field of verification, a team of two American and two Canadian researchers was established under the Department of Foreign Affairs and International Trade's Verification Research Program. Using a recent United Nations' Group of Experts report[1] as a background, and building upon a series of previous conceptual studies, the authors outline a number of assumptions as a basis for exploring the requirement for a United Nations Centre for Information, Training and Analysis (CITA). Recognizing that the problem is not so much lack of information as limited ability to analyze information in a timely fashion, the study develops a model for such a Centre including a practical outline of its size and method of operation. It then addresses a role for the Centre in training and a mechanism by which analysis can be undertaken. The report also explores the practicalities associated with establishing such a Centre. Finally, it proposes criteria for judging the Centre's effectiveness.

This study does not suggest that CITA is a panacea; rather the proposed Centre constitutes a practical approach to long-recognized obstacles. The study identifies entities within the UN system which perform functions similar to those envisaged for the Centre. Indeed, certain proposals parallel in concept the "rapporteur" initiative recently proposed by a small group of diplomats and weapons specialists under the chairmanship of McGeorge Bundy.[2] The CITA concept would be implemented within existing resources and would complement the Secretariat's management restructuring already under way.

Résumé

Pour favoriser la mise en place d'un mécanisme pratique d'appui aux activités du secrétaire général des Nations unies dans le domaine de la vérification, une équipe composée de deux chercheurs américains et deux chercheurs canadiens a été créée dans le cadre du Programme de recherches sur la vérification du ministère des Affaires étrangères ert du Commerce international. Se fondant sur un récent rapport d'un groupe d'experts des Nations unies[1] et s'inspirant d'une série d'études conceptuelles antérieures, les auteurs énoncent une série d'hypothèses pour orienter l'analyse du bien-fondé de la création d'un Centre d'information, de formation et d'analyse des Nations unies (CIFA). Ils admettent que ce n'est pas tellement le manque d'information mais plutôt la capacité limitée d'analyser l'information en temps opportun qui cause problème : ils conçoivent donc le modèle d'un tel centre, et présentent des données pratiques sur sa taille et son mode de fonctionnement. Les auteurs se penchent ensuite sur le rôle du centre dans le domaine de la formation ainsi que sur la mise en place d'un mécanisme qui permettrait de procéder aux analyses nécessaires avant de définir les modalités pratiques de la création d'un tel centre. En dernier lieu, ils proposent des critères pour évaluer l'efficacité du centre.

Cette étude ne laisse nullement entendre que le CIFA est une panacée; le centre proposé représente plutôt une démarche pratique qui permettrait de surmonter des obstacles de longue date. L'étude repère les éléments du système des Nations unies qui exécutent des fonctions semblables à celles que l'on voudrait confier au centre. À vrai dire, certaines propositions s'apparentent, sur le plan conceptuel, à l'initiative portant sur le « rapporteur » proposée récemment par un petit groupe de diplomates et de spécialistes des armements sous la présidence de McGeorge Bundy.[2] Le CIFA serait créé en utilisant les ressources en place et viendrait compléter la restructuration en cours de la gestion du Secrétariat.

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1   *Verification in All Its Aspects, Including the Role of the United Nations in the Field of Verification,* A/50/377, September 22, 1995

2   *Confronting The Proliferation Danger: The Role of the U.N. Security Council,* A Report of the UNA-USA Project on the Security Council and Nonproliferation, (New York: United Nations Association of the United States of America, 1995).

1   *La vérification sous tous ses aspects, y compris le rôle de l'Organisation des Nations unies dans le domaine de la vérification,* A/50/377, le 22 septembre 1995.

2   *Confronting The Proliferation Danger: The Role of the U.N. Security Council,* A Report of the UNA-USA Project on the Security Council and Nonproliferation, (New York: United Nations Association of the United States of America, 1995).

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Disclaimer

The opinions expressed in this paper represent the personal views of the 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.

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Preface

Anniversaries often trigger a retrospective look at what lessons might be identified for future endeavours. The 50th anniversary of the United Nations (UN) is no exception. In the past half century, constrained for the most part by the prolonged bilateral confrontation between the superpowers, the United Nations' role in maintaining international peace and security was often relegated to the margins. The ultimate promise of the institution envisioned by its founders was hardly realized.

Now, as it begins its second half century, the United Nations faces a radically different, but no less difficult, set of international circumstances. The end of the Cold War and the aftermath of the Gulf War have placed the United Nations front and centre in the quest for global peace and security. Restructured threats — primary among them the challenge of proliferation in all its aspects and resurgent fratricidal ethnic conflicts — confront the international community. As these menaces grow, the question posed is whether the United Nations is capable of meeting the challenge.

As a lead-up to the 50th anniversary, the Secretary-General has issued a number of insightful papers[1] which draw upon past experience and which postulate ways whereby the United Nations might respond more successfully to the challenges of the 21th century. As collective thinking and experience grow, a better understanding of the inherent linkages between the various processes involved in maintaining international peace and security is emerging, both among Member States and within the United Nations itself.

As a result of the evolving international security environment and the recognition that practical studies as opposed to conceptual ones are now required, four distinguished scholars — two Americans and two Canadians — were invited to come together to consider one dimension of how the United Nations and its constituent parts, including the Security Council, the Secretary-General and the Secretariat, might play a more dynamic and effective role in the quest for international peace and security. Focussing on the decision-making process, they undertook to explore the significance of verification and the interplay whereby verification information, training and analysis might be fused to facilitate decision-making and operational processes within the United Nations family.

The study group notes, among other things, that the United Nations does not lack information. Rather, what it seems to lack is an ability to synthesize the information in a timely and effective fashion to support the decision-making chain. In addition, as yet, there appears to be no adequate early-warning mechanism. The study group also notes that although training is a prerequisite for establishing professional standards and for achieving success, the co-ordination of training on verification and the provision of specialist training within the United Nations framework is largely lacking. Finally, it points out that an efficient and capable strategic analysis capability in direct support of executive decision making, especially in the Security Council and through it the Secretary-General, is required. It concludes that there is a need to establish a centre that fuses these three functions of information, training and analysis; one that would report directly to the Secretary-General. Through this fusion of mutually reinforcing functions, the centre could support the Secretary-General in:

- developing, training and launching investigation teams (the experience of the UN Special Commission and International Atomic Energy Agency would be instructive in this regard);

- maintaining contact between agencies and organizations concerned with the arms control and disarmament process at both a global and regional level; and

- providing an indigenous planning, training and analytical capability that would be immediately available to the Secretary-General and, in some circumstances, directly available to Member States.

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1   *An Agenda for Peace: Preventive Diplomacy, Peacemaking and Peace-keeping*, A/47/277, June 17, 1992, *New Dimensions of Arms Regulation and Disarmament in the Post-Cold War Era*, A/C.1/47/7, October 23, 1992, and *Supplement to An Agenda for Peace: Position Paper of the Secretary General on the Occasion of the Fiftieth Anniversary of the United Nations*, A/50/60, January 3,1995).

This study must be seen in the context of a series of three previous studies which have focussed over the years on the singular role of monitoring and verification in ensuring compliance with arms control commitments. The first study[2] reviewed the experience of verification in a conceptual context and forecast its evolution to the year 2000, emphasizing the growing importance of multilateral verification. The second study[3] built upon that background and explored the positive contribution which synergies might have in the verification process relating to constraints on proliferation. The third study[4], again within the conceptual context, identified the convergence that the processes involved in verification, confidence building and peace operations might have in achieving a common goal of "increased transparency." This fourth study builds upon the other three conceptual studies to develop a practical application of experience to a real and ongoing process.

Of particular interest is the fact that the proposals contained in this study are realistic and workable and can be implemented basically within existing resources. The study does not propose an additional layer of bureaucracy (and the concomitant delay) in the United Nations decision-making process. It does identify areas within the United Nations framework in which similar functions are now carried out and from which resources might be drawn. It does not call for sweeping institutional changes or for major human resource or financial commitments. Instead, it postulates that a modest increase of indigenous capability and operational responsibility at the senior decision-making level of the United Nations organization, along the lines of a Centre for Information, Training and Analysis, would significantly enhance the United Nations' ability to meet the challenges faced as the international community approaches the new millennium.

2   Sidney Graybeal, et al., *Verification to the Year 2000*, Arms Control Verification Studies, no. 4 (Ottawa: External Affairs and International Trade Canada, 1991).

3   Patricia Bliss McFate, et al., *Constraining Proliferation: The contribution of Verification Synergies*, Arms Control Verification Studies, no. 5 (Ottawa: External Affairs and International Trade Canada, 1993).

4   Patricia Bliss McFate, et al., *The Converging Roles of Arms Control Verification, Confidence Building Measures and Peace Operations: Opportunities for Harmonization and Synergies*, Arms Control Verification Studies, no. 6 (Ottawa: Department of Foreign Affairs and International Trade, 1994).

I   Purpose and Scope of the Study

Patricia Bliss McFate

In defence circles recently, much has been said about "winning the information war," that is, collecting, processing, disseminating and using information for the purposes of early warning of adversarial activities and battle management. As a document of the U.S. Joint Chiefs of Staff notes, "the remarkable leverage attainable from modern reconnaissance, intelligence collection and analysis, and high-speed data processing and transmission warrants special emphasis."[1]

Equally important, although rarely discussed and certainly never coined as a phrase, is the concept of "maintaining the peace through information." Attaining this goal requires the availability and provision of timely, accurate and useful information — not for battle troops, but for those personnel, often associated with the United Nations, who are involved in achieving and maintaining global and regional peace and security. In a practical and related context, that of peacekeeping as was experienced in Rwanda for example, an ability on the part of the United Nations to ensure that information could be communicated directly, quickly and authoritatively to the "public at large" would have been seen as an effective measure in "winning" the information war waged by others in that conflict.

International security and political and economic affairs have become even more complex in the post-Cold War period. While one of the dominant international security concerns remains how to cope with the proliferation of weapons of mass destruction and advanced delivery systems and with the potential for severe interstate conflicts, another concern is the increase in conflicts within states — the explosion of violent conflicts, which are often of a religious or ethnic character. At the same time, there is less structure and less ability on the part of national governments to address these complicated affairs satisfactorily. International institutions, particularly the United Nations with its nearly global membership, are increas-ingly seen as necessary elements in dealing with global, regional and subregional problems.

The evolving international security environment has put new demands upon the United Nations, including increased roles in the verification of obligations, however assumed. In the field of arms control, for example, verification of compliance with the non-proliferation obligations of states parties to the Non-Proliferation Treaty (NPT) is through the use of safeguards administered by the International Atomic Energy Agency (IAEA), an autonomous agency of the UN family of organizations. In addition to the NPT, two regional agreements require the use of IAEA safeguards from their states parties — the Treaty for the Prohibition of Nuclear Weapons in Latin America (Tlatelolco Treaty) and the South Pacific Nuclear-Free Zone Treaty (Rarotonga Treaty). In other arms control areas, the UN Secretary-General will continue to be responsible for investigation of allegations of chemical weapons use by non-states parties to the Chemical Weapons Convention (CWC) after entry-into-force of the CWC; thus there will be a co-operative relationship between the United Nations and the Organization for the Prohibition of Chemical Weapons (OPCW) when the OPCW comes into existence. The UN Centre for Disarmament Affairs (CDA) assists in data collection through its role in consolidating returns from states parties and Member States related to a number of confidence-building measures, including information submitted on laboratories and other facilities by states parties to the Biological and Toxin Weapons Convention (BTWC). There is also the potential for the Inter-national Centre for Genetic Engineering and Biotechnology, a unique intergovernmental centre of the United Nations Industrial Development Organization, to play a role in support of measures to strengthen the BTWC.

Significant growth in UN peace operations[2] began in the late 1980s. On January 31, 1988, the United Nations had five peacekeeping operations deployed; in addition, over the

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1   *National Military Strategy of the United States of America,* 1995 (Washington, D.C.: U.S. Government Printing Office, 1995). The United States Army considers "winning the information war"one of its five priority areas. The 1995 Army Modernization Plan includes an organization which will provide timely, accurate and relevant information to commanders across a continuum of operations. A second aspect of information warfare, denial of the enemy's information and its function, is not considered in this metaphor.

2   "Peace operations" is used throughout this study as an umbrella term encompassing preventive diplomacy, peacemaking, peacekeeping, peace enforcement and post-conflict peace building.

preceding 12 months, it was actively involved in preventive diplomacy or peacemaking efforts involving 11 disputes and conflicts. As of December 16, 1994, those figures had risen to 17 deployed peacekeeping operations and 28 efforts at preventive diplomacy or peacemaking.[3] To strengthen the United Nations to meet new demands requires, among other things, more integrated processes and tools for handling information and using it effectively for purposes of early warning, confidence building, compliance monitoring and conflict management. To undertake these operations and other evolving roles, the United Nations needs to equip appropriate mechanisms with the necessary information and with analytical tools. Getting the right information to the right personnel in a timely fashion can be as important in peace operations and in arms control as it is in fighting a war.

Information exists in a wide variety of places and forms and is acquired by an even wider variety of collection means. Many possible information sources are available to the United Nations in varying degrees:

- data gathered through Member States' national intelligence means and national technical means;

- multilateral technical means;

- commercial satellite imagery;

- UN fact-finding and other diplomatic reports, published or exchanged military budgets and reports under the UN Conventional Arms Register;

- trade/export reports;

- open source information, including scientific and technical literature, scientific conferences and exchanges, and global and regional public health data; and

- specialized measures such as on-site inspections (OSI), data exchanges, notifications, aerial surveillance, confidence-building measures and other information-gathering measures during peace operations, whether obtained by UN staff, military personnel, military

observers, personnel of other international organizations, including regional ones, or members of certain non-governmental organizations such as the International Committee of the Red Cross.

A number of technologies have been developed which enhance verification of global, regional or subregional obligations associated with arms control, non-proliferation, military disengagement, confidence building and peace operations. In addition, technologies developed for commercial businesses, banks and hospitals can have multiple applications in the field of international security. For example, the rapid commercial advancement of powerful microprocessors, optical computing, infrared transceivers that link small computers with intelligent, high-bandwidth, reliable communication networks, fibre optics, and new high-security techniques will soon permit voice, data and video to be transmitted simultaneously on multilevel secure systems. UN access to data from these technological sources is increasing and will likely continue to do so.

While the three main departments involved in UN peace operations — the departments of Peace-Keeping Operations, Political Affairs and Humanitarian Affairs — collect information from open sources and in the field, the United Nations has no unit dedicated to information collection, analysis and training, and to fusing the result into some form of operational or executive guidance. Such a capability could have access to all the types of information listed above, but it would only tap those sources as they are needed.

One means for creating a capability at the United Nations which could systematically collect and analyze information — and at the same time, provide access to training in information collection and analysis for Member States — would be the development of a United Nations Centre for Information, Training and Analysis (CITA), the activities of which would be focussed in the Office of the Secretary-General. The objectives of the Centre would include the following: early identification of regional or

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3   *Supplement to An Agenda for Peace: Position Paper of the Secretary-General on the Occasion of the Fiftieth Anniversary of the United Nations, op. cit.*

local situations which could become destabilized, enhanced transparency, reduced military tensions and increased interstate confidence. Given the increasing role of the United Nations in the areas of arms control, confidence building and conflict management, the Centre's resources and personnel could be applied to a full range of international obligations related to the control of arms. This study explores the requirements for such a centre and how it could be established and operated.

The CITA project is the fourth in a series of research projects conducted by a Canadian-American team. Many key findings of the earlier studies led to this project. In the first study of these four,[4] for example, the research team concluded that because multilateral and regional arms control agreements would be of increasing importance, verification of these agreements would be strengthened by the development of multilateral or international technical means under regional and/or UN auspices. It also argued for further analysis and exploitation of verification synergies.

A follow-on study looked specifically at the contribution of verification synergies to efforts to constrain proliferation.[5] One of the key study assumptions was that the period between 1992 and 2002 would be characterized by regional instabilities, un-met non-proliferation obligations and more acquisition or development of weapons of mass destruction, advanced delivery means and advanced conventional weapons throughout the Third World — an assumption which, regrettably, has thus far proven to be accurate. In its findings, the research team said that the multiplier effects among verification methods, obligations and implementing bodies should be capitalized upon, that data from national technical means should be shared more widely, and that the United Nations needed a dedicated data collection and analysis unit.

In the third project,[6] the team concluded that because control of arms was a fundamental

approach to international security, it should also be a fundamental aspect of the three processes of arms control verification, confidence-building measures and peace operations. The increasing importance of regional agreements was again noted, particularly regional obligations to constrain proliferation. Key findings included the conclusions that, together and individually, the three processes increased transparency, that there were synergistic relationships among the methods of the three processes, and that mutual benefits would be achieved by examining the lessons learned in each process. The team also presented a number of findings about the United Nations, including these three: 1) the United Nations has an increasingly important role to play in international security; 2) Member States should be encouraged to provide UN decision makers with better and more timely information; and 3) "the United Nations could 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."[7]

The CITA project takes these earlier findings and puts the principles in a practical framework. It also goes a step beyond those studies. While the previous studies argued for a data collection and analysis unit, this study adds an analysis of the concept of training co-ordination. This special training would contribute to the development of cadres of indigenous verifiers, upon the request of states that are parties to an obligation to control arms or forces.

In this project, the team has taken a positive attitude toward the United Nations: it has answered "yes" to the question "does the UN have a role to play in the field of verification?" Indeed, a key study assumption is that "the United Nations will remain the most significant international body focussed on global peace and security. It will also assume an increasingly important — perhaps at times critical — role in

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4   Sidney Graybeal, et al., *Verification to the Year 2000*, Arms Control Verification Studies, no. 4 (Ottawa: Department of External Affairs, 1991).

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

6   Patricia Bliss McFate, et al., *The Converging Roles of Arms Control Verification, Confidence Building Measures and Peace Operations: Opportunities for Harmonization and Synergies*, Arms Control Verification Studies, no. 6 (Ottawa: Department of Foreign Affairs and International Trade, 1994).

7   *Ibid.*, p. 8.

maintaining international peace and security at the regional and subregional level."[8]

The timing of the CITA project coincides with a growing consensus that the United Nations needs a strengthened information collection and analysis capability. The research team recognizes that this project is being conducted during a period of internal restructuring at the United Nations which is not without its bureaucratic strains: as the Secretary-General has noted, "in an international bureaucracy interdepartmental co-operation and coordination come even less naturally than they do in a national environment."[9]

Nevertheless, the Secretary-General has set in motion a number of managerial activities involving the Department of Peace-Keeping Operations (DPKO), the Department of Political Affairs (DPA) and the Department of Humanitarian Affairs (DHA). A new, more systematic, conflict prevention management process is being developed involving information sharing among UN departments and bodies. The DPKO has begun the development of a communications system that will allow military operations in the field to be closely co-ordinated with UN headquarters through a system of vans outfitted with sophisticated satellite communications ground stations. These ground stations will link up with commercial satellites on which the United Nations already leases capacity. The DPA is currently developing the capacity to exploit existing commercially available (open source) information.[10] Meanwhile, UN forces are co-operating more closely than ever with civilian UN agencies and non-governmental organizations in the field — a co-operation that includes sharing of information. In the United States, commentary associated with a recent Presidential Decision Directive has noted that the United Nations headquarters cannot operate without "timely and accurate information."[11] In response to that observation, the U.S. Defense

Information Systems Agency prepared the plan for the DPKO communications system described above.

In a speech on January 12, 1994, the UN Secretary-General stated:

> The techniques of preventive diplomacy, peacemaking, and peace-keeping must be integrated into, and become part of, the disarmament effort. All the techniques of crisis management will be needed. They include early warning, the collection and analysis of information, fact-finding, and other forms of confidence-building. Confidence-building measures are vital, both for arms control and the maintenance of peace.[12]

The research team believes that the proposed Centre for Information, Training and Analysis could serve as a resource for the Secretary-General in support of an integrated approach to his increasing responsibilities in the areas of arms control, disarmament, confidence building and conflict management. CITA could provide an integrated capability to monitor and analyze developments in regions of tension, thus providing the United Nations with early warning of deteriorating regional or local environments; this early warning might reduce or eliminate the need to mount peace operations at a later stage, or make the planning of such operations more timely and efficient.

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8   This assumption may be found in Chapter III of this report.

9   *Supplement to An Agenda for Peace, op. cit.,* p.22.

10   The proposed system does not appear to address the collation, reduction and analysis requirements for highly technical data, including those data derived from imagery.

11   PDD-25, "U.S. Policy Guidance on Reforming Multilateral Peace operations," October 1994.

12   Boutros Boutros-Ghali, *Address to the United Nations Advisory Board of Disarmament Matters,* January 12, 1994.

II   Key Findings

Patricia Bliss McFate

- An information, training and analysis centre such as CITA would be a valuable asset to the UN Secretary-General in carrying out his growing responsibilities in the areas of arms limitation and disarmament, confidence building and conflict management. Indeed, CITA has a role to play in strengthening the United Nations as an international organization.

- CITA should complement, and indeed assist, the work of existing UN organizations, such as the DPKO, the DPA (including the CDA), the UN Institute for Training and Research (UNITAR) and the UN Situation Center. It should strengthen, not duplicate, their work.

- CITA should have three roles: 1) it should have a service function of acquiring and collating information of importance to the Secretary-General in the related areas of arms limitation and disarmament, confidence building and peace óperations; 2) it should provide information on where to find appropriate training in the verification process, or, if there are no such sources, itself provide training at the request of Member States; and 3) it should provide analyses for the UN Secretary-General which relate to verification of compliance with obligations for which he is responsible.

- Information on training in the field of verification should include instruction in the following areas: the reduction, interpretation and analysis of information from a variety of sensors; co-operative monitoring technologies; the conduct of verification measures; and data management information systems. The operative concept behind the training should be the "training of trainers": .training designated personnel from Member States will make those personnel available to train nationals as they are routinely rotated in and out of national and UN assignments.

- The analytical capability of CITA should be able to provide early warning of potential conflicts requiring the Secretary-General's attention in terms of his role in preventive diplomacy.

- CITA should have no responsibility for the judgmental aspect of verification.

- Member States should be encouraged to share more data from national means; this information could be received, processed, collated and distributed by CITA.

- States parties to arms limitation and disarmament treaties should consider making the United Nations a depository of those treaties, thus adding to the information base available through CITA.

- Depending upon its acceptance and proven utility, CITA could become the focal point for information systems and registers, and for training and analytical activities for the UN Secretary-General, organizations within the UN family and interested Member States.

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III   Study Assumptions

Patricia Bliss McFate

In the last years of the 20th century, predicting the future may be fashionable, but it can also prove foolhardy. Nevertheless, it is necessary to provide a context for this study on the establishment and operation of a United Nations Centre for Information, Training and Analysis. What follow are assumptions, not predictions, concerning a period of great uncertainty. The assumptions, which speak to the period between 1995 and 2005, set the international security context in which the establishment and operation of CITA will be discussed.

The study assumptions take into consideration certain geopolitical constraints and realities. They do not pretend to predict the unpredictable, for example, the manner in which the conflict in the former Yugoslavia will be resolved or the end results of the Middle East peace process. However, this study assumes that international events will unfold without global upheavals.

The International Security Environment

- While every major power will have the capacity to strike targets within hemispherical to global range, major wars will not be likely and international co-operation will be on the rise. There will be a growing consensus among advanced industrial/technological nations and many less developed countries on the rules of international behaviour and the requirement for sanctions upon violators 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 United Nations will not be able to intervene militarily in unstable regions of the world without the support or acquiescence of the major powers.

- There will continue to be real concerns about smaller nations buying ever more capable weapons and the increasing frequency of regional or local clashes that threaten to spill over into larger conflicts involving some

major powers. 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 regional factions to accept the results of international negotiations and more reliance on arms and military forces.

- Sanctions will become even more important as tools of policy. However, in order to be effective, sanctions will have to be observed by all states parties; this could present additional monitoring or verification issues.

- Environmental consciousness will continue to rise, complicating some obligations requiring elimination of weapons of mass destruction.

- 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.

- Information technology will drive decision making much faster than ever before. The constant influx of data and images will alert people to on-going crises, and the public will demand timely responses.

Proliferation

- Proliferation will continue to be a dominating international and regional security concern. A growing number of countries will seek weapons of mass destruction, as well as advanced delivery systems. Ballistic missiles and advanced aircraft will continue to be the delivery systems of choice in proliferating countries; however, the demand for advanced cruise missiles with enhanced stealth characteristics will sharply increase. Many countries will also market advanced precision-guided munitions and surface-to-air missiles.

- 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 and difficult security policy problem.

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

- 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. In addition, the proliferation of small weapons will continue to cause regional instabilities.

Control of Arms

- Multilateral obligations to control arms will play a prevalent role in the international security agenda, with regional and subregional agreements increasing in importance.

- Obligations to control arms, however assumed, will require sustainable, effective and cost-effective verification in order to demonstrate compliance.

- Transparency will be a key factor in accomplishing multilateral arms control and disarmament, confidence building and conflict management. Transparency will be facilitated by the development of formal processes and measures for the exchange and transfer of security-related information. It will be supported by and in turn support verification.

The United Nations

- The United Nations will remain the most significant international body focussed on global peace and security. It will also assume an increasingly important — perhaps at times critical — role in maintaining international peace and security at the regional and subregional level.

- The pressures on the United Nations to respond in unstable regional and subregional situations will continue to increase dramatically. Internal conflicts will have transborder consequences which will entail risks for international peace and security. An increasing emphasis in the field of regional and subregional security will be on UN efforts at conflict management and resolution through preventive diplomacy.

- 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.

- Co-operation among greater powers will continue. As a general rule, the UN Security Council, even with an expanded membership, will make the majority of its decisions in a co-operative manner.

- The United Nations will be the beneficiary of increased sharing of security-related information, including data from diverse sources such as national and multilateral technical means, commercial satellite sensors and numerous transparency measures.

- High-resolution commercial satellite reconnaissance imagery will be increasingly available to organizations in the UN family, including the IAEA.

- Increasingly sophisticated monitoring sensors, increased data processing requirements and capabilities and advances in computerized data interpretation will affect international transparency.

- Early warning and timely access to data will be increasingly important in the areas of preventive diplomacy and conflict prevention, as well as in conflict management.

- If the United Nations adopts a number of organizational changes based upon objective reviews of its roles and missions, it will be a more effective, changed body. The organization will then need to be strengthened, both economically and diplomatically. Even with

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these changes, on occasion, there will inevitably be questions on the part of some countries about the effectiveness of the UN in its peacekeeping role.

- Cost-effectiveness will continue to be an evaluation criterion against which the United Nations will be judged.

- It will become increasingly important to integrate UN arms control, confidence building and conflict management activities.

- The effectiveness and the cost-effectiveness of UN verification of obligations related to arms control, confidence building and conflict management will be increased by exploiting verification synergies.

- Better linkages and co-ordination within the UN family of organizations, which promote mutual goals, will occur. CITA will have a role to play in strengthening the UN family.

- Many countries will support the notion of co-operative monitoring embodied within the CITA concept.

- Among Member States of the United Nations, there will be many countries which desire training in areas of co-operative monitoring, in the exercise of verification measures such as data exchanges and OSIs and in the techniques of information processing.

- CITA, therefore, would serve two purposes: 1) to act as a specialist group in direct support of the Secretary-General by providing an "early warning" and "specialist analysis" capability, and 2) to provide advice and expertise within the United Nations system as a whole and to assist the principal organs within the United Nations in carrying out their missions in a cost-effective manner.

IV Requirements for a United Nations Centre for Information, Training and Analysis (CITA)

Patricia Bliss McFate

In the post-Cold War period, international attention has been drawn to threats which, while not new, are of increasing concern: rampant proliferation of weapons of mass destruction and their advanced delivery systems, destabilizing accumulations of both advanced and "small" conventional arms, bitter regional tensions and violent ethnic, religious and nationalist conflicts.

Recent experience, for example, the Gulf War, demonstrates that if the massive effort required to control arms, and ultimately the better management of conflict, is to be successful, the new peace agenda should include a range of global, regional, subregional and local obligations, including formal arms control treaties, non-proliferation agreements, export controls, confidence-building measures and peace operations, and informal arrangements such as reciprocal disarmament actions, unilateral initiatives and transparency measures. Because verification measures can support and strengthen agreements and activities which enhance international security, these obligations should include verification measures.

The United Nations plays a major role in the verification of certain obligations associated with control of arms, particularly in relation to UN peace operations. This role will undoubtedly increase in the future. Indeed, the U.S. intelligence community estimates that "threats to peace stemming from ethnic, religious, or national conflicts can flare up in more than 30 countries over the next two years."[13] If this estimate is anywhere near correct, and if the Member States provide financial and logistical support, the United Nations will find itself involved in a number of new efforts to bring about regional peace and stability.

In a United Nations study undertaken in 1990, a group of governmental experts predicted that the changing international environment would lead to even greater involvement of the United Nations in the field of verification.[14] To support the undertaking of verification activities, the experts made a number of recommendations regarding: 1) the UN's data-collection capability, 2) activities associated with exchanges between experts and diplomats, 3) the Secretary-General's fact-finding role, 4) the use of aircraft and 5) satellites for verification purposes, and 6) the development of an international verification system. Some initial organizational steps have been taken to address the first three recommendations, and the activities of the UN Special Commission (UNSCOM) and the IAEA in Iraq have included the use of aerial and satellite imagery provided by Member States. However, little progress has been made in regard to the development of an international verification system.

A new United Nations study entitled *Verification in All Its Aspects, Including the Role of the United Nations in Verification*[15] is the only UN expert study to be tabled in the General Assembly during its 50th session. It re-examined the role of the United Nations in the field of verification, taking into account the dramatic geopolitical changes which have taken place since 1990.[16]

The United Nations must pick its tasks wisely, but its role in verification cannot help but increase given the changing international environment and the increasing perception that the control of weapons is linked in a direct and immediate fashion to the broader spectrum of international peace and security approaches.[17]

In arms control and confidence-building agreements, the final compliance judgment remains the responsibility of each party.[18]

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13 Testimony by outgoing Central Intelligence Agency Director R. James Woolsey, Jr., reported in *Aviation Week & Space Technology*, January 16, 1995, p. 64.

14 *Study on the Role of the United Nations in the Field of Verification*, (New York: United Nations, 1991), (A/45/372).

15 A/50/377, September 22, 1995.

16 UN General Assembly resolution 46/68 called for the new verification study "in view of significant developments in international relations" since the 1990 study.

17 The Secretary-General has presented his views on this subject in four reports: *An Agenda for Peace, op. cit.; New Dimensions of Arms Regulation and Disarmament, op. cit.; The Disarmament Agenda of the International Community in 1994 and Beyond* (New York: United Nations, Centre for Disarmament Affairs, April 1994); and *Supplement to An Agenda for Peace, op. cit.*

18 In obligations mandated by the UN Security Council, a main part of peace operations, the Security Council makes the compliance judgment.

However, in future agreements, particularly those of a global or regional nature, parties may lack the information and analytical tools needed to make informed verification judgments. The United Nations could play a useful role by providing its assistance to these governments. For the United Nations to make this contribution to global, regional and subregional security, it needs to improve its mechanisms for collecting, reducing, analyzing and disseminating information.

Although a variety of operative centres and bodies within the United Nations family collect information from human observation reports, fact-finding missions, states' reports, collateral documents, and aerial and spatial imagery, there is no one UN centre in which specialized information is gathered, collated and analyzed in support of functions such as early warning, crisis monitoring, compliance monitoring and environmental protection. In addition, there is no UN facility for training interested, responsible individuals in the areas of data collection, reduction and analysis. The creation of a centre such as CITA would provide a resource on which the UN Secretary-General and interested governments could draw in exercising their verification responsibilities.

The theoretical foundation for the Centre is the concept of co-operative monitoring: shared monitoring conducted on a multilateral basis and designed to gather and analyze data associated with formal or informal arms control, non-proliferation, confidence building, military disengagement or peace operations.

Proposals to share information sources on a global or regional basis are not new. U.S. Air Force Col. Richard Leghorn suggested in 1955 that satellite surveillance should be operated on behalf of the United Nations, with imagery provided to a UN information agency.[19] At the Surprise Attack Conference in Geneva in 1958, proposals by the West were put forward for a satellite that would operate under the direction of an International Disarmament Conference. A number of other examples could be cited which precede and follow the French proposals, in

1978, for the establishment of an International Satellite Monitoring Agency and, in 1989, for a Satellite Imagery Analysis Centre. These proposals have failed for a variety of reasons, including financial, technical and political obstacles. In addition, the proposals have concentrated on one method of monitoring rather than emphasizing the synergies to be exploited in multimethod co-operative monitoring.

Co-operative monitoring also is not a new concept. At the regional level, the application of a system of multimethod, interlocking verification procedures has ensured confidence in compliance with the Sinai Agreements of 1974 and 1975 and the Egypt-Israel Peace Treaty of 1979.[20]

On an international level, the IAEA has carried out safeguards monitoring in both NPT and non-NPT non-nuclear weapons states for nearly three decades. Its safeguards system has entailed the collection of technical data through a mix of materials accounting, containment and surveillance of nuclear activities, and OSIs. In developing this system, the IAEA has called upon Member States to help it develop necessary procedures and technologies. In reviewing the lessons learned by the IAEA in the Iraq situation, Director Hans Blix has affirmed the agency's need for additional, relevant information:

> First, the inspectorate must have relevant information. No inspectorate can comb the entire territory of a State in a blind search for proscribed facilities or activities. They must have information indicating locations that merit inspection. Apart from information routinely collected in the course of safeguards activities, publicly available information and relevant information in the possession of Member States may give such indications. This includes reports on the production, import and export of nuclear material and of sensitive equipment and non-nuclear material. It also includes information available to States through national technical means.[21]

A need for timely access to information in the area of peace operations also exists as the United

19 Walter Dorn, "Peacekeeping Satellites," *Peace Research Reviews*, vol. X, nos. 5-6 (1987), p. 87.

20 See for example: Brian S. Mandell, *The Sinai Experience: Lessons in Multimethod Arms Control Verification and Risk Management*, Arms Control Verification Study, no. 3, (Ottawa: Department of External Affairs, 1987).

21 Hans Blix, "Nuclear Non-Proliferation and Safeguards: New Challenges," *Disarmament*, vol. XV, no. 2 (1992).

Nations is thrust into a more active role in the post-Cold War world. Among the conclusions contained in the 1990 United Nations report *The Role of the United Nations in the Field of Verification* is the statement that "an enhanced United Nations capability to assist in verification, with the consent of all States parties...could be a significant contribution to international security and cooperation."[22]

In 1991, the UN General Assembly adopted a declaration on fact-finding which noted that, "in performing their functions in relation to the maintenance of international peace and security, the competent organs of the United Nations should endeavor to have full knowledge of all relevant facts."[23] A UN General Assembly resolution adopted the following year invites the Secretary-General "to strengthen the capacity of the Secretariat for the collection of information and analysis to serve better the early-warning needs of the Organization, and, to that end, encourages the Secretary-General to ensure that staff members receive proper training in all aspects of preventive diplomacy, including the collection and analysis of information."[24]

During UNSCOM/IAEA inspections in Iraq and, more recently, during Security Council discussions of North Korean locations suspected of being nuclear dump sites and discussions of the Al Kindi missile facility in Iraq, the United States has shared data from its national technical means. High-resolution commercial satellite imagery, for example, imagery available from SPOT (Satellite pour l'observation de la Terre) Image and Soyuzcarta or Russian DD-5, could play a useful role in providing preparatory information to ground-based peacekeeping forces and to OSIs.

The field of verification is not only evolving, it is enlarging. Because confirmation of compliance with an obligation strengthens international security, the verification process can be applied not only to arms control agreements, but also to obligations assumed as part of confidence-building measures and peace operations. The United Nations has an increasing role to play in the process of verification because many arms-related obligations are associated with conflict management, Security Council resolutions and cease-fires, among other activities.

In the process of carrying out its responsibilities, the United Nations is a repository and user of verification information, as well as a channel for distribution of verification information, ranging from bibliographical research to operational data. For example, the CDA, with its capacity to store and retrieve electronic data, maintains a disarmament data bank of published materials on all aspects of verification and compliance. The CDA is also responsible for computerizing and storing data submitted by Member States to the UN Register of Conventional Arms as well as data submitted in compliance with the resolution on international reporting of military expenditures. Other verification information has been shared through the confidence-building measures information exchange taking place under the BTWC, which is reported to the CDA. In addition, the UN Institute for Disarmament Research is carrying out projects in the area of verification technology.

At the operational end of the information-gathering spectrum, a number of UN peace operations have incorporated aerial observation in their missions. The UN Secretary-General, acting upon his mandate to investigate the alleged use of chemical weapons, has conducted field investigations. In addition, UNSCOM has developed a multimethod verification system and an information assessment unit in order to fulfil its mandated missions of verifying data declarations associated with the Iraqi weapons acquisition process and weapons programs, elimination of Iraqi weapons and establishment in Baghdad of a long-term export/import monitoring program. Having recognized that the new international environment will offer challenges to its safeguards system, the IAEA has, among other activities, conducted field tests of environmental monitoring, with an aim to improving its detection of undeclared nuclear activities.[25] Both UNSCOM and IAEA teams have benefitted greatly from the sharing of

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22 *Op. cit.*, p. 71.

23 *Declaration on Fact-finding by the United Nations in the Field of the Maintenance of International Peace and Security,* Resolution 46/59, adopted December 9, 1991. The quotation is taken from the Annex, section I, item 1.

24 *An Agenda for Peace: Preventive Diplomacy and Related Matters,* Resolution 47/120, adopted December 18, 1992.

25 Environmental monitoring involves collection of radioactive elements at ground level within a country to detect the existence of undeclared nuclear activities.

multinational sources of information. Finally, the preamble of the Open Skies Treaty, signed in 1992, explicitly refers to the possibility of employing overflights "to strengthen the capacity for conflict prevention and crisis management." The United Nations has the opportunity to call for overflights in the contexts of its peace operations in the European region.

Information gathering and analysis can contribute meaningfully to preventive diplomacy, as well as to the other four concepts associated with peace operations.[26] Fact finding can involve checking the accuracy of declarations respecting the nature, deployments or activities of military forces. Early warning and transparency, two of the key functions of the verification process, can be provided by fact-finding activities. In another area of peace operations — peacekeeping — information must be gathered for a variety of purposes, including supervising, monitoring and verifying the withdrawal of foreign troops, the cessation of outside military assistance, the locating, confiscating and secure storage or disposal of weapons and military supplies, and the verifying of arms reduction or disarmament.

There is ample evidence that a need exists to establish a capability to carry out the increasing verification responsibilities assigned to the United Nations. Such a capability might be designated the Centre for Information, Training and Analysis. In the following sections, the requirements for CITA are reviewed in terms of three categorical areas: information, training and analysis.

Information[27]

As noted in Chapter I, recent research has suggested that the United Nations could perform a valuable service by establishing a capacity to assist it in verifying compliance with multilateral and regional obligations. By contributing to the Secretary-General's provision of "common services" to Member States, the information collection, reduction, analysis and dissemination service performed by CITA would contribute meaningfully to increased transparency and thus enhanced international

peace and security. It would also provide a means for broader participation in verification activities, particularly among smaller and economically deprived countries.

It should be noted, however, that transparency has both benefits and costs. Openness, the actions taken by a party to reveal its intentions and capabilities, and transparency, the result of that openness, increase international security and that is clearly beneficial. However, the information would need to be collected, processed and analyzed in such a way that it did not jeopardize the national security of the country providing security-related information nor the security interest of any state which has been compliant with its obligations to control arms. In addition, care would need to be exercised to minimize the potential utility of these data to a country bent upon violating an agreement.

The quantities of information accumulated during transparency activities pose enormous data storage and management problems. A facility such as CITA would require a modern data management system capable of handling the volume of data, which would need to be accurate, timely and in a usable mode. The benefits of an upgraded data management system include: enhanced focus on responding to the Secretary-General's queries, compressed time to make decisions, reduced paper-based information distribution, accelerated culture change brought about by increased participation in decision making, improved efficiency in gathering and distributing data, and improved ability to monitor the international environment in a timely and accurate manner. Clearly the benefits associated with the development of an upgraded information collection and analysis system outweigh the costs.

One of the primary responsibilities of an information area in CITA would be to assure the availability of timely information for the training and analysis areas to carry out their functions. For example, if CITA were operational, in addition to data already available within the United Nations, registers of verification experts

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26   These are peacemaking, peacekeeping, peace enforcement and post-conflict peace building.

27   In the context of CITA, "information" includes technical and political information directly related to the needs of the Secretary-General; throughout the text, "information" refers to this "specialized" information.

could be developed, which could include information on their professional qualifications, language skills, and availability for verification inspections, operations and training. A catalogue of the experts' experiences in monitoring verification operations would be a valuable training aid for future inspectors. Other data banks might include an inventory of available data from national sources, including national technical means; a catalogue of commercially available satellite, airborne and other technical data indexed by type, coverage, resolution, timeliness, sources and cost; an inventory of sensors available for co-operative monitoring and their sources; and an inventory of available verification training aids, for example, manuals or courses, which could include their nature, type, application, availability and cost. Interested governments could also be encouraged to provide information on their experiences with verification and confidence-building measures and technologies for the use of other countries contemplating such measures; for example, the U.S. Department of Energy might make available some of the research conducted at the Sandia National Laboratories' Cooperative Monitoring Center.

Training

One of the key ideas contained in the Sixteen Verification Principles (1988) developed by the UN Disarmament Commission[28] speaks to the equal right of all states to participate in the process of international verification of agreements to which they are parties. Effective verification, including data compilation, reduction and analysis, by necessity requires the employment of a variety of different methods and techniques. Many of these methods and techniques must be learned. Access to verification technologies and training is a key ingredient in promoting wider participation in verification and in arms control more generally.

CITA should have the capacity to develop an understanding of the kind of training Member States require in order to implement their verification obligations. The Centre could then provide information on where to obtain training for personnel selected by interested Member States which may not have developed the necessary verification expertise; in certain instances, in the absence of available professional training elsewhere, CITA might need to organize the training itself. Gaps in training could be identified, in part, through discussion with verification experts and diplomats.

Training areas could include: photo interpretation, data reduction and processing of sensor data, for example, data from synthetic aperture radars; analysis of multiple sources of sensor data; conduct of OSIs and other co-operative means of verification; co-operative monitoring; and environmental monitoring. In addition, information and training should be provided on how to determine and evaluate the cost-effectiveness of verification and how to capitalize on verification synergies and harmonization.

Analysis

CITA could make a major contribution to the effectiveness of the UN Secretary-General and of the United Nations by providing analyses of a wide variety of verification-related information. The analyses would be performed upon the request of the Secretary-General or authorized parties, including other internal UN organizations. Analyses could include collation and synthesis of data, identification and interpretation of early-warning indicators of potential conflicts which could involve the United Nations, and determination of what could constitute militarily or politically significant compliance activities in certain situations. The analyses could also involve research concerning the determination and evaluation of "cost-effectiveness" as a concept in the verification process and in the field of peace operations.

Conclusion

CITA should be a lean, mission-oriented unit which is an integral part of the UN Secretariat. It should be organized in such a way that it capitalizes upon the ability of the United Nations to draw upon a wide range of sources for verification-related information. Rather than

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28   General Assembly Resolution 43/81 (B), adopted December 7, 1988.

relying on the current ad hoc approach of the United Nations to the monitoring of compliance with obligations to control arms, the Centre would add an organizational element which would improve the Secretariat's efficiency and cost-effectiveness. It would provide a needed service to the UN Secretary-General by supporting his increasing responsibilities in the field of international security and peace, while also responding to the interest expressed by many Member States in developing the expertise necessary for them to participate fully in the verification experience.
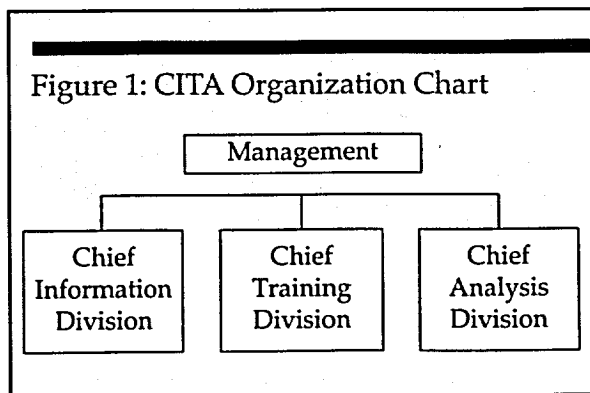
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V   The Operation of CITA

Sidney N. Graybeal

Introduction

In this chapter, CITA is envisioned as a specialized UN centre with three divisions — information, training and analysis — reporting to the UN Secretary-General.[29] CITA provides a means of co-ordinating activities supportive of the Secretary-General's mandated roles and responsibilities, inter alia, fact finding, investigation of compliance with certain obligations, preventive diplomacy and other aspects of conflict management.

Inherent in this chapter, as in the discussion contained in Chapter IV, is the belief that neutral third-party assistance in verification by the United Nations, when acceptable to all parties to an obligation, can be essential to full participation by the parties in the verification process. This third-party assistance could take the form of provision of information, training or analysis to Member States by the UN Secretary-General.

The primary functions of each of the three divisions are set forth below, along with some examples of how the divisions would respond to certain UN needs. Figure 1 provides an organization chart for the Centre, with sub-units noted for each division. This organizational plan should be read with two points in mind: 1) the specific functions shown in the organization chart could be combined, and current resources reallocated, depending upon future UN activities; 2) because duplication of services in the UN Secretariat must be avoided, already-extant UN resources should be used where available.

Figure 1: CITA Organization Chart

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          ┌──────────────┐
          │  Management  │
          └──────┬───────┘
      ┌──────────┼──────────┐
┌─────────┐ ┌─────────┐ ┌─────────┐
│  Chief  │ │  Chief  │ │  Chief  │
│Informa- │ │Training │ │Analysis │
│  tion   │ │Division │ │Division │
│Division │ │         │ │         │
└─────────┘ └─────────┘ └─────────┘
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Management

The Director reports to the Secretary-General and is responsible for the overall operation of the Centre. The Director assures that CITA is meeting the information, training and analysis requirements of the Secretary-General and the Member States. In consultation with these bodies, the Director identifies current and likely future requirements which CITA must be prepared to meet. The Director co-ordinates the Centre's operations with other concerned organizations in the UN family, for example, the IAEA, UNSCOM, CDA, DPKO and the Conference on Disarmament, as well as implementing bodies for global and regional agreements, such as the OPCW, Open Skies Consultative Commission and Organization for Security and Co-operation in Europe (OSCE).

The Security Officer, who reports to the Director, is responsible for identifying, establishing and maintaining the necessary internal security system for CITA, including appropriate arrangements for personnel, facilities and information. The Security Officer co-ordinates CITA's security arrangements with other organizations within the UN family. The Security Officer also performs "red team" analyses of potential misuses of CITA and its data for the Director and the Secretary-General.[30]

The Executive Officer assures that the Director's guidance and orders are conveyed, understood and carried out by the three divisions. The Executive Officer is responsible for all staff functions except security, including facilities, equipment, recruitment, personnel records and payrolls, and budgeting.

Information Division

The Information Division (Figure 2) is responsible for acquiring, collating and disseminating information within the Centre and to outside consumers.

The Chief of the Information Division is knowledgeable about all Division activities and is responsible for assuring that they are carried out efficiently. The Chief co-ordinates with other

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29   In this chapter, for purposes of brevity, the Centre's officers and activities are described in the present tense, as though the Centre exists.

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Figure 2: Information Division

    • Acquisition
    • Collation
    • Dissemination
    • Information Requests
    • Registers
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divisions to be sure that their information needs are met in a timely manner and to enhance CITA's cost-effectiveness by capitalizing on the synergies among the three divisions' operations. In view of the amount of data handled by the Division, the chief must be familiar with and capable of implementing management information systems.

The Acquisition Unit determines current and future information needs in co-ordination with other divisions, the Secretary-General and interested Member States. The Unit acquires information primarily from three sources:

1. Member States which donate data from their own sources;

2. Other organizations within the UN family;

3. Open sources, such as commercial satellite data, registers of arms sales, budgeting information and information from non-governmental organizations.

    The Unit works closely with the Registers Unit described below in order to minimize duplication.

The Collation Unit establishes a comprehensive management information system connected with other UN management information systems to facilitate the organization, collation, analysis and dissemination of information. The Unit also integrates data from the various UN registers into the management information system. It collates and formats data to meet the

needs of the Director and the Analysis and Training divisions, as well as of the Dissemination Unit discussed below.

The Dissemination Unit disseminates information with the guidance of the Director and the Secretary-General to meet requests from the Training and Analysis divisions, UN Member States and other organizations within the UN family.

The Information Request Unit receives all requests for information, seeks appropriate approval regarding response from the Director, and generates requests for data necessary to meet the overall information requirements of CITA, which are passed to the Acquisition Unit for implementation.

The Registers Unit acquires and organizes pertinent data from all UN registers, for example, the Standard International Reporting of Military Expenditures and the Conventional Arms Register. It should not duplicate the collection of data associated with these registers. Although it may become desirable in the future to incorporate each of these registers into CITA, such an action should await the implementation and effective operation of the Centre itself.

The Training Division

    The Training Division (Figure 3) is a source of information regarding training on monitoring methods and technologies associated with arms

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Figure 3: Training Division

    • Co-operative Monitoring
    • Inspections
    • Data Reduction and Processing
    • Data Exchanges
    • Management Information
      System Implementation
    • Seminars/Courses
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30 "Red team" analyses consist of identifying areas in which information can be used for adverse purposes, such as the use of this information in order to learn how to evade the provisions of an obligation to control arms.

control, confidence building and conflict management to interested governments and members of the UN family, as requested. Chapter VI describes some of the technologies and the types of training which could be made available by CITA.

In most instances, CITA would "train the trainers." However, in the absence of available professional training elsewhere, CITA could organize the training itself.

The Chief of the Training Division is knowledgeable about monitoring requirements, methods and technologies. The Chief is responsible for assuring the effective operation of the Division, particularly for assuring that the training requirements are met in a timely, useful and cost-effective manner.

The Co-operative Monitoring Unit's responsibilities take into account the increased importance of co-operative monitoring in global, regional and subregional obligations to control arms. The Unit provides training on the establishment, operation and utilization of a co-operative monitoring centre by interested governments. It maintains linkages with existing pertinent national centres, such as the Cooperative Monitoring Center operated by the Sandia National Laboratories in the United States, and international centres such as the Verification and Implementation Co-ordinating Staff of the North Atlantic Treaty Organization (NATO) and Conflict Prevention Centre of the OSCE.

The Inspections Unit provides training on conducting OSIs and on hosting inspectors performing OSIs. The Unit's training emphasizes the monitoring function of OSIs and cautions against their use for intelligence-collection purposes.

The Data Reduction and Processing Unit provides training on the various methods and technologies described in Chapter VI. The training is designed to enhance Member States' ability to use these methods and technologies effectively in their independent assessments of

other parties' compliance with the provisions of obligations associated with arms control, confidence building and conflict management.

The Data Exchanges Unit provides training on the methods for acquiring, formatting, collating and analyzing data involved in information or data exchanges.

The Management Information System Implementation Unit provides training on a variety of management information systems that can be used by interested governments in organizing a large amount of data associated with obligations to control arms.

The Seminars/Courses Unit offers a variety of seminars and courses, including exchanges between diplomats and experts, designed to familiarize participants with various aspects of the arms control process.

The Analysis Division

The Analysis Division (Figure 4) provides evaluation, analyses and assessments as needed by the Secretary-General in discharging his responsibilities associated with arms control. When approved by the Secretary-General, the Division performs analyses for Member States or other internal UN organizations.

The Chief of the Analysis Division is an analyst adept in problem solving who knows

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Figure 4: Analysis Division

- Compliance
- Early Warning
- Transparency
- Conflict Management
- Synergies/Harmonization
- Cost Effectiveness

and understands the needs of the Secretary-General in carrying out his responsibilities. The Chief co-ordinates with the Information Division to assure that the needed data are accurate and available in a timely manner and in a usable form. The Chief also co-ordinates with the Training Division to assure that it is providing interested Member States with the training necessary for them to perform their independent analyses of compliance issues associated with arms control, confidence building and conflict management.

The Compliance Unit performs analyses of compliance issues, as requested by the Secretary-General.

The Early-Warning Unit provides an evaluation of all types of early-warning data needed to meet the Secretary-General's concern over pending regional and local crises that possibly require some type of UN action.

The Transparency Unit evaluates the effectiveness of various measures which provide transparency and it recommends actions which can improve this increasingly important aspect of international peace and security.

The Conflict Management Unit, in co-operation with the UN operational departments, provides timely, standardized information on the intentions, activities and capabilities of parties associated with UN peace operations for the Secretary-General and, upon his approval, for individual Member States.

The Synergies/Harmonization Unit identifies areas where synergies and harmonization are being or should be employed, recommends additional areas for their application and evaluates their utility and effectiveness.

The Cost-Effectiveness Unit determines the criteria for judging the cost-effectiveness of all aspects of CITA's operation. In addition, the Unit performs cost-effectiveness analyses of activities associated with arms control, confidence building and conflict management, as requested by the Secretary-General.

VI   CITA Training on Monitoring Methods and Technologies

George R. Lindsey

The most advanced methods and technologies which could be useful for application to many UN security problems have been developed by major nations, in many cases for unilateral use for national purposes and for the verification of arms control by national technical means. In other instances, however, these methods and technologies have been developed for employment under bilateral or multilateral arms control agreements in which the parties co-operated. Nations are reluctant to share their most advanced techniques with close allies, let alone with the United Nations. However, for many UN purposes, it may be adequate to employ equipment with less than the ultimate capability that is achievable with modern technology. It is important that the personnel using these methods and technologies be able to exploit to the full the capabilities they provide.

In some cases, such as the nuclear NPT or the CWC, very specialized technologies are involved, requiring a permanent staff of highly trained inspectors and analysts with professional qualifications. But, in many other cases, it should be adequate to train non-technical personnel in the use of a few general technologies and procedures for employment in a multilateral organization.

In the cases of the more advanced methodologies and technologies, CITA should facilitate arrangements for training personnel who will · serve for significant periods in multilateral verification agencies. The role of CITA will be primarily as an agent, putting clients in touch with providers. Rather than building a large, permanent, in-house staff of trainers, CITA should maintain an up-to-date roster of persons and institutions qualified to provide instruction or consultation regarding the various methods and technologies, and recommend them to nations, or employ them under contract, as the needs arise.

In many cases, CITA's role may consist of arranging for visits or temporary assignments to existing agencies which already have the facilities to provide familiarization or on-the job training to persons already possessing a suitable background. Some possible sources of such

training are within the UN family already (e.g., UNITAR, DPKO), and there are other sources in Member States which have constructed facilities for demonstrating modern technologies of information processing, distribution and analysis. NATO provides multinational training for OSIs.

But there may also be cases in which CITA should be able to take a more direct part in training. It could organize seminars, provide a limited number of instructors and might need access to a suitably equipped facility.

In the case of less advanced technologies suited for application by large numbers of personnel engaged in peace operations and certain arms control activities (e.g., OSIs and aerial surveillance), CITA should concentrate on training trainers who can in turn carry on continuous training of their own nationals in their own countries in their own language, as they are rotated in and out of their assignments.

Training for Peace Operations

One of the problems faced in on-going multilateral operations involving military personnel is the constant turnover, with many contingents remaining for no more than a few months, after which they return home and are replaced by a new group. A severe difficulty faced in UN peace operations has been the lack of training of new arrivals in either the functions which they are supposed to fulfil, or in the standard operating procedures which are necessary for effective control and management of any sizable non-homogeneous military force for any organized purpose. Also, since UN functions are necessarily multinational, it is essential to overcome the problems posed by differences of language and technical background. This is an obstacle which CITA would have to face in organizing training of personnel.

While it would not be practical for the United Nations to undertake the preparatory training for all military personnel about to embark on their first multilateral peace operation, it could perform a valuable service by arranging for the training of selected representatives of various

participating states, who would return to their country to conduct training of their own national contingents. Some centres for conducting this type of training are already in place.[31]

This unfulfilled requirement for better training for multilateral UN security missions is not confined to areas such as monitoring and verification discussed in this study. To quote John Mackinlay:

> At present, the obvious need for a common UN staff training system is unaddressed because national defence forces continue to maintain a national as opposed to an international approach to staff training. It is also stalled because there is no commonly accepted international staff training syllabus or doctrine.[32]

Troops assigned to peace operations should receive introductory lectures about the people, societies and geography of the areas in which they will be conducting operations. This is especially important for contingents from parts of the world far away from the area in which peace operations are being conducted and who are culturally very different from the inhabitants of that area.

While all of the people involved in peace operations, including civilians and the staffs of non-governmental organizations, may have opportunities to acquire information wanted by CITA and to contribute to confidence building and transparency, most of the work of monitoring and verification will be done by groups specifically organized for those tasks. For this role they will need to understand and be able to apply the most appropriate methods and technologies. While CITA would not be the proper organization to manage the general training for the military aspects of peace operations, it would be for the aspects associated with monitoring and verification.

Training for Use of Remote Sensing Equipment in Fixed Sites

Many of the necessary technologies are of a fairly general nature, and the information which they produce can be collected by non-specialist personnel and used for a variety of purposes.

The installation of remote sensing equipment in fixed locations, such as demilitarized zones or secure storage sites, can be done by competent technical personnel. Operation should not require extensive training, although some skill may be needed to adjust the equipment for different conditions, and the procedures to be followed when sensors give evidence of violations must be thoroughly understood. The fixing of tamper-resistant seals to sensors and of identity tags to treaty-limited objects (TLOs), together with the determination of their subsequent integrity, will require full understanding of the relevant technology.

The types of peace operations for which remote sensing equipment could be useful include those in which parties are forbidden to cross specified boundaries or enter into a "demilitarized zone." If an arms control, peacekeeping or confidence-building agreement obliges a signatory to keep certain weapons inside a specified zone, or to refrain from bringing them into a specified zone, it may be possible to employ remote sensing instruments to record violations. Well-placed acoustic or seismic sensors may be able to distinguish tanks from wheeled vehicles as they cross a bridge, and heavy from light aircraft as they take off or land. The recorded detections could be transmitted to the UN in real time as they occurred, or stored for subsequent manual collection. It would be necessary to make the sensors, storage and transmitting devices resistant to tampering.[33]

Some arms control agreements require weapons or strategic materials to be withdrawn from operational deployment, depots or industrial plants and placed in secure storage. When an agency is charged with preserving the security of a storage site or barrier which is under national (rather than multinational) control, it is necessary to ensure that an intentional violation by the legal custodians will be detected. During the long periods between inspections, surveillance can be maintained by means of tamper-resistant sensors, whose observations are recorded for

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31 Existing examples include the International Peace Academy in Vienna and the Pearson Peacekeeping Centre in Canada.

32 John Mackinlay, "Improving Multifunctional Forces," *Survival*, Autumn (1994), footnote 39, p. 173.

33 Determined action to tamper with a device cannot be prevented. The popular term "tamper-proof" signifies that interference will be detected, either at the time it occurs or on the occasion of the next inspection.

subsequent inspection.[34] This practice has been employed by the IAEA for many years, and verification of the CWC and the Biological and Toxin Weapons Convention (BTWC) will pose analogous problems. It will be important to install automatic remote sensing instruments able to record activities in the various sites, as well as the presence of certain chemicals or agents in the air or water in selected locations, during the periods between the visits of inspectors.

An agreement prohibiting or limiting weapons of a particular type, but permitting "look alike" versions,[35] may require verification by close examinations of batches of these weapons, determining their category and attaching tamper-resistant tags.

A special case of monitoring by remote sensors in fixed sites is provided by the bilateral nuclear Threshold Test Ban Treaty (TTBT), which relies heavily on seismic detectors installed in a worldwide network whose primary purpose is the monitoring of earthquakes. The correlated data from the network allows an estimate to be made of the location of a large underground explosion and of its energy yield. This capability would be very important for the verification of a Comprehensive Nuclear Test Ban and would be reinforced by other techniques employing acoustic detection in the air and under the sea, as well as detection of radionuclides produced by nuclear explosions.

Training for On-Site Inspections

Most of the knowledge required for effective OSIs concerns the details of the objects or materials whose absence, presence or characteristics are to be investigated. Knowledge of the associated environment in which these TLOs are usually deployed, stored or serviced is also needed. If verification of an agreement to limit military personnel were required, considerable knowledge would be needed regarding the characteristics, uniforms, activities and

management of personnel on the bases to be inspected.[36] OSIs for the verification of conventional weapons should not require sophisticated equipment. CITA could provide useful assistance by publishing carefully prepared information pamphlets appropriate for various types of OSI.

Tags can be securely attached to pieces of equipment to give them a unique identity. Inspectors would be given an instrument able to read and confirm the authenticity of the tag, confirm that it had not been previously detached and to identify its number.

Special technical requirements are presented for OSI of objects, such as missiles, for which inspectors are not allowed to see inside the outer surface, and for which the true capabilities are not evident from simple external observation. The maintenance and calibration of instruments such as x-ray cameras and nuclear neutron probes would need to be done by specialists at the inspectors' base. It should not require intensive training to operate these devices during an inspection, but the inspectors would need to understand the principles involved and the safety precautions necessary. The same remarks apply to portal perimeter monitoring, although maintenance and calibration of the instruments would require visits by specialist technicians to the portal site. CITA should be able to arrange for short courses in a well-instrumented facility for the training of inspectors required to use the relevant instruments.

Observers may be allowed to attend tests of weapons or other devices subject to agreed limitations. Presumably the testing party will have installed instruments to record many of the performance characteristics of the device under test and may make some (but probably not all) of the data available to the inspectors. To obtain the maximum information, it will be important for observers to have up-to-date knowledge of the characteristics of the devices being tested. In preparation, CITA could arrange for familiarization visits to friendly sites.

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34 An example is provided by automatic cameras (like those used in banks), which take frequent pictures of the water pools in which the spent rods from nuclear reactors are kept.

35 Examples could be cruise missiles or surface-to-air missiles, for which an agreement permitted conventional payloads, but forbade nuclear warheads. Inspectors could verify the absence of nuclear material and observe its sealing in tamper-resistant canisters.

36 See: George Lindsey and Alex Morrison, *Verifying Limitations on Military Personnel*, Arms Control Verification Occasional Paper, no. 9 (Ottawa: Department of External Affairs, 1991).

In the case of underground nuclear explosions, there is a precedent for allowing inspectors to install their own instruments at or close to the test site, for the measurement of the energy yield.[37] These inspectors need to be highly qualified experts in the relevant technology, with more specialized training than is likely to be readily available to CITA.

Effective observation of space facilities and space launches will require a good knowledge of space technology on the part of the inspectors. Nations active in space technology may be able to provide personnel with the necessary qualifications. However, many nations without this experience would appreciate the opportunity to have selected representatives of their country attend a course arranged by CITA to explain the fundamentals to those chosen to participate in a monitoring operation.

The Conduct of Overhead Surveillance

A multilateral monitoring or verification agency should be able to obtain or lease aircraft, including helicopters, together with their qualified flight crews, from the armed forces of nations participating in the operation. While it is conceivable that in the future the UN would procure, launch and operate its own space surveillance satellites, it is far more likely that it, or multilateral verification regimes, will seek such services from Member States or from commercial suppliers. CITA will not need to engage in the training of fliers, aircraft technicians or space launching technicians.

There are, however, other important problems associated with the management and strategy of overhead surveillance which arise in monitoring and verification, and for which considerable expertise is needed if the operation is to function efficiently.

When the overhead vehicles are aircraft or helicopters, the opportunity exists to direct missions at short notice, based on information recently received. However, these may face a number of constraints: weather conditions may make visibility over the target inadequate or flying unsafe; there may be the possibility of hostile action against the aircraft, so sorties may have to be designed with vulnerability in mind; and there may be a choice of sensors and their settings (such as optical filters), and a need to choose the exact flight routes, altitudes and times in order to optimize the results obtainable from the various sensors. Aside from these technical problems, there are tactical considerations, especially in circumstances where the observed party is under strong suspicion of non-compliance and may be able to conceal violations a few hours before an OSI team arrives. Overhead surveillance could produce evidence warranting the demand for a challenge inspection and also monitor the chosen base for evidence of hurried concealment or removal of TLOs. Thus, mission planning calls for considerable expertise, both technical and tactical, for which training should be provided to the limited number of officers who will be called upon to make the relevant decisions.

With space surveillance, after the satellite has been designed, built and launched there is only limited freedom to modify its operation. It may be necessary to direct the angles at which sensors point (and therefore the swaths on the ground which are observed during the overpass), or possibly to command radars to shut down at certain periods to conserve power. While it may be possible to redirect the path of a satellite slightly, in order to obtain earlier passage or better visibility over an important target, such a manoeuvre expends precious fuel and cannot be performed often.

Situations may arise in which both airborne and spaceborne surveillance are possible, presenting the opportunity to combine them in the most effective manner. And it may be possible to choose between equipment carrying different sensors (e.g., human visual observation, visual or infrared photography with different resolutions and optical filters, one or another type of radar,[38] or receivers to monitor various

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37 This is the role of the CORRTEX instrument for monitoring the bilateral TTBT.

38 Various types of active radar which can be mounted on aircraft include sideways-looking radar, which sweeps a wide swath to one side of the aircraft track, synthetic aperture radar, which produces high-resolution images of stationary ground targets, and airborne moving target indication, which detects moving objects such as aircraft in flight. The high altitudes of satellite orbits cause the radar ranges to objects on the surface (or even within the atmosphere) of the Earth to be very long, so that high transmitter power is needed and good resolution of target detail is difficult to obtain. However, the high altitude allows very large areas to be observed.

electromagnetic transmissions).[39] For all of these reasons, training and experience is needed for effective planning of overhead surveillance missions.

Interpretation and Analysis of Imagery

Interpretation of raw data such as photographic, electro-optical or radar images, transmissions from foreign radars or telemetry signals, or the recordings of seismic detectors requires skills quite different from those needed simply to collect the data, as does analysis of the combined results of the material assembled from different sources. Image interpretation and analysis, which now benefit from advanced technologies of their own, are taught to selected military and civilian personnel of major nations, but the development of significant expertise depends on accumulating years of experience. CITA should be able to secure the services of experienced instructors and provide a training facility where examples of the various types of imagery can be studied, together with modern methods of enhancing and combining the data.

This training should be reserved for technically educated personnel, either military or civilian, who will be expected to serve for an extended period in centres charged with monitoring multilateral arms control agreements.

The training should include instruction in the principles of electro-optical sensors using wavelengths extending from ultraviolet through visible to near and thermal infrared. It should cover the types of imagery produced under various conditions of visibility and lighting.

Also included must be instruction on the capabilities of standard active airborne radar, sideways-looking radar, synthetic aperture radar and passive radiometers. Such instruction should include descriptions of the imagery produced by the different types of target.

Trainees should be introduced to the modern computer technology which permits the enhancement of images to aid in distinguishing wanted targets against a confusing background, draws attention to elements which have changed during the interval between successive collection of images of the same area, and allows the images obtained from different sources to be combined onto a common grid.

Countries that do not undertake image interpretation themselves will be able to benefit from having representatives at CITA, or trained by CITA, who are able to understand the techniques of image processing and can detect the existence (or confirm the absence of) manipulation which might be intended to conceal or falsify evidence.

Data Management

The volume and variety of information that should flow into and out of a fully operational CITA, together with the occasional need to provide the UN with speedy assessments, demand that the Centre exploit powerful modern data processing and management information technologies. Even the storage of written data contributed by each nation according to agreements such as the UN Arms Register, together with imagery from monitoring activities, would soon overwhelm a manual library of paper documents and photographic prints. CITA would also need to cope with the additional huge volume of other information that it is expected to gather from many collateral sources.

CITA will need to start its own operations with some personnel already experienced in modern data management; it should also offer training in this field to people intending employment in this type of work, either in CITA or other centres which must deal with a large flow of data with minimum delay. This is one area in which trainees from less developed countries could acquire skills of permanent value to their own nations, whether for activities associated with peace and security or other functions such as education or management.

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39 Visual detection requires good lighting conditions and clear air; infrared can operate at night with clear air; radar and electromagnetic receivers are effective day or night and through clouds or smoke. The details of small objects are best resolved at optical wavelengths and when observed from low altitudes.

Highly Specialized Technologies

There are other technologies, especially related to nuclear, chemical and biological weaponry, which require highly trained specialists. A well-established example is the nuclear NPT, for which verification is carried out by inspectors permanently employed by the IAEA. If the CWC and the BTWC are to have effective verification, it is certain that this will also require specialists permanently employed by large multilateral implementing bodies. Seismic monitoring of underground explosions, already practised for the bilateral TTBT and necessary for verification of a multinational Comprehensive Test Ban Treaty (CTBT), is also a task for specialists, many of whom could be drawn from a worldwide group of geophysicists already monitoring earthquakes.

If CITA is to perform a useful role in the training of personnel from the many Member States, it will be better to leave the highly specialized technologies related to the production of nuclear, biological or chemical weapons to the specialized agencies, who will recruit personnel who already have appropriate scientific training and who are likely to remain fully employed by the agencies for an extended period. CITA would not conduct advanced courses in nuclear physics, chemistry, biology or geophysics. Its training would concentrate on less specialized applications, such as verification of agreements for the control of conventional weapons,[40] for peace operations and for confidence building and non-proliferation measures. It would be aimed at large numbers of personnel, mainly military and unlikely to continue in the same activity for many years, most of whom have little technical background and who need training of a less specialized nature.

Conclusions

A large repertoire of methods and technologies has been developed for unilateral collection and analysis of information, and much of this has been and can be employed for verification of bilateral and multilateral arms control agreements, whether regional or global. Some can be adapted for use in peacekeeping operations, confidence building and strengthening of non-proliferation.

The techniques extend from simpler types to be used by a large number of non-technical military and civilian personnel to very sophisticated ones requiring expensive advanced equipment operated by highly trained specialists.

CITA will need trained people for its own operations of information processing and analysis, but its major training function will be to ensure that personnel are adequately prepared to carry out monitoring, verification, peace operations and related roles in other multilateral bodies.

There are likely to be two general types of training. One will be for the comparatively small number of persons to be employed on a long-term basis in multilateral bodies engaged in information processing and analysis. CITA must become able to identify existing agencies, including educational and commercial institutions, best able to provide experience or formal training for these personnel.

The other type of training will be for the much larger numbers of personnel — including many from countries with little familiarity with modern technology — to be deployed for rotational duty of verification of obligations in the areas of arms control, confidence building and conflict management. Here CITA should be able to arrange, or if necessary conduct, training for a limited number of instructors from the various participating states. The role of these instructors will be to return to their own country to carry out continuous training for the contingents preparing for rotational duty abroad. In addition to purely technical training, instruction should also be given on the common procedures necessary for the efficient operation of multinational peace operations, arms control verification and confidence-building measures.

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40 While inspection of laboratories and manufacturing facilities which could be engaged in the production of nuclear, biological or chemical weapons will require highly trained specialists, this may not be the case for OSIs of locations in which there are weapons with the potential to carry nuclear, biological or chemical payloads. For example, operation of a sensor able to detect nuclear radiation or the presence of certain chemicals may not demand extensive knowledge of nuclear physics or toxicology.

VII A Mechanism for Meeting the Requirements of CITA

F. Ronald Cleminson*

Introduction

Studies relating to international security affairs in the 1990s have customarily identified the demise of the Cold War as the point of departure for change in the international system. The practical experience gained from the Gulf War is seen as the catalyst. In its 50th year, the United Nations is likely to receive a number of studies pointing the way to adapt to these changes. Certainly the Cold War, the Gulf War and the post-Gulf War verification experience will be seen as important milestones in that process. The particular significance of the peaceful termination of the Cold War lies in the fact that now, less stymied by the permanent members' vetoes, the UN Security Council can function in a more proactive manner, in some ways closer to that which its founders must have envisioned.

The Gulf War and its abrupt cessation created a rare opportunity for the United Nations to take on a post-conflict disarmament role. The United Nations fashioned creatively from within its own resources a means of monitoring and verifying compliance resulting from the on-going disarmament commitments agreed by Iraq. Co-operation with and assistance from Member States has played an essential role in the success of this international endeavour. With the evolution and refinement of responsibilities has come recognition of the need to regularize and co-ordinate the functions inherent in this new proactive UN role. The CITA concept outlined in this study, which would provide co-ordination of information handling, requisite training and an indigenous ability to provide specialized analysis, has been developed to address this need.

Beyond immediate concerns, one task for the UN involves identifying and quantifying likely future challenges. While these challenges will probably be similar generically, they will undoubtedly be diverse in application. A flexible mechanism designed to meet CITA's specifications, as outlined in previous chapters, must be established in the full recognition that it must fit into a new, overall UN management environment. That environment itself is in evolution as part of the comprehensive reform package promised by the Secretary-General when he assumed office in 1992.

The United Nations System

Coincident with the stewardship of Secretary-General Boutros Boutros-Ghali, the United Nations system, as illustrated in Figure 5, has expanded in an unprecedented manner to meet its global commitments, particularly in the area of peace operations. Today, the United Nations System is estimated to employ more than 51 000 people worldwide and to spend in excess of $10 billion per annum. At least 40 per cent of that budget is earmarked for peace operations in their various forms. The core staff of the Secretariat is estimated to be roughly 14 000 personnel. The remaining UN employees are included in missions, agencies and organizations abroad and often operate in an almost autonomous fashion.

The IAEA is one of the most technically advanced and proactive organizations within the United Nations family. It has a workforce of more than 2 300 and a budget in excess of $200 million. Included in the Agency, for purposes of monitoring and verifying compliance of Member States with the NPT, is a staff of 480 persons (200 are inspectors) resident in Vienna. Safeguards account for approximately $65 million of the Agency's financial outlay.
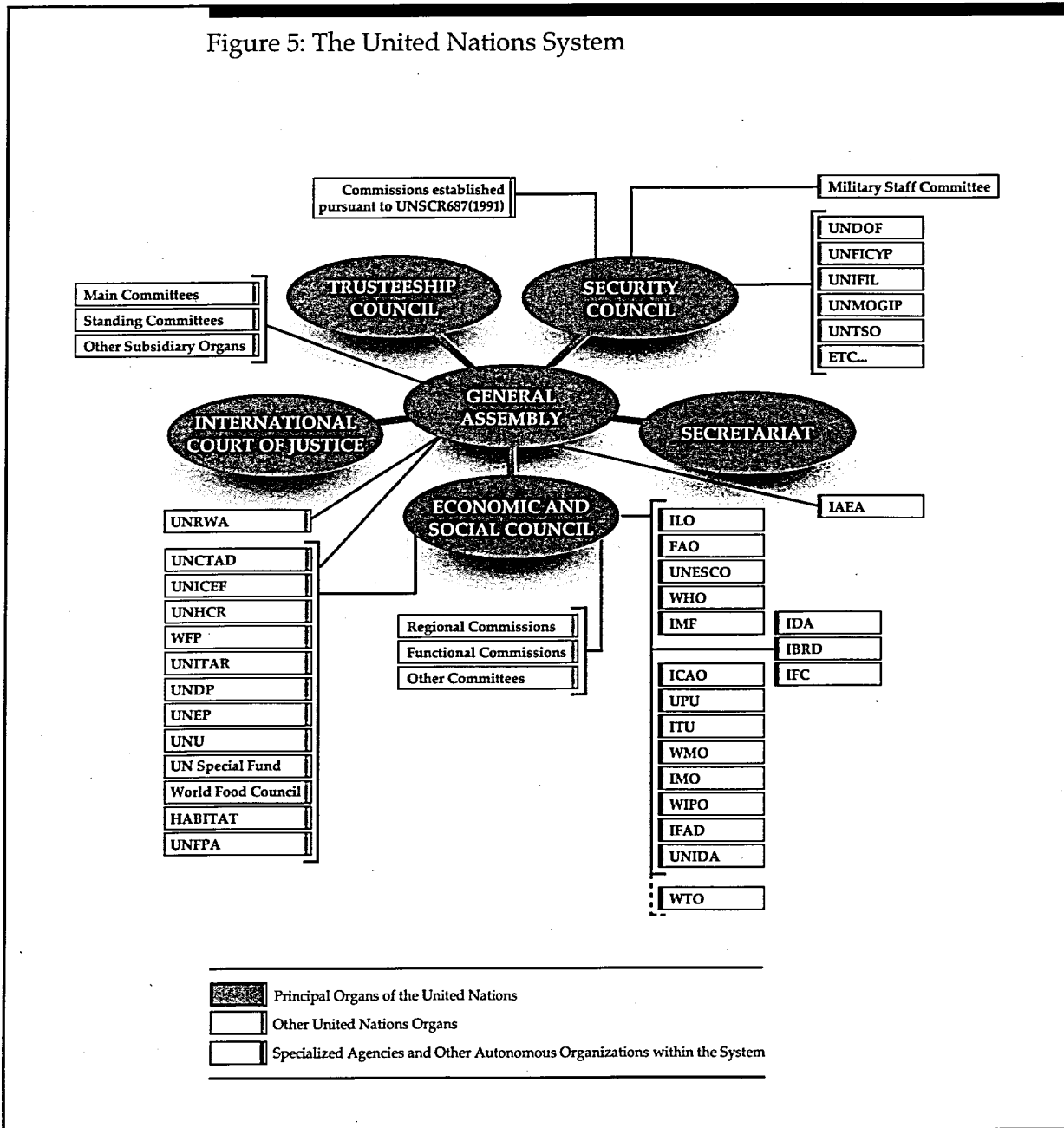
Also in the disarmament area, the Conference on Disarmament, the single multilateral disarmament negotiating forum, has a unique relationship to the United Nations. It defines its own rules of procedure, sets its own agenda and conducts its affairs in a manner that is distinct and often remote from the operational elements of the United Nations.

While a significant degree of independence appears to be essential for the operation of such bodies with global and diverse mandates, duplication of effort is almost unavoidable. Thus, the

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Figure 5: The United Nations System

Commissions established pursuant to UNSCR687(1991)	Military Staff Committee

TRUSTEESHIP COUNCIL

SECURITY COUNCIL

- Main Committees
- Standing Committees
- Other Subsidiary Organs

- UNDOF
- UNFICYP
- UNIFIL
- UNMOGIP
- UNTSO
- ETC...

GENERAL ASSEMBLY

INTERNATIONAL COURT OF JUSTICE

SECRETARIAT

ECONOMIC AND SOCIAL COUNCIL

- IAEA

- UNRWA

- UNCTAD
- UNICEF
- UNHCR
- WFP
- UNITAR
- UNDP
- UNEP
- UNU
- UN Special Fund
- World Food Council
- HABITAT
- UNFPA

- Regional Commissions
- Functional Commissions
- Other Committees

- ILO
- FAO
- UNESCO
- WHO
- IMF
- ICAO
- UPU
- ITU
- WMO
- IMO
- WIPO
- IFAD
- UNIDA
- WTO

- IDA
- IBRD
- IFC

Legend:
- Principal Organs of the United Nations
- Other United Nations Organs
- Specialized Agencies and Other Autonomous Organizations within the System

inherent need for some sort of co-ordination between UN organs and operations in the disarmament area — particularly in specialist areas of expertise such as information, training, and analysis for conflict management — is immediately apparent. The CITA concept has been created to address this need, particularly in terms of specialist demands placed upon the Secretary-General and his ability to respond in an accurate and timely manner.

Secretariat Restructuring

Few doubt that the United Nations will require changes to its structure and its strategy when dealing with its global mission relating to security and stability in an environment of increasingly tight budgets. Although the overall United Nations system, because of its unique global, regional and functional diversities, is unlikely to be altered significantly, it is possible to discern the main lines along which the Secretariat will be altered as the Secretary-General continues to institute his comprehensive reform.

The new structure falls into a standard three-pronged organizational format focussing on the three major functional areas of peacekeeping operations (DPKO), political affairs (DPA) and humanitarian activities (DHA) as illustrated in Figure 6.

In addition to this structural adjustment, the UN Secretariat is in the midst of important procedural changes. The department heads of DPKO, DPA and DHA have agreed in principle to the establishment of a policy process intended to simplify the development of "a staff consensus" early in the planning process. Where previously each department might produce its own plans and proposals and forward them to the Secretary-General to co-ordinate, the new system envisions continuous co-ordination and refinement of staff ideas throughout the policy planning process. At the end of the process, the department heads should be able to confidently present to the Secretary-General proposals that are a true integration of information and policy from all three operational departments.

The success of this evolving system will depend on comprehensive, accurate and timely information on all aspects of issues. The development of this policy planning process, however, is predicated on the idea that policy officers in each department ought to manage and produce directly a great deal of their own information. These efforts would then be joined through consultations and consensus building at like levels within the departments and across departments. It is anticipated that, as a result, the Secretary-General will be presented with a harmonious and generally-agreed plan for each issue and situation he faces.

Figure 6: Secretariat Structure
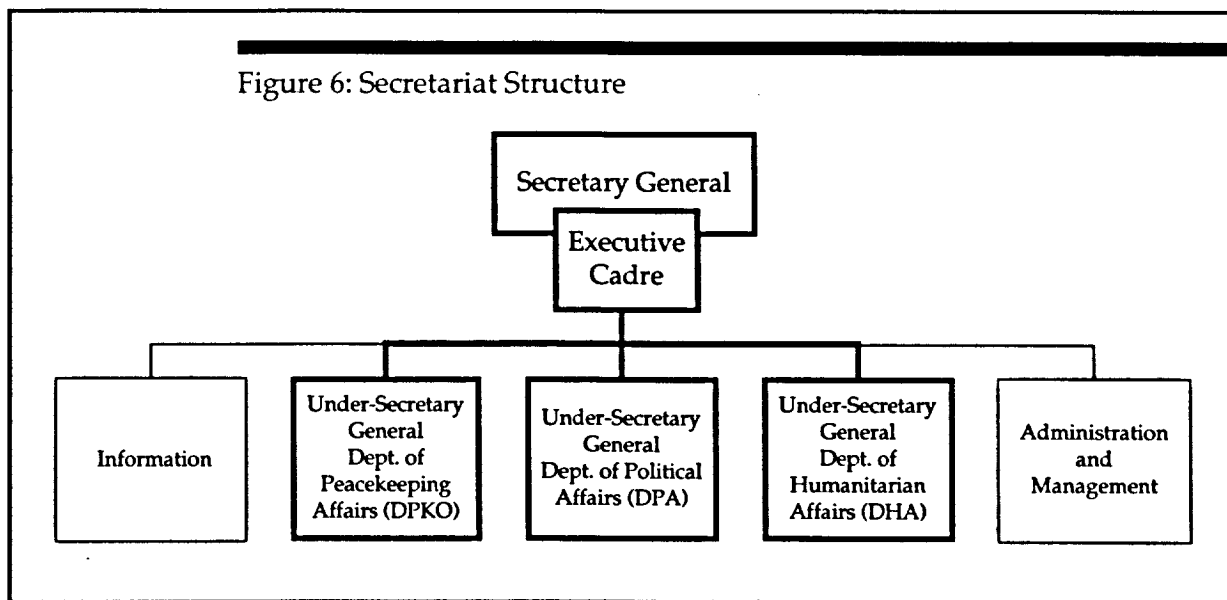
New Management Culture

Within the revised structure and as part of the improved policy planning process, the introduction of a new means of communicating between desk officers within a department and across departmental boundaries is being implemented. The introduction of upgraded communication technology is part of the solution at the generalist level. The fostering of a new management culture, which requires a deeper involvement of desk officers in the process of policy making, will result in fewer levels of bureaucracy.

This on-line concept for the delivery of general policy-oriented information and the development of this new management "culture" for the 21th century is still limited in certain respects. But, as important as these limitations are, they are not particularly new or unique to the information age. Every policy/ information system is to some extent dependent upon adequate facilities, training and experience. Policy makers have always been captives of those who collect and filter information. The open source self-processing system which the United Nations is trying to institute, on the other hand, allows policy officers and policy makers to travel in all directions on the information highway seeking facts, views and opinions from many sources. Within this context — overall transformation of policy development in a generalist sense and the development of a new management environment — the concept of CITA as an information, training and analytical management tool in specialist areas and in the final stages of policy formulation by the Secretary-General makes sense.

The macro-approach to information handling represented by this on-line approach is compatible with and supportive of the specialist thrust inherent in the CITA concept. A general recognition of information needs at the UN system level (see below) is essential for the effective operation of the revised UN Secretariat structure. Effective planning and execution of peace and humanitarian operations will depend upon how well the inter-departmental information and communication

network works. The CITA mission will be at the microlevel in the sense that it will be a mechanism close to the Security Council and Secretary-General and will be capable of providing essential specialist support for senior executive-level decision-making purposes.

Information Needs in the United Nations

The United Nations' problem is not lack of information, but rather the inability to absorb and transform the information as part of a timely and relevant decision-making process. In the field of peace and security operations, for example, the United Nations has three main information needs. First, it must be aware of issues, situations and circumstances that might create disorder globally or in particular regions or states. Second, it needs to understand on-going security affairs — especially disturbances to peace, order and good government — that fall under its auspices. Finally, the organization needs to verify UN-sponsored commitments including obligations undertaken in the context of peace operations.

Peace operations, especially in the last few years, demand that the UN develop reliable information to meet a variety of contingencies and programs. The Secretary-General has described peace operations as including, inter alia, preventive diplomacy and peacemaking, peacekeeping and post-conflict peace building. All these classes of peace operations require similar general types of information. For instance, information about topography, culture, military organization and capabilities, economic data and current political affairs are relevant to every peace operation.

Certain operations also demand particular information. For example, many UN undertakings in specific states or regions require detailed information about the current political situation and the characteristics and attitudes of major political figures and parties. The exact relationships, issue by issue, among states in a region under stress is important information.

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In the field of arms control and disarmament, the United Nations requires access to information concerning UN-sponsored mandates, treaties and agreements. If it is to manage such obligations, then it needs officials and experts who are current with all aspects of the obligations and their implementation programs. These officials, and the United Nations generally, as well as needing to be aware of the detailed rules and regimes integral to obligations and the degree of compliance, need timely indications of any problems stemming from non-compliance.

Information concerning the socio-economic makeup of countries and regions under stress is among the most useful but, in some respects, the least readily available type of information at the macrolevel for planning and conducting peace operations. General information is often easy to find, but specific and timely information about the condition and number of refugees or about food and medical supplies in the area of a conflict, for instance, is not so easily obtained at present. Neither are the economic facts of life in a state targeted by the United Nations for economic sanctions. In fact, the Secretary-General recently cited this area as a particular weakness for UN planners in *An Agenda for Peace*.[41]

Where Does CITA Fit In?

A fundamental concept behind CITA is to ensure that resources already available throughout the United Nations system are used in a more cost-effective manner and to fashion them as part of a process aimed at meeting the UN's increased and diverse international responsibilities. From the perspective of information management, CITA's function can be to screen out irrelevant data for senior decision makers, thus decreasing the effects of "data overload," and to accumulate and analyze information for the purpose of particular missions. From the standpoint of training, CITA would identify training requirements and training resources in the system and beyond,[42] but undertake relatively little comprehensive training itself. Rather it would foster the concept of "training the trainers" and of identifying organizations

(within the UN system and elsewhere) designed to meet specialist training requirements. Finally CITA's approach to analysis would be to create an indigenous United Nations capability at the senior executive level to understand and to authenticate, from a UN perspective, the analysis provided by other agencies or Member States. It would identify compatible technologies to reinforce conventional methods and develop an indigenous analytical capability in certain specialized areas, such as imagery analysis, which would not be dependent on outside resources.

CITA, therefore, would serve several purposes. The first would be to act as a specialist group in direct support of the Secretary-General by providing an "early warning" and "specialist analysis" capability. The second would be to provide advice and expertise within the United Nations system as a whole and to assist the principal organs within the UN in carrying out their missions in a cost-effective manner. While serving the Secretary-General in providing early warning and strategic analysis, CITA should also be responsive to the United Nations system by recognizing the specialist analysis required by various elements of the system and identifying the availability of such capabilities elsewhere in the system. It should, as well, be prepared to make available to Member States, in appropriate circumstances, expertise and analysis which might not be otherwise available, as well as provide coordination for training in relevant areas.

Relationship to Existing Resources

As a multibillion dollar enterprise spread worldwide, the United Nations can access resources within the organization on a global basis, and it is also able to request expertise from Member States. In the field of international security, which encompasses activities such as peace operations, confidence building and verification of compliance with treaty commitments, various elements within the United Nations system are already engaged. CITA could provide a capability whereby the commonalities of mandates could be identified and the existing resources co-ordinated to provide

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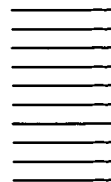
41   *An Agenda for Peace : Preventive Diplomacy, Peacemaking and Peace-keeping, op. cit.* pp. 16-18

42   For example, the Lester B. Pearson Canadian International Peacekeeping Centre in Canada; the Centro Argentino de Entrenamientó para Operaciones de Paz (CAECOPAZ), in Argentina; and the Cooperative Monitoring Center, Sandia National Laboratories, in the United States.

a more cost-effective and timely United Nations response. The following are examples of existing United Nations organizations with resources and expertise upon which CITA would draw.

The International Atomic Energy Agency

The IAEA has operated what is essentially the world's first OSI system for more than a quarter century. The safeguards system, which uses OSI as a primary monitoring resource, forms an important part of a regime that has been established to prevent the further spread of nuclear weapons and to build confidence that nuclear installations are used only for peaceful purposes.

The most fundamental requirement for successful inspection is information. Inspectors must know where to go and what to inspect. It is not possible for inspectors to visit and examine every building and basement in a foreign country, nor is the provision for random visits sufficient. Inspectors must have access to information leading them to sites and installations of possible interest.

Verification is a essential ingredient of modern-day arms control agreements. It may serve either as a deterrent or as a means of assuring compliance or both. In the nuclear arena where the same technologies, materials and facilities can serve peaceful or military ends, verification of peaceful use is particularly important and the NPT provides for verification by the IAEA of compliance with the undertaking not to divert nuclear materials.

A principal result of the independent verification by the IAEA safeguards inspectorate is the provision of assurance that no diversion of the nuclear materials declared by a state has taken place. A problem in this context is that the safeguards inspectorate has focussed only on declared facilities and activities, ignoring the possibility of undeclared sites. IAEA verification is also intended to have the effect of deterring diversions by the risk of early detection. The assurance obtained from the IAEA as an effective and objective auditor increases confidence among states and helps to allay concerns which could provide the political motivation for the acquisition of nuclear weapons.

The size of the IAEA's safeguards inspectorate has been described earlier. Within its structure is a sensitive and confidential technical information data base, which supports the overall verification process. The IAEA undertakes, within its own resources and with the support of Member States, an indoctrination program which provides specialized OSI training ab initio for newly arrived inspectors.

The United Nations Special Commission

The circumstances under which UNSCOM was established by the Security Council are unique and are unlikely to be repeated. UNSCOM, as a specialized organ of the Security Council, has been in constant evolution. Its tasks and operating procedures and experience could be instrumental in forming the core of CITA. The important aspect of the UNSCOM experience from CITA's perspective rests at this time on the monitoring process which was developed under a series of UN Security Council resolutions and whose embodiment today is seen in the Baghdad Monitoring and Verification Centre, which operates with the active support of the Government of Iraq. An ancillary benefit in terms of UN operations accrues from the close collaboration between two UN organizations (i.e., UNSCOM and the IAEA) and the resultant synergistic co-operation through a sharing of resources and of expertise to achieve the objectives identified by the Security Council.

UNSCOM, along with the Director-General of the IAEA, was charged with the responsibility for implementing plans adopted by the Security Council for on-going monitoring and verification (OMV) activities in Iraq. The purpose of these activities is to prevent Iraq from either importing or developing the capability to manufacture components, or entire units, of prohibited weapon systems — nuclear weapons, chemical weapons, biological weapons, or long-range ballistic missiles. OMV for nuclear weapons is primarily the responsibility of the IAEA, while OMV for other weapons systems is primarily the responsibility of UNSCOM. Where dual-use equipment involves both nuclear and non-nuclear weapons systems, the organizations share responsibility.

To execute its OMV mandate, UNSCOM has developed plans both for conducting inspection and monitoring activities, and for assessment and analysis of the data obtained pursuant to these activities. The UNSCOM inspection and monitoring activities include:

- continuous, on-site monitoring at selected locations;

- periodic OSI of identified facilities;

- collection and analysis of air samples;

- searches for and inspections of previously unidentified facilities through aerial reconnaissance and other means;

- tagging and inspection of specific dual-use hardware items;

- monitoring of Iraqi imports and exports for dual-use equipment or other items of importance; and

- co-ordination with the IAEA regarding monitoring of nuclear and dual-use sites.

The Centre for Disarmament Affairs

The CDA has a wide ranging mandate relating to the administration, organization and structuring of diplomatic meetings and negotiations in New York and Geneva. Nevertheless, from within its own resources, it has developed a modest operational capability relating to non-proliferation, arms control and disarmament affairs. This is particularly the case with respect to the conduct of certain kinds of fact-finding missions.

The CDA maintains an information bank, available to Member States, focussing on non-proliferation, arms control and disarmament activities in general (treaty membership, ratifications, etc.) and on more specialized areas such as verification and monitoring. In the late 1970s and early 1980s, the CDA organized a fact-finding mission under General Assembly directions to investigate allegations of use of chemical, bacteriological and toxin weapons in Southeast Asia. The committee reported its findings (in what is

commonly referred to as the "Yellow Rain Report") after a two-year investigation. Subsequently — as a result of the "Floweree Commission," which was appointed to make recommendations regarding the improvement of fact-finding procedures — the CDA undertook to develop a register of experts and of supporting facilities to be provided by Member States. Ten years later, the Secretary-General established a fact-finding group, which undertook its investigation and submitted its initial report, all within a period of two weeks.

Since that time, the CDA has continued to initiate operational activities. One example is the mission to Mali at the request of the Government of Mali concerning the proliferation there of illicit small arms. Members of CDA continue to act as chief inspectors for other missions. The CDA Director acts as secretary to UNSCOM when the Commission as a whole is convened on a semi-annual basis. These meetings can be seen as at least a symbolic mechanism for periodic co-operation between UNSCOM, the IAEA and the CDA. The CITA concept would regularize and expand upon this type of co-operation. The centrality of CITA is graphically illustrated in the notional diagram of functional decision-making in Figure 7.

Other Resources

While the potential of drawing upon the capabilities and resources of existing agencies is recognized, there are other resources within the UN system which could be more fully exploited. For example, global organizations such as the World Health Organization (WHO) and World Meteorological Organization (WMO) could have a role to play. WHO is instrumental in developing criteria and guidelines in terms of the BTWC; WMO, through its knowledge of weather patterns, has a capability to participate in a radionuclide monitoring network in support of a CTBT. In terms of specialist expertise, the Group of Scientific Experts, which operates under the aegis of the Conference on Disarmament, has specialized expertise related to co-operative measures to detect and identify seismic events;
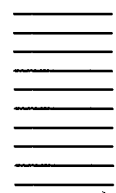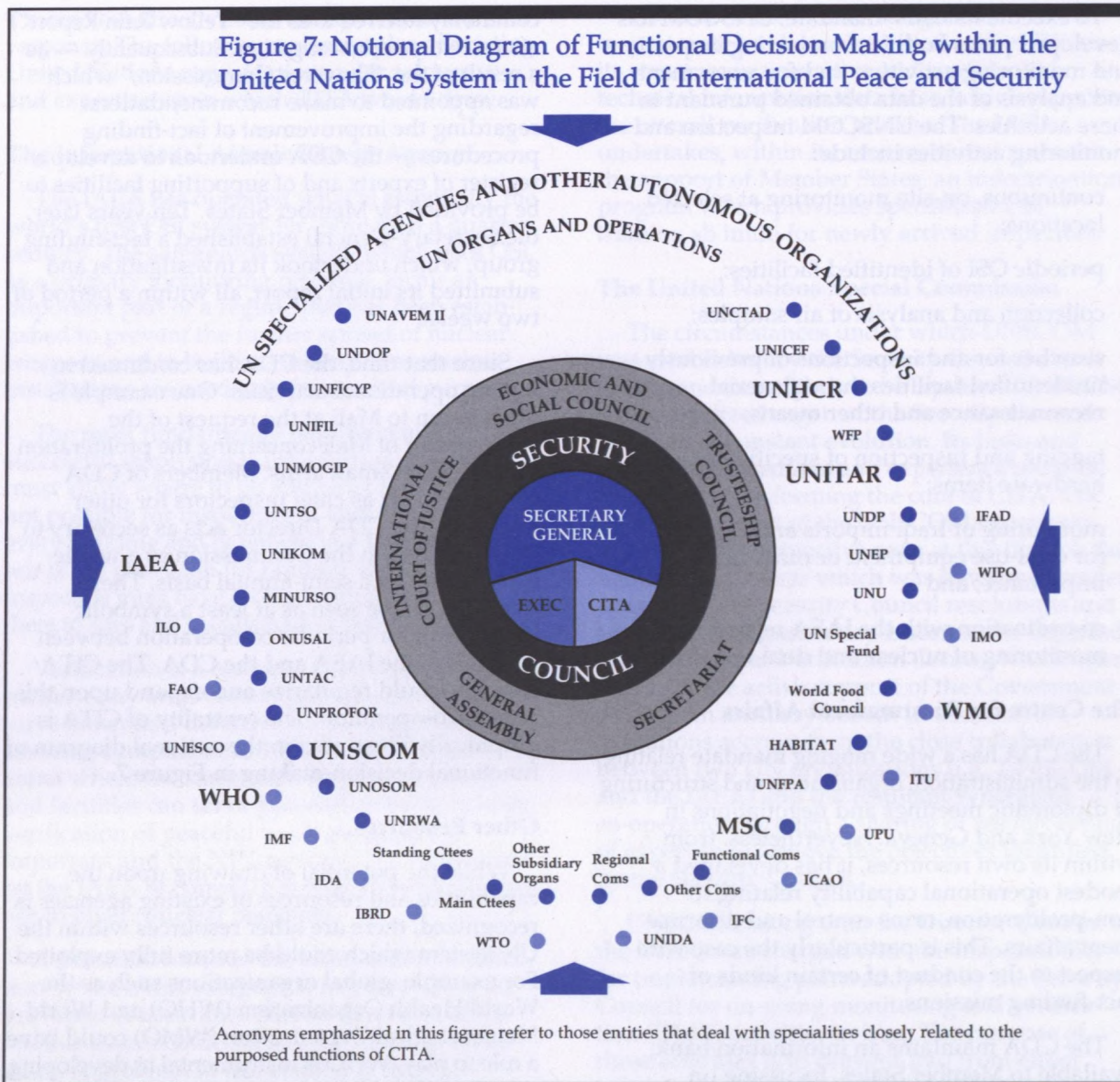
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Figure 7: Notional Diagram of Functional Decision Making within the United Nations System in the Field of International Peace and Security

Acronyms emphasized in this figure refer to those entities that deal with specialities closely related to the purposed functions of CITA.

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this expertise has direct application to the international security and arms control agenda.

In addition to drawing from and co-ordinating expertise from these UN agencies, CITA could exploit expertise and resources in other areas as well. These could include:

- *Non-UN treaty organizations:* The OPCW under the CWC, for example, is developing a

capability, patterned after the IAEA in terms of OSI, which will expand upon the right of access. A right of unimpeded access for inspectors to relevant sites and material is of crucial importance when there is information suggesting the need for such inspections.

- *Member States:* Most Member States have national means of obtaining information in

areas of national concern. CITA's function would be to ensure that information made available by Member States, relevant to a specific UN mandate, was effectively synthesized into an analysis for senior executive purposes.

The Security Council's request of January 31, 1992[43] to the Secretary-General to analyze and recommend ways to enhance the UN's capacity to respond to international incidents identified the need to restructure the United Nations system to take advantage of existing resources in a more cost-effective manner. The Secretary-General's responses[44] relating to peace operations, arms regulations and disarmament recognized that the end of the Cold War had triggered a transition period of indeterminate length. The lessons of the UN's successes and failures have been central to the evolution of the comprehensive reform package initiated by the Secretary-General. The CITA concept is compatible with the Secretary-General's philosophy of change; however, it also focusses directly upon the UN's capacity to respond through facilitating and expanding ability of the Secretary-General to take executive action — as a servant of the Security Council — by co-ordinating, using and reinforcing existing resources in a more cost-effective manner.

International organizations do not enjoy the status of sovereign states nor do they operate from an independent political base. They cannot easily discriminate among their Member States and cannot go too far in asserting independent authority. They are hobbled by a lack of independent technical means for gathering information. Timing and accuracy of information are recognized as significant factors in establishing credibility. There are lessons to be learned in this regard from the UN's experience to date in peace operations, treaty compliance and the promotion of confidence among states. The CITA concept incorporates that experience in terms of the senior executive decision-making process by providing specialized technical analysis and co-ordination of resources.

Conclusions

CITA could effectively serve three specific functions related to supporting and facilitating UN senior executive decision making:

- *Information handling:* Drawing from the experience of the IAEA and of UNSCOM in dealing with the confidentiality of sensitive information within the open-access culture of the United Nations, CITA would act as a filter to exclude extraneous information and to fashion project-sensitive data for dedicated purposes. CITA could provide the specialist capability for, and thereby establish a credible technical/political interface in, the data-fusion process.

- *Training co-ordination:* CITA would develop a capability to identify and access existing training resources within the UN system to benefit individual elements of the UN in areas relating to international security. CITA would foster the concept of "training the trainers" as a cost-effective way to meet UN requirements in this area. As verification requirements become increasingly tailored to specific requirements occasioned by the treaties or agreements entered into, CITA would have the capability to provide unique, training where and when required.

- *Strategic analysis:* CITA would provide a service capable of authenticating the relevance and quality of analysis provided by Member States, UN-organized operations, specialized agencies and other autonomous organizations. It would analyze options available to meet new situations confronting the United Nations and tailor capabilities available to the organization, including sanctions, as a means of response. It would also provide an indigenous and independent UN capability in specialist areas, such as imagery exploitation, which could be called upon and deployed immediately for peace operations and compliance purposes.

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43   S/23500.

44   *An Agenda for Peace; Preventive Diplomacy, Peacemaking and Peace-keeping op. cit.; New Dimensions, op. cit.; and Supplement to An Agenda for Peace, op. cit.*

CITA would serve three client areas within the purview of United Nations operations in the following order of priority:

- *The Secretary-General:* To provide an independent and purpose-dedicated capability to support the operational requirements incurred by the Secretary-General in executing tasking by the Security Council, as well as actions (such as fact-finding missions) developed under his own authority.

- *The United Nations system:* To provide a specialized analytical capability to respond to requirements by other organizations and agencies of the UN system and to provide guidance and a co-ordinating function between them.

- *Member States:* To provide specialist assistance to Member States to the degree possible to permit them to participate in UN activities in the field of international security.

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VIII Practicalities Associated with Achieving CITA

*George R. Lindsey**

Introduction

CITA as proposed in this study could affect the development of policy and the operation of the UN at several levels. The mere fact that the Secretary-General (and by extension the Security Council) would have access to information from a new and internal source would add another dimension to decision making in the UN.

It is important to identify the main issues and policy areas that might spark contention among established stakeholders inside and outside the UN organization, so as to address and reduce frictions before CITA is established.

Friction is a normal feature of reforms that introduce significant change to complex organizations. Although friction may appear to some as resistance, it ought to be seen as part of the normal process of discovery that eventually allows new systems and organizations to find a place in established structures. Challenges to reforms, among other things, can help to identify organizational weaknesses, overlapping authorities and unintended consequences. They should, therefore, be considered as a positive part of any systems change.

Transparency and National Security

A source of resistance to creation of an international agency for assembly, analysis and dissemination of information, and to the training necessary for the efficient discharge of these functions, could come from the concern of nations over the protection of information which they regard as vital for their national security or commercial interests. This very natural and justifiable concern is in direct opposition to the global need for transparency of information regarding armament stockpiles, compliance with the provisions of treaties and possible aggressive preparations. A prime objective of transparency is to build confidence regarding the motives and actions of states considered to be potential enemies. If past adversaries do not, in fact, harbour any intentions against each

other, mutual confidence can best be built in an atmosphere of transparency. Conversely, reluctance to improve transparency is likely to raise suspicions and diminish confidence, perhaps with good reason. Such reactions could be an item for CITA's Analysis Division in its role of providing early warning for the Secretary-General.

Another source of reluctance to share information is the well-established belief that "knowledge is power," which makes those states which have the national means to collect intelligence anxious to retain sole possession of it, or to trade it as a quid pro quo for similar information possessed by close allies. Also, and particularly relevant to the efforts to control the proliferation of technology, industrial firms wish to retain exclusive control of information and techniques which give them a commercial advantage.

As a result of these attitudes, the United Nations has never been able to institute any body whose function could be related to the collection of "intelligence," a deficiency which has made it far more difficult to foresee crises and to deal with them when they arise.[45]

However, the awesome destructive power of weapons of mass destruction and the global reach of aircraft and ballistic and cruise missiles suggest that security is becoming more of a global than a national problem. The security of each is inseparable from the security of others. Increased transparency on a global scale could do more for the security of individual nations than would be lost by release of some of their confidential information. They could continue to collect and analyze intelligence for their own purposes, and retain particularly sensitive items for national eyes only or for sharing only with trusted allies, but make the rest of the information and judgments available to CITA.

A question which will have to be faced concerns the handling of information collected by CITA. Nations with advanced intelligence-collecting

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45 "Contemporary operations have shown, however, that in politically fluid and militarily complex situations, more advanced resources and procedures for collecting, assessing and distributing intelligence within a peace-keeping mission may be required." "In particular, recent operational experience underscores the need to develop local intelligence sources." "The lack of independent means of verifying information provided by warring factions effectively prevents UN forces from carrying out tasks entrusted to them." These quotations have been extracted from Mats R. Berdal, "Whither UN Peacekeeping?" *Adelphi Paper* 281, (London: IISS, October 1993), p. 44. See also: Hugh Smith, "Intelligence and UN Peacekeeping," *Survival*, Autumn (1994), pp. 174-192.
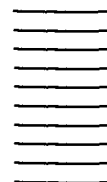
capabilities would probably provide more information to CITA if they were assured that it would protect selected parts of it from global dissemination. Proprietary commercial information, such as might be discovered in the work of the IAEA, OPCW, the Missile Technology Control Regime (MTCR) or a future BTWC verification agency, would have to be protected.

While transparency is an important objective, it will be necessary, therefore, to temper it with the needs of confidentiality. Details of incoming information may have to be protected, but the conclusions of its analysis made more widely available, with summaries published for general distribution.

Identifying Needs

A national unit equivalent to CITA normally has a broad mandate to collect, collate and analyze information. In the United Nations, however, this type of mandate cannot be assumed. Certainly, CITA could routinely collect economic, geographic, social and low-grade political information on any state or issue that concerns the UN. It could also collect information on UN-mandated missions and treaties, presumably under the authority of the Security Council. These two general activities would be useful, but they might not use the full potential of CITA.

The most pressing information need in the field of peace operations is for data and opinion that would help the Secretary-General and the Security Council identify brewing troubles and growing potential threats to international peace and security. The historic dilemma for the United Nations, and for CITA, is that the UN has been reluctant to name an aggressor state or point to a situation that poses a threat before the problem has already become serious. Investigations of states and regions by the United Nations prior to open hostilities — that is, a presumption of aggressiveness — are contrary to the UN Charter and would certainly be resisted by Member States, if only on principle. On the other hand, the Secretary-General can initiate preventive diplomacy.

CITA might overcome this difficulty by

maintaining a "general information watch" in all regions, coupled with a capability to intensify its collection activities in stages appropriate to deteriorating situations. In any case, the mechanism for managing this process would always be highly political and depend on authorities outside CITA.

Handling of Non-Compliance

A perennial question asked regarding arms control agreements is "after non-compliance, what?" This is a sensitive question, to which past experiences have provided few satisfactory answers. One possible response has been the introduction of economic or other sanctions, under the mandate of the Security Council. In such a case, CITA could provide a valuable service in the collection and analysis of the economic information necessary for effective design of a program, and in verifying the success of the measures after they have been initiated.

CITA should issue factual determinations only. It should be absolved of all direct responsibility for dispute resolution, for making public judgments regarding failure to comply with undertakings, or for rulings establishing sanctions or other punishments which might follow.

While judgments, condemnations and penalties will have to be carried out by some other body, it could be possible for such a body to enlist the assistance of selected members of CITA to assist it in compliance consultations or other deliberations, and CITA's analytical capabilities should always be at the disposal of the Secretary-General. But the focus of CITA should be on monitoring rather than actual verification judgments.

Fitting CITA into the United Nations

CITA could play an important role in facilitating the decision making and policy development of the United Nations, as well as in contributing to the training necessary for effective conduct of verification, confidence building and peace operations. Because CITA will be joining an established political entity, it must find an appropriate place and modus

operandi in the UN's existing organization.

The general problem of "fitting in" is no less important. The United Nations, like all complex organizations, is an arena in which several internal contests take place concurrently. There are, of course, bureaucratic struggles among UN elements for attention, special interests, resources and preferred outcomes. These competitions may become conflicts, or they may simply appear as more or less co-operative attempts to reconcile contending institutional demands. Nevertheless, conflict (also known as "bureaucratic politics") is an inevitable aspect of organization, and the currency of these conflicts is usually information. Therefore, CITA can expect to meet resistance from inside the estab-lished UN, because it will compete for interests and resources and because it will presumably have control of a rich flow of information.

So-called "turf battles" should not defeat or cripple CITA. Its entry into the UN structure and its acceptance by managers can be eased by three types of related activities. First, the bene-fits to managers and senior officials in the UN ought to be emphasized. If senior officials are convinced of the unit's value, other problems should be quickly redressed. Second, CITA — along the lines described above — must be seen to be an addition to the present operating scheme of the UN and not as a usurper of estab-lished positions. Explaining CITA's policy relevance, therefore, must be a major first step. Third, CITA must arrive at the UN in possession of sufficient assets to begin a useful service. Eventually, the demonstrated success of CITA might convince the Secretary-General to ration-alize his organization and to reallocate resources between departments of the Secretariat and CITA. If, however, proponents of CITA suggested that existing departments would be expected to provide the personnel for this new unit immediately, then its chances for internal acceptance would be low. Therefore, a concrete plan to establish CITA must include provisions for the resources necessary to install, operate and maintain CITA, at least for a medium-term trial period.

The Relationship of CITA with Existing Regimes

Several of the agencies which now exist for the purposes of implementing and verifying arms control treaties and agreements to curb proliferation are already in the business of collecting and analyzing information. The scope of each of these is confined to the subject, to the geographical areas defined by the relevant treaty or agreement, and to their membership (i.e., they are treaty-specific).

The IAEA collects information relevant to nuclear materials and technology from the states parties to the NPT. The London Nuclear Suppliers' Group surveys transfers from its members to the rest of the world. Of greatest concern, however, may be the nuclear activities of those states which are not members of these regimes.

The OPCW will be performing a function analogous to that of the IAEA, but for chemical weapons in the states which are now or will be members of the CWC, with the Australia Group concentrating on information relevant to transfers of materials or technology between its own limited number of members and recipient states. But countries that have chosen not to sign the CWC are the most likely to raise suspicions regarding their intentions to develop arsenals of chemical weapons.

The Conventional Forces in Europe Treaty involves OSIs conducted by individual nations and coordinated by the NATO Verification Implementation and Coordination Staff, as well as data exchanges and notifications of planned military activity. While the Treaty has a Joint Consultative Group, this is not a multilateral clearing house for information. Similarly, the Open Skies Treaty authorizes overflights mainly conducted by individual states among its signatories. It has an Open Skies Consultative Committee, but this does not function as an information centre. CITA could perform this function for either regime, conducting data collection and imagery interpretation.
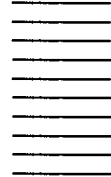
The Limited Test-Ban Treaty (LTBT), the BTWC and the Environmental Modification Convention are treaties with large membership but no provisions for verification other than national technical (and other national) means. Moreover, the provisions in the Outer Space Treaty for OSIs on the moon have yet to be put into practice. None of these, nor the Open Skies Treaty, nor the Antarctic Treaty have multilateral agencies set up to collect and analyze information, although considerable work has been done by nations and by international research organizations to collect data on the detection of nuclear tests and of the use of biological weapons. If a CTBT is negotiated it will require a worldwide network of seismic and other sensor stations, a communications system, and a data centre to collate the data. Fortunately, many seismic stations are in place and working already, installed under national control for the detection of earthquakes, but also able to contribute to monitoring of underground nuclear explosions. It seems probable that verification of a CTBT would best be done by a specialized organization.

The MTCR and similar groups are non-proliferation regimes with limited membership that share information among their members to control international transfer of armaments and related technology. The UN Arms Control Register assembles information voluntarily provided by UN Member States, making it freely available.

As the value of satellite imagery becomes more and more appreciated, and better quality imagery more generally available, there are periodic proposals for a UN agency to operate surveillance satellites for the purposes of arms control verification.[46] CITA could play a key role in such an operation, although during the next few years the UN is more likely to depend on national or commercial agencies to provide satellite imagery.

Finally, there are the very important bilateral arms control treaties on nuclear weapons, drawn up between the United States and the Soviet Union, or, since the dissolution of the latter, the Russian Federation.[47] The Strategic Arms Limitation Treaty (SALT), Intermediate Range Nuclear Forces (INF) and Strategic Arms Reduction Talks treaties include increasing and unprecedented degrees of information exchange and intrusive verification regarding strategic and intermediate-range nuclear weapons. The TTBT took similar steps in regard to the limitation of the energy yield of underground nuclear tests. Although the raw information, the technical means by which it is obtained and the analysis are national secrets, most of the ultimate conclusions regarding verification of these treaties are made public by the United States. It should be noted that bilateral arms control treaties also exist between other countries.

The specialized expertise required for monitoring certain categories of technology (such as that required for nuclear and for chemical weapons), and for analyzing the significance of the information, is likely to be best provided by national agencies, or small groupings of allied states (e.g., the Nuclear Suppliers' and Australia groups). Nations may not be as willing to reveal information to a global organization likely to include potential rivals, or to give as much credence to its analysis. Large size is often inconsistent with efficient operation, especially in an international bureaucracy. However, many states should be prepared to make some contributions of both information and personnel to CITA, while many continue to maintain at the same time their participation in smaller treaty-specific groups.

For its own analyses, CITA would benefit from the advice and experience of personnel familiar with the methods developed in the other agencies. Moreover, for countries not members of these smaller specialized groups, one of the incentives to support the creation of CITA and to participate in its activities would be to receive information on verification experiences from the existing groups. Also, the training which CITA would provide to less developed countries would benefit from the co-operation of the more specialized regimes. Such co-operation would help to offset the impression sometimes expressed by many less

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46 One proposal by France, which drew much interest in the early 1980s, was called ISMA (International Satellite Monitoring Agency).

47 Other successor states of the former Soviet Union, in whose territory nuclear weapons were deployed, are undertaking similar obligations.

Table 1: Number of UN Members Signing Certain Multilateral Treaties
(Numbers valid at January 1, 1995)

Treaty	No. of Signatories
Number of Nations Tabulated	184
NPT	170
BTWC	152
CWC	154
All three of NPT, BTWC and CWC	123
Both NPT and BTWC	144
Both NPT and CWC	142
Both BTWC and CWC	131
NPT and BTWC but not CWC	21
NPT and CWC but not BTWC	19
BTWC and CWC but not NPT	8
NPT only	7
BTWC only	0
CWC only	4
None of NPT, BTWC or CWC	2
LTBT	135
Both LTBT and NPT	128
NPT but not LTBT	42
LTBT but not NPT	7
Neither LTBT nor NPT	7
Outer Space Treaty	120
Seabed Treaty	114
Environmental Modification Convention	80
Antarctic Treaty	42
Conventional Forces in Europe Treaty	30

developed countries that the multilateral arms control and non-proliferation regimes are created and managed by the developed countries more for their own ends than for global peace and security.

CITA should be organized so that it could benefit from receiving information from those bodies which collect information already in order to fulfil their own function, and should be able to aid the operation of those regimes which do not have an agency to collect, interpret and analyze information.

In co-operating with the existing regimes CITA will have to cope with the different memberships by states in the various arms control and non-proliferation regimes. For example, if a state has signed the NPT and the LTBT, but not the CWC or the BTWC, should it provide CITA with information regarding its own chemical and biological programs?

To illustrate the complex pattern of participation in major multilateral treaties, Table 1[48] lists the number of combinations in which 184 countries signed the NPT, the BTWC and the CWC before January 1, 1995. Although the NPT was signed by 170 states, the BTWC by 152 and the CWC by 154, only 123 states signed all three and

48 The data for the 184 states listed in this table were assembled from SIPRI Yearbook 1994, pp. 688-689 and 767-783. Eight of the states (including Taiwan and Switzerland) are not members of the UN. Nine (small) Member States (most of whom joined recently) are not included. The information represents the situation at the beginning of 1995. A number of signatories to the LTBT, BTWC, Environmental Modification Convention and the Outer Space Treaty have not followed up with implementation and the CWC is not yet in force.

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2 signed none of them. One hundred and forty-four signed both the NPT and BTWC, 142 both the NPT and CWC, and 131 both the BTWC and CWC. Although 170 signed the NPT, only 135 signed the LTBT. Forty-two signed the NPT but not the LTBT, while 7 signed the LTBT but not the NPT. Also listed are the numbers of signatories of five other multilateral treaties, two of which are regional rather than global. As time passes, more states may sign each agreement. But the differences in the membership rolls are apparent.

Technical Factors

The information expected to be supplied by organizations of the various other regimes will be in formats established for their own purposes and may be in different languages. Some degree of harmonization may be required in order for CITA to be able to amalgamate the information being assembled from different sources.

It will have to be decided in what languages CITA must provide its member nations with information. Also, in regard to CITA's activities in training, the problem of language could pose difficulties, both in the publication of instructional literature and in the conduct of classroom lectures and demonstrations. This problem can be eased when CITA trains trainers who will return to their own country to train their compatriots.

States contributing imagery obtained with advanced sensors might wish to degrade the quality below its best capability, but this modification would presumably be made by the supplier before the images were delivered to CITA.

Communications security may not raise major problems if most of CITA's operations are to remain in the public domain. But the need for encryption, decryption and secure storage will probably have to be faced.

Apart from the training which CITA would arrange for nations in monitoring and verification regimes, it would need to provide special training for personnel carrying out routine operations within CITA itself. It is assumed that CITA would use the latest information management systems and processing machinery appropriate to its mission, including not only data fusion techniques for textual information, but also for imagery. These systems and processes would obviously be linked to worldwide systems and programs and to the UN's own developing information management systems. Other technical devices and processes would be an important part of CITA's operations also.

While advanced computer-assisted operations are common in many countries, they are not common in all. If CITA is to draw members for its own staff from across the UN (which should be an objective), then it will need to give, or arrange for, special training in some detail to individuals who may not be completely computer-literate.

IX   Criteria for Judging CITA's Effectiveness

Sidney N. Graybeal and Patricia Bliss McFate

This Chapter sets forth criteria which could be used to judge the effectiveness of a centre such as that proposed in this study.

Since the primary purpose of CITA is to support the UN Secretary-General in conducting his responsibilities in the fields of arms control, confidence building and conflict management, the key criterion for judging CITA's effectiveness must be the degree to which it is contributing to the Secretary-General's effectiveness in those fields. Information is knowledge and knowledge is power; thus, the greater the degree to which CITA provides accurate, timely and useful information and analyses to the Secretary-General, the more effective both CITA and the Secretary-General become. Of particular concern in this regard is the extent to which CITA provides the Secretary-General with early-warning information and analyses, facilitating his ability to anticipate and minimize the consequences of potential conflicts.

A secondary, but major purpose of CITA is to provide support to interested Member States. Therefore, the degree to which these governments utilize the Centre's information, training and analysis capabilities is a key measure of its utility and effectiveness. Comments from the governments will also be a valuable input for judging CITA's overall effectiveness.

CITA would be a unit within a large family of UN-associated bodies. The degree to which the Centre establishes and maintains effective interfaces with these other bodies will also contribute to an evaluation of its contributions and their effectiveness. The interfaces with DPKO, DPA, DHA and CDA will be particularly important to CITA's successful operation.

The credibility of CITA's information, training and analysis activities and products will help determine its effectiveness. The overall effectiveness of the Centre will also be judged by the number and nature of information requests received, the timeliness of response and the feedback from consumers; the degree to which the Centre's training activities are requested, attended and evaluated; the objectivity and usefulness of CITA's analyses for the Secretary-General; the extent to which the Centre's requirements for information from Member States and other UN bodies are met in a co-operative, timely manner; and the extent and nature of criticisms of CITA and its willingness and ability to respond appropriately and adequately to these critiques.

Ultimately, CITA will be judged on its ability to meet its requirements as set forth in Chapter IV of this study. The degree to which the Centre enhances transparency in arms control verification, confidence-building measures and peace operations will be a key determinant of its overall effectiveness.

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Appendix A
Suggestions for Future Research

Sidney N. Graybeal, George R. Lindsey and Patricia Bliss McFate

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

- Is there complementarity and synergy inherent in the combination of a potential global INF treaty, the Anti-Ballistic Missile Treaty and a strengthened MTCR? What would be the supply, demand and verification dimensions if these arms control obligations were combined with defensive systems?

- What would be the impacts on national industries of the implementation of verification regimes associated with arms control agreements? How could those impacts be minimized?

- How can the synergistic effects among various verification regimes associated with non-proliferation agreements be further enhanced?

- What are the potential relationships among multilateral, regional and bilateral arms control agreements and their verification regimes? How can these relationships be enhanced?

- How can advanced management information systems enhance verification regimes and other activities associated with arms limitation, confidence building and conflict management?

- If a CITA is implemented, how effective has it been? How has the initial concept grown and changed after implementation? What can and should be done to further enhance its utility and effectiveness?

Appendix B
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. She is a member of the Scientific and Policy Advisory Committee, which reports to the United States President, the Secretary of State and the Director of the Arms Control and Disarmament Agency on its findings and recommendations. She recently served as Consultant to the United Nations on the 1995 Group of Experts study, *Verification in All Its Aspects, Including the Role of the United Nations in the Field of Verification*. 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 is a director of CoreStates Financial Corporation and CoreStates Bank, N.A. Dr. McFate has received decorations by order of the heads of state of six countries. At Science Applications International Corporation, she works on national security policy, treaty verification and compliance, and defence technology issues. Her degrees and postgraduate training were taken at Michigan State, Northwestern, Illinois and Columbia universities.

F. Ronald Cleminson

F. Ronald Cleminson is the Senior Advisor on Verification within the Department of Foreign Affairs and International Trade in Ottawa, Canada. Trained as a radio-navigator, he served with the Royal Canadian Air Force and the Canadian Armed Forces in a variety of operational and staff appointments in Canada, the United States and Europe. Prior to joining the Department of Foreign Affairs in 1979, Colonel Cleminson had served in Strategic Operational Research at the Operational Research and Analysis Establishment in Ottawa. Appointed in 1991 by the UN Secretary-General, he is a Commissioner on the United Nations Special Commission relating to Iraq. He has contributed to a number of authoritative international publications on arms control issues, such as *Verification and Arms Control* (1990) edited by John Grin and Henny Van Der Graaf of the Centre for Verification Technology, VU University of Amsterdam and *International Stability in a Multipolar World* (1993) edited by Reiner K. Huber and Rudolf Avenhaus, Federal Armed Forces University, Munich. He has authored a number of related publications produced as a part of the Department of Foreign Affairs and International Trade's Arms Control Verification Research Program. In March 1995, Foreign Affairs Minister André Ouellet presented the 1995 Minister's Award for Foreign Policy Excellence to Mr. Cleminson in recognition of his work in the field of verification of non-proliferation, arms control and disarmament agreements.

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Sidney N. Graybeal

Sidney Graybeal is Chief Scientist in the National Security Studies and Systems Group and Deputy Director of the Center for National Security Negotiations of Science Applications International Corporation. He has been appointed a Member of the Defense Policy Board by Secretary of Defense William Parry; the Board provides a substantive input to key policy decisions facing the Department of Defense. His career in U.S. government service spans 30 years. Between 1976 and 1979, he was Director of the Office of Strategic Research of the Central Intelligence Agency. He also served in the Agency 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 received the President's Award for Distinguished Federal Civilian Service from President Jimmy Carter in 1980. At Science Applications International Corporation, he manages and contributes to analyses associated with national security issues involving national security, arms control verification and compliance, non-proliferation and intelligence. He served for seven years as 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.

George R. Lindsey

A Senior Research Fellow of the Canadian Institute of Strategic Studies since his retirement from the Department of National Defence, George Lindsey has been pursuing research on arms control verification, defence against ballistic missiles, security and stability in space, aerospace surveillance and modernization of weapons systems. Dr. Lindsey served in the Royal Canadian Artillery in World War II, with the British and Canadian Army Operational Research Groups. From 1950 to 1987 he held various appointments with the Department of National Defence and with NATO, 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 Ph.D. 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 form of on-site inspection and observations. All these physical techniques add together, just as the fractions of the eye of Horus do, 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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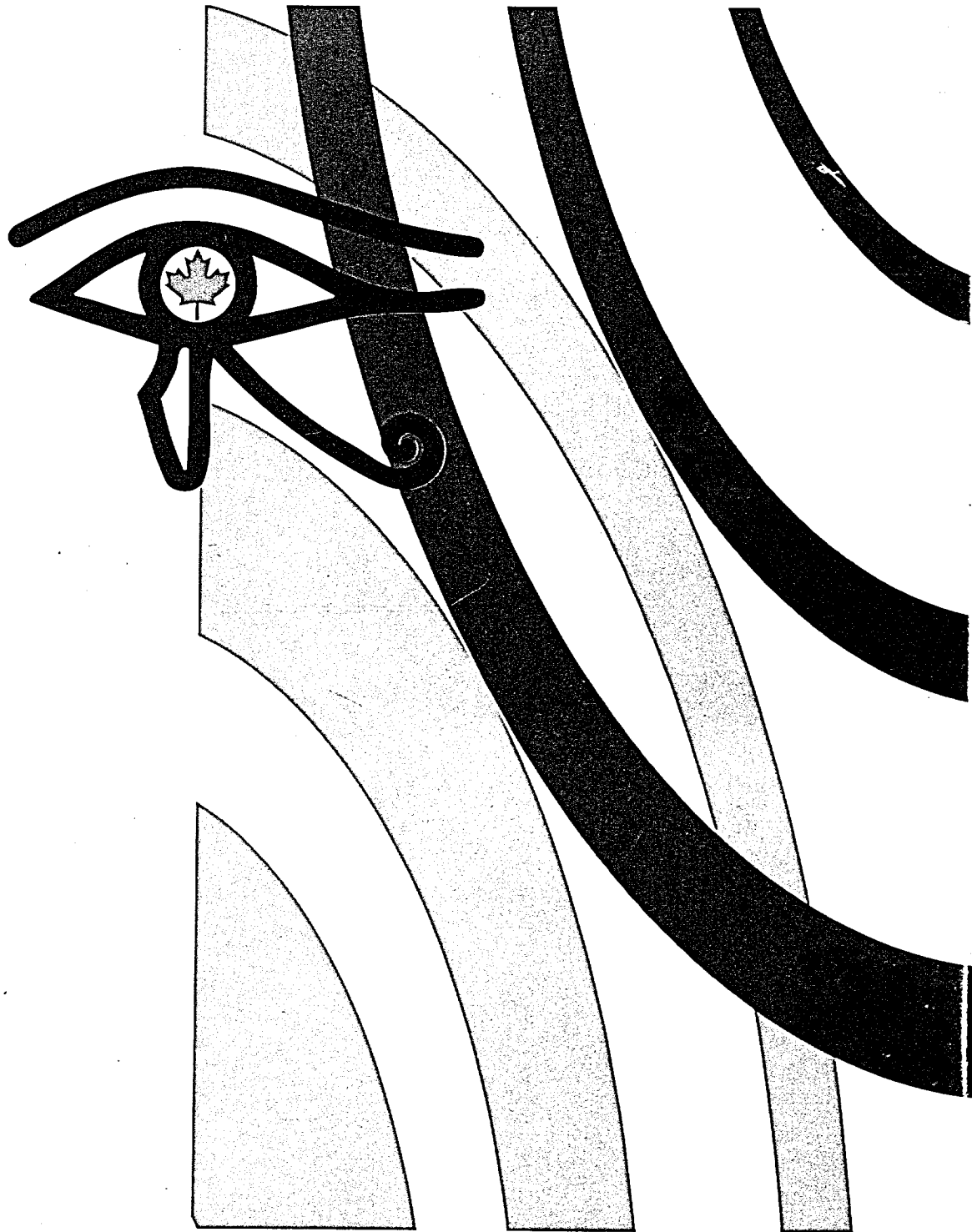
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