



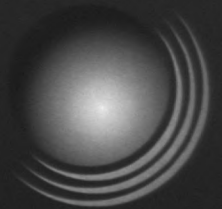
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Strengthening The Biological And Toxin Weapons Regime: Strengthening the International Prohibition of Biological Weapons

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STRENGTHENING THE BIOLOGICAL AND TOXIN WEAPONS REGIME: STRATEGIES FOR THE FIFTH REVIEW AND BEYOND

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PREFACE

The view and positions stated in this paper are solely those of the author and do not necessarily reflect the views and positions of the Department of Foreign Affairs and International Trade or of the Government of Canada.

The International Security Research and Outreach Programme (ISROP) commissioned a study that would examine prospects for the Biological and Toxin Weapons regime. The Department of Foreign Affairs and International Trade wishes to thank the author of this study: Peter Gizewski.

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EXECUTIVE SUMMARY

The regime governing biological and toxin weapons is under increasing strain. While many of its shortcomings are not new, developments in the international threat environment along with ongoing advances in science and technology are combining to underline such shortcomings and the dangers they represent in a manner not previously experienced.

Unfortunately, circumstances have also combined to insure that the capacity to substantially improve the regime has declined at the very time when significant reforms are needed most. In particular, differences over the pursuit of a compliance protocol for the BTWC have worked to generate division among regime members and uncertainty as to how best to insure the future health of the regime.

Fashioning an effective and politically viable strategy for strengthening the regime under such conditions is clearly difficult -- particularly in view of the time and effort already invested in attempts to secure a protocol.

Yet efforts to strengthen the regime are sorely needed. In their absence, the regime's future would be placed in still greater jeopardy. Absent effective international measures to address the threat of BW, the threat itself will likely increase -- as accessibility to the knowledge and technology required to develop BW spreads throughout the international system

Ideas and strategies aimed at strengthening the regime are plentiful. Yet the prospects for adopting measures offering quick and far-reaching improvements to the regime are currently limited. Most notably, political realities strongly suggest that the creation of a comprehensive, legally-binding compliance protocol for the BTWC is unlikely in the near term.

Nevertheless, limited progress is possible. In this regard, a politically realistic, practical approach would emphasize the adoption of a number of voluntary, *politically-binding* measures in the near term as well as the pursuit of measures aimed at enhancing the institutional capacity of the BTWC. It would also explore the possibilities inherent in more limited initiatives aimed at improving somewhat the BTWC's verification/compliance capabilities.

Properly pursued, such an approach to regime reform would offer not only a much-needed boost to the regimes credibility in the short term, but would lay the foundations for better oversight and development of the regime over the longer haul. The ultimate result would be a stronger, more robust regime and most importantly, a more effective barrier against the threat of biological and toxin weapons.

RÉSUMÉ

Le régime régissant les armes biologiques et à toxines est soumis à des contraintes de plus en plus lourdes. Bon nombre de ses lacunes nous sont déjà connues, mais les nouvelles menaces qui pèsent sur le monde ainsi que les percées scientifiques et technologiques se combinent pour accentuer, d'une manière inédite, ces lacunes et les dangers qu'elles représentent.

Malheureusement, les circonstances ont aussi contribué à empêcher une amélioration substantielle du régime au moment même où d'importantes réformes sont le plus nécessaires. Plus particulièrement, les divergences de vue concernant la recherche d'un protocole de vérification à la CABT ont créé des dissensions parmi les membres du régime et mené à l'incertitude quant à la meilleure façon d'assurer la solidité du régime pour l'avenir.

Façonner une stratégie efficace et politiquement viable pour renforcer le régime dans ces conditions est à l'évidence une tâche difficile – compte tenu plus particulièrement du temps et des efforts qu'on a déjà consacrés à essayer de conclure un protocole.

Pourtant, il est impératif de chercher à renforcer le régime, à défaut de quoi il court encore davantage le risque de disparaître. En l'absence de mesures internationales efficaces pour y faire échec, la menace des armes biologiques s'intensifiera vraisemblablement, car les connaissances et la technologie requises pour fabriquer des armes biologiques sont de plus en plus accessibles à l'échelle internationale.

Les idées et les stratégies pour renforcer le régime ne manquent pas. Pourtant la perspective d'adopter des mesures qui permettraient des améliorations rapides et substantielles au régime est pour l'instant limitée. Les réalités politiques incitent d'ailleurs fortement à penser que la création d'un protocole complet et juridiquement contraignant à la CABT est improbable sur le court terme.

Malgré tout, des progrès limités sont possibles. À cet égard, une approche politique réaliste et pratique mettrait l'accent sur l'adoption, à court terme, de certaines mesures volontaires et *politiquement contraignantes* et sur la recherche de mesures propres à accroître la capacité institutionnelle de la CABT. Cette approche examinerait aussi les possibilités inhérentes à des initiatives plus limitées destinées à améliorer quelque peu les capacités de vérification de la CABT.

Bien menée, une telle approche de la réforme du régime non seulement offrirait un stimulant qui fait cruellement défaut à la crédibilité du régime sur le court terme, mais aurait aussi pour effet de jeter les bases en vue d'une meilleure supervision du régime et de son évolution sur le long terme. À la longue, il en résulterait un régime beaucoup plus robuste et, encore plus important, une barrière plus efficace contre la menace des armes biologiques et à toxines.

STRENGTHENING THE BIOLOGICAL AND TOXIN WEAPONS REGIME: STRATEGIES FOR THE FIFTH REVIEW AND BEYOND

INTRODUCTION

The regime governing biological and toxin weapons has long represented a key facet of international efforts to address the use of disease as a weapon of war. Indeed, through its various components – most notably the 1972 Biological and Toxin Weapons Convention (BTWC), a long-standing and profound sense of moral revulsion surrounding the use and possession of such weapons has been institutionalized and widely accepted as a fundamental norm of international statecraft.

Developments on the international stage nevertheless suggest that the regime may be at increasing risk. The terrorist attacks against New York and Washington of September 11th, the subsequent use of the biological agent anthrax against US citizens, and growing suspicions that a growing number of state and non-state actors are actively seeking or in fact, already possess a BW capability have all worked to heighten concern about the dangers associated with the weapons themselves and the need to meet the challenges they represent. The fact that ongoing technical developments both in the biological sciences and elsewhere may soon increase both the ease with which such weapons may be acquired as well as their military utility only compounds such fears.

Unfortunately, the nature of biological agents along with long standing structural weaknesses in the regime itself have insured that it is ill-equipped to deal with such challenges. And recent international efforts to bolster the regime governing biological and toxin weapons have yielded little progress.

Not only have attempts to achieve an acceptable verification/compliance protocol for the BTWC been suspended, but a broad consensus over alternative ideas and approaches has yet to emerge. In fact, current divisions over appropriate strategy have yielded the first premature adjournment of a BTWC Review Conference in the regime's history. The overall result is a seeming lack of acceptable means to strengthen the regime at the very point when the security challenges it faces appear to be most pressing.

Such developments argue strongly for a reexamination and reassessment of the regime as well as the means required to strengthen it. In the absence of sound ideas and strategies aimed at moving the regime forward, not only will its credibility and effectiveness wane, but the threat which biological weapons pose may well increase.

This report offers such an assessment. More precisely, it outlines 1) the various components of biological and toxin weapons regime, 2) its existing strengths and current shortcomings and 3) recent efforts aimed at bolstering it. It then turns to the future and considers the relative merits of recent initiatives and proposals advanced for strengthening the regime. The report concludes by identifying those ideas, initiatives and strategies which states parties – including Canada – might best pursue to effectively insure that the dilemmas which currently confront the regime are addressed.

By so doing, it will be evident that prospects for achieving quick and far-reaching improvements in the regime are currently limited. At the same time, limited progress is possible. In this regard, a politically realistic, practical approach would emphasize the adoption of a number of voluntary, *politically-binding*

measures in the near term as well as the pursuit of measures aimed at enhancing the institutional capacity of the BTWC. It would also explore the possibilities inherent in more limited initiatives aimed at improving somewhat the BTWC's verification/compliance capabilities.

Properly conceived and executed, such a strategy would not only work to strengthen somewhat the regime in the near term, but more importantly – to create a firmer foundation upon which more substantial and comprehensive means of strengthening the regime can be pursued in future.

THE BIOLOGICAL AND TOXIN WEAPONS REGIME

Efforts to control the use of disease as a weapon of warfare are age-old. Yet the contemporary regime governing such arms has developed – by and large – over the last century – and consists of a number of interrelated and complementary components (i.e. formal, *legally binding* treaties, confidence building measures (CBMs), export controls and other related activities).

Of these, two agreements are key; the 1925 Geneva Protocol and the 1972 Biological and Toxin Weapons Convention (BTWC). Together, these treaties represent the complimentary core of the regime.

The Protocol focuses *exclusively* on employment – and bans the use of asphyxiating, poisonous or other gases, all analogous liquids, materials or devices and of bacteriological methods of warfare. As such, the use of both chemical and biological weapons are forbidden as instruments of warfare under its terms.¹

Meanwhile, the Convention prohibits, under *any circumstances*, the development, possession and transfer of microbial or other biological agents or toxins whatever their origin or method of production, of types and in quantities which have no justification for prophylactic, protective, or other peaceful purposes. Weapons, equipment, or means of delivery designed to use such agents or toxins for hostile purposes or armed conflict are also banned.

Other provisions of the Convention aim at facilitating observance of the ban. For instance, the convention requires each state party in accordance with its constitutional processes to formulate national implementation legislation to ensure adherence to its provisions (Article IV). And it mandates parties to consult and co-operate directly or through the UN on issues of compliance (Article V).

As for complaints or allegations regarding the treaty's breach, they may be lodged with the UN Security Council (Article VI). Moreover, parties are required to render assistance or support to any member-state so requesting it in the event that the Security Council rules that it has been exposed to danger resulting from the Convention's violation (Article VII). They also commit to observing and upholding the terms and conditions of the Geneva Protocol and the 1992 Chemical Weapons Convention (CWC) (Article IX).

A series of regular review conferences aimed at insuring the effective operation and further development of the BTWC, work to supplement the regime. Indeed, successive reviews not only reaffirm the Convention's prohibitions but have sought to enhance confidence and foster transparency among parties through the development of measures aimed at promoting information exchange. They have also

¹ The prohibition does not cover the production, development and stockpiling of chemical and biological weapons. And a number of nations reserve the right to retaliate in kind. As such, the Protocol treaty amounts to a no-first use agreement.

endeavoured to insure that the Convention's terms remain effective in light of ongoing developments in science and technology, and – where possible – to elaborate procedures aimed at facilitating cooperation between parties in resolving questions of compliance.

Finally, the Australia Group – an informal network of 33 countries and the European Commission (EU) – has worked to prevent exports of material and technology from contributing to the proliferation of chemical and biological weapons (CBW) through the establishment of formal export guidelines and the harmonization of national export licensing measures on CBW-related items (i.e. agents, manufacturing technologies and information). Since its inception in 1985, the group has created an increasingly extensive body of controls aimed at preventing any inadvertent contribution to CBW programmes. Accordingly, not only has its activities served to complement and actively reinforce the BTWC's prohibitions against the transfer of agents for hostile purposes (Article III), but has bolstered deterrence of the development of such weapons – by making their acquisition more costly, time-consuming and complicated.

a) Benefits of the Regime

Overall, the regime has worked to establish and institutionalize a prohibition against biological and toxin weapons which is both comprehensive in scope and unequivocal in nature. Indeed, through the provisions contained in its various components, it bans an *entire class* of weaponry.

The BTWC – in particular, decisively extends prohibitions on biological and toxin weapons – moving the ban beyond arms control into the realm of disarmament. Its broad, overarching *general purpose* criterion offers truly comprehensive coverage – insuring that *any* kind of development and production of biological and toxin agents *for hostile purposes* is prohibited. And the criterion's emphasis on purposes as opposed to specific items, provides assurance that the Convention also covers unknown, future technologies.

A number of provisions also offer incentives for states to join the regime. Under Article VII, members agree to assist any party in the event they are exposed to dangers resulting from the Convention's violation. And Article IX encourages parties to co-operate in sharing equipment, materials and technological information for peaceful purposes.

Meanwhile, successive Convention reviews not only serve to monitor its health and further its development, but insure a regularized reassertion of the prohibitory norms which the Convention and broader regime embody and institutionalize. The practical result has been relatively widespread participation in and adherence to the regime's terms – and consequently – considerable acknowledgement and acceptance of the importance of the prohibition against such weapons among members of the international community of states.²

As of August 2002, the BTWC had 146 states parties and 18 signatories. Parties to the Geneva Protocol meanwhile, also numbered 146.

² In fact, the record of observance of the non-use norm is especially solid. Notwithstanding recent events, documented cases of the actual use of biological and toxin weapons are still relatively infrequent.

b) Weaknesses and Shortcomings

Unfortunately, the regime is also plagued by a number of crucial weaknesses. Despite its lofty aims and broad scope, the BWTC has often been labelled as little more than a “gentlemen’s agreement” – offering means for underlining the good behaviour of parties with little intention of violating its provisions but at the same time providing precious little in the way of measures capable of preventing dedicated proliferators from acquiring an offensive BW capability.

Most significant is the fact the BTWC lacks the means required to effectively insure mandatory verification of compliance with its terms. Consultation mechanisms and complaints procedures are weak. Support structure and budget necessary for inspections is entirely absent. And provisions for the investigation of suspected violations are highly vulnerable to the vagaries of politics. While parties may petition the UN Security Council to investigate cases of suspected non-compliance (Article VI), the veto power possessed by permanent members has insured that such action has proven to be a political nonstarter.

The verification/compliance dilemma is compounded by the character of biological and toxin agents themselves. Unlike chemical arms which often require multi-ton quantities for their development, militarily significant quantities of biological and toxin agent can be minute. As such, they can be easily concealed.

Further, many agents are “dual use” in application – possessing both offensive military and well as defensive and peaceful civilian applications.³ Unfortunately however, the ability to decisively distinguish between possession and use for legitimate defensive or peaceful civilian purposes and offensive military programmes is often difficult if not impossible. Often, legitimate bio-defence programs and advanced pharmaceutical facilities have capabilities similar to those that would be found at offensive BW sites (e.g. special ventilation systems, sterilization and decontamination practices and special production equipment). And at times, offensive potentials can be generated from defensive BW research.

Absent a practical means of distinguishing between offensive and defensive programs, the application of the Convention’s definition of permitted and prohibited activity turns largely on perceptions and judgments about intent. Consequently – accurate assessment of compliance is rendered problematic. In fact, such uncertainties can generate a tendency to judge threats based less on a scientific evaluation of the facts of a particular case than on the broader realities of international politics. As Chevrier notes:

With few clear guidelines and procedures ... issues of compliance become highly politicized. And standards of evidence for compliance vary based on identities of states. Indeed, what appears suspicious in the case of Middle Eastern state appears less so in case of a Western ally. The result is frequent and long-standing allegations of violation – but little definitive proof that charges are accurate.⁴

³ Dangerous organisms and toxins have a number of peaceful or defensive applications – in the development of protective vaccines, as tools in biomedical research and in medical practice. And legitimate bio-defence programmes and advanced pharmaceutical facilities have similar capabilities to offensive BW sites (e.g. special ventilation systems, sterilization and decontamination practices and special production equipment).

⁴ Marie Isabelle Chevrier, “Strengthening the International Arms Control Regime,” in Raymond A. Zilinskas (ed.), *Biological Warfare: Modern Offense and Defense*, (Boulder: Lynne Rienner Publishers; 2001), p. 155. Reports concerning US bio-defence research help underscore the point. According to the *New York Times*, recent programmes

The fact that the Convention's provisions cover all possible agents complicates efforts at verification further.

Other problems exist as well. Notwithstanding the BTWC's call for parties to enact national implementation legislation to insure that activities banned under its terms are prohibited and prevented on their territory or anywhere under their jurisdiction, vague terminology has yielded multiple interpretations of the actions required. Consequently, few member states have actually enacted measures imposing criminal penalties on individuals engaging in illicit BW activities.⁵ Beyond this, the Convention offers no provisions or guidance on initiating sanctions, penalties or on the policing measures which could be considered or applied in the event of its violation.

Efforts to rectify such shortcomings have a long history. At the second and third Review Conferences for instance, member states adopted a series of politically-binding confidence-building measures (CBMs) as a means of promoting transparency and bolstering faith in compliance with the Convention. These included exchanges of information on vaccine production plants, past activities related to BW, national bio-defence programmes and unusual outbreaks of disease. Beyond this, reviews have been used to insure that the Convention's language and terminology is sufficiently broad to maintain its prohibitions in the wake of ongoing technological innovation.

Yet while such efforts have yielded some tangible benefits, they have fallen far short of eliminating existing problems. Certainly, the development of CBMs has increased information flows somewhat and has yielded some useful data (e.g. about past offensive and defensive capabilities of certain state parties). Nonetheless, reporting has generally been lax. From 1987 to 1995, only 70 of the then 139 member states of the BWTC submitted data declarations, and only 11 took part in all rounds of the information exchange.⁶ Beyond this, the information provided in returns has often been inaccurate and incomplete.

have included the testing of mock biological bombs, the explosive testing of aerosols and the production of weapons-grade anthrax -- activities which some characterize as coming dangerously close to crossing the line from defensive to offensive activity. While US officials have been adamant in denying such charges and stress the defensive nature of the work, it is hard to believe that they would not reach similar conclusions if they discovered the conduct of these same activities in a Middle Eastern state. In fact, the danger now exists that US activities may in future be cited by others to help screen offensive programmes. The fact that such activities were never reported in US compliance reports to the BTWC only serves to further underline the problem. See, Judith Miller, Stephen Engelberg and William J. Broad, "U.S. Germ Warfare Research Pushes Treaty Limits," *New York Times*, 4 September, 2001.

⁵ The development of US national implementing legislation -- the Biological Weapons Antiterrorism Act -- did not occur until 1989. The act imposes criminal penalties of up to life imprisonment, along with fines on anyone acquiring BWs or assisting a foreign state or terrorist organization in doing so.

⁶ As reported in Jonathan Tucker, "Putting Teeth in the Biological Weapons Convention," *Issues in Science and Technology*, Vol. XVIII, No. 3. (Spring 2002), p. 72. Recent experience reveals little change in practice. For instance, as of November 2001, only 31 of the then 144 states parties to the Convention had submitted CBM declarations for the year. See "Statement by Christopher Westdal, Ambassador and Permanent Representative to the Conference on Disarmament to the Fifth Review Conference of the States to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons and on their Destruction, Geneva, 19 November 2001, p. 3.

The utility of export controls is also limited. While such measures undoubtedly work to complicate -- and thus deter -- the acquisition of such weapons, they are not leak-proof. Those seeking bio-weapons can evade controls by using trans-shipment points and shell companies or by trading with countries that are not members of the group. Moreover, even if such measures work reasonably well in preventing such activities today, their ability to continue to do so in future remains less clear. In fact, supply-side controls can only buy time -- deferring and delaying dedicated proliferators from achieving their goals rather than decisively stopping them. In light of the likelihood of the continued diffusion of modern technology throughout the world, access to CBW-related agents and technologies is apt to increase with time.

Finally, and notwithstanding the fact that the regime itself is widely recognized and generally well respected -- participation within it remains far from universal. With regard to the BTWC, nearly 50 states have yet to ratify or accede. And most of these -- 31 states in all -- have yet even to sign.⁷ Meanwhile, more than twenty signatories to the Geneva Protocol continue to maintain a reservation permitting them to retaliate in kind if attacked with chemical or biological arms.⁸

In some cases, such realities owe much to inattention, a lack of state capacity and the existence of more pressing security concerns in other areas. In others, -- most notably the Middle Eastern states -- it stems primarily from perceived threats emanating from regional rivals known or suspected of possessing their own weapons of mass destruction -- nuclear weapons in particular. Indeed, such realities not only generate hesitancy toward active and full participation in the regime but have led to contentions that any such participation must be preceded by elimination of *all* weapons of mass destruction.⁹ The practical result is inertia -- as well as a more general concern among observers that the regime's provisions remain beyond those very states suspected of posing the greatest BW threat.

GROWING THREATS, MOUNTING CHALLENGES

Both practical and moral considerations helped to insure that -- for a time -- the regime could be sustained despite its inherent weaknesses and limitations. On the practical side, the battlefield effectiveness of bio-weapons was highly suspect. Impacts could vary widely given climatic and atmospheric conditions as well as the means available for launching an attack.¹⁰ Indeed, the difficulty of controlling the spread of disease raised the danger that its effects could eventually rebound against the user. Faced with such

⁷ Quoted in *ibid*, p .6.

⁸ As of 31 January 2001, some 23 of the then 133 states parties to the Protocol maintained the "retaliation in kind" reservation. As reported in Graham S. Pearson, "Return to Geneva: The United Kingdom White Paper, Strengthening the Biological Convention, *Review Conference Paper No. 6*, (Bradford, UK: University of Bradford, Department of Peace Studies, June 2002), pp. 24-25.

⁹ For a detailed analysis see, Jonathan B. Tucker, "Motivations For and Against Proliferation: The Case of the Middle East," In Zilinskas et al, pp. 27-38.

¹⁰ Under ideal conditions, and assuming the release of 50 kilograms of anthrax by airplane along a 2-kilometre line upwind of a city with 500,000 inhabitants, it has been estimated that 95,000 people would die, and an additional 125,000 would be incapacitated as a result of high fever, difficult breathing, rapid pulse, chest pains and blood poisoning. Yet adverse weather conditions can reduce these figures 1000-fold, and civil defence measures can diminish casualties still further. See Alexander Rose, "The Trouble with Biological Weapons," *National Post*, 8 August 2001, p. 1.

contingencies, states – and their militaries – generally viewed other weapons as a safer, more predictable bet.

Moral opprobrium against biological weapons and warfare was also a widespread and exceedingly powerful force in international affairs. In fact, adherence to such prohibitions represented a mark of status within an overwhelmingly state-centric system. Allegiance to the taboo symbolized membership in the “civilized” community of nations – and its violation – the mark of a pariah.¹¹

Beyond this – cold war realities probably helped to insure that deterrence against the *actual use* of biological and toxin weapons was fairly robust. Given the near-global nature of the US-Soviet rivalry – any employment of such arms threatened dire consequences. In fact, their “taboo” status virtually assured that use – if detected – would carry a high risk of political and military sanction not only from the target state itself but also the international community as a whole.

Faced with such forces, treaties banning such arms could command widespread international support despite little in the way of means to verify and enforce them. Indeed, while suspicions of violation existed and while allegations pointing to the existence of clandestine BW programs were tabled, such incidents were relatively infrequent.

Developments since the cold wars end have nevertheless suggested that past restraints may be fading and that interest in the acquisition and use of biological weapons may be on the rise. The past decade has witnessed a steady rise in the number of nations suspected of possessing and/or of actively seeking a BW capability. Indeed, since the BTWC entered into force, states suspected of possessing biological weapons programmes have more than doubled.¹² The US now lists a dozen nations believed to possess or to be actively pursuing a BW programme. Furthermore – many of those suspected are parties to the BTWC.

Some of these nations occupy regions marked by a long history of tension and armed conflict (e.g. Pakistan, China, Iraq, Iran, Egypt, Libya, North Korea, Syria). Accordingly, incentives for the development and retention of military capabilities – both conventional and otherwise have tended to be high.

Others – such as Russia – have openly acknowledged the existence of such programmes and have agreed to their elimination. Yet questions continue to remain regarding the sincerity of such pledges. Despite Russia’s assurances that offensive BW programmes have ceased following the collapse of the Soviet Union, doubts remain as to how forthcoming Moscow has been regarding the true extent of such programmes as well as the degree to which such work has actually been terminated. Furthermore, Russia and other states suspected of possessing a BW capability face a number of internal economic and political problems which raise fears that oversight of such programmes may be weak and existing capabilities may be less than secure. As such, possibilities for accident and mishap linger.

¹¹ For insightful discussions of the nature of weapons taboos and their relationship to national identities see, Richard M. Price, *The Chemical Weapons Taboo*, (Ithaca: Cornell University Press; 1997), and Richard Price and Nina Tannenwald, “Norms and Deterrence: The Nuclear and Chemical Weapons Taboos,” in Peter J. Katzenstein (ed.), *The Culture of National Security: Norms and Identity in World Politics*, (New York: Columbia University Press; 1996), pp. 114-152.

¹² J.D. Holum, “Remarks for the Fourth Review Conference of the Biological Weapons Convention,” (Geneva: US Arms Control and Disarmament Agency (ACDA), 26 November, 1996.

Worries over the proliferation of BW to non-state actors and terrorist groups have also become more acute -- particularly in the wake of September 11th. Indeed, not only have recent events prompted rising speculation over the prospect of more assaults involving organizations and individuals capable of producing their own indigenous BW capabilities, but also attacks by groups gaining access to such capabilities via state sponsors.

Especially unsettling are possibilities that such groups may possess a stronger inclination to use such weapons than their state counterparts. Unrestrained by diplomatic protocol and often motivated by universalistic and millenarian beliefs these groups may well prove less respectful of existing codes of international conduct. As such, they may generally have fewer moral inhibitions on employing *taboo* weapons to attain their goals.¹³

Beyond this exist growing fears that ongoing innovations in biotechnology and communications may soon combine to increase the effectiveness and utility of biological agents as weapons of war and -- at the same time -- ease the challenge of developing them with speed and stealth.¹⁴

Improvements in wild microbial species for weapons use and potential advances in targeting capability are suggestive of future prospects.¹⁵ Evidence already indicates that scientists in the Soviet Union's BW program genetically engineered various types of viruses for military ends.¹⁶ And, while the current state of genomic information technology suggests that the ability to create "ethnic weapons" remains more a distant prospect, assumptions that such weapons *could never* be developed are unwise.¹⁷ To the extent that innovations in these and other areas continue, incentives to clandestinely develop -- and perhaps employ -- such weapons may increase.

¹³ Admittedly, evidence that such reasoning actually informs the activities of such groups is spotty. Nevertheless, confirmed efforts by terrorist groups such as al-Qaeda, and Japan's Aum Shinrikyo cult to acquire and use bio-weapons can only serve to underline the possibilities. It should also be noted that threats of military retaliation are not likely to deter such acts. For one thing, the often transnational character of modern terrorist organizations gives their members an anonymity that reduces their vulnerability to swift, decisive counterattack. And methods of delivering such agents can confound the process of identifying an attacker further. Recent use of the US postal system to launch anthrax attacks offers a case in point. Definitive evidence as to the source of such assaults remains unavailable. And so too is the option of striking back. Beyond this, the prospect of even assured retaliation may not matter. Individuals willing to commit suicide by flying aircraft into occupied buildings are unlikely to be swayed by threats of retribution. Nor, for that matter, would they likely object to acting as human delivery systems for highly contagious bio-agents -- such as smallpox.

¹⁴ Such innovations may well enable the production of militarily significant quantities of a pathogen in a matter of days. In the absence of mechanisms capable of insuring swift detection, the capacity to spot -- and react to -- violations will be reduced

¹⁵ See Zilinskas et al, pp. 248-49.

¹⁶ According to Ken Alibek, a former assistant director of Biopreparat -- the civilian component of the Soviet Union's BW program -- such work included the production of a hybrid virus strain containing genetic characteristics of smallpox and Ebola. As reported in *ibid.*, p. 249.

¹⁷ *Ibid.*

Many of the implications of such developments remain uncertain. In fact, it is not entirely clear that all will translate into actual BW threats.¹⁸ What is clear however, is that pressure on the regime has steadily intensified over time as they have unfolded. Indeed, such dangers – whether real or simply perceived¹⁹ – have increasingly underlined both the inherent difficulties associated with controlling BWs along with the structural weaknesses and shortcomings of the regime itself – particularly in the realm of verification and compliance.²⁰ Indeed, these developments have fostered a sense of fear and uncertainty which increasingly threatens to undermine confidence in the regimes integrity.

EFFORTS AT REFORM: THE VERIFICATION/COMPLIANCE IMPASSE

Perhaps not surprisingly, the past decade has seen the issue of verification/compliance elevated to center stage in activities aimed at the regime's reform. In fact, efforts to develop a more intrusive and effective compliance mechanism have been underway since the early 1990s.²¹

In 1992 and 1993, VEREX—a panel of government verification experts charged with assessing the feasibility of monitoring the BTWC concluded that a combination of declarations and on-site inspections was capable of enhancing confidence in treaty compliance and deterring violations. An Ad Hoc Group (AHG) was then created and charged with the task of “strengthening the effectiveness and improving the implementation of the Convention including the development of a system of on-site inspections to monitor the treaty. Four years of negotiation followed – a process culminating in the development of a draft protocol aimed at adding verification “teeth” to the treaty.

Tabled in April 2001, the composite text of the protocol presented a substantial break with past practice. In contrast to the piecemeal, limited and politically-binding transparency initiatives generated by

¹⁸ The issue of future developments in science and technology is instructive here. While it is undoubtedly true that such developments may indeed make possible the creation of ever more effective, and deadly weapons, they may also generate innovations in the capacity to identify, detect and defend against them. If so, incentives to acquire such arms may ultimately diminish. See Zilinskas, p. 252.

¹⁹ Notably, and notwithstanding the comments made above – concerns about bio-terror can be overdrawn. Notwithstanding growing concerns over the willingness of such groups to employ BWs, available evidence indicates that their capabilities to do so remain underdeveloped. In fact, much speculation tends to stem more from perceived societal vulnerabilities than from existing threats. Still, even if such is the case perceptions of threat have increased dramatically since September 11th. And perceptions *can* contribute to reality (as well as judgements about the efficacy of disarmament regimes).

²⁰ Revelations about past Soviet and Iraqi BW programs can only serve to heighten such concerns. In the former case, Russian President Boris Yeltsin confirmed in 1992 what many long suspected but could not conclusively establish under the Conventions terms, i.e. that a BW program existed in the USSR in violation of the BTWC. As for Iraq, not only were similar suspicions confirmed, but the UNSCOM experience clearly demonstrated that even far more intrusive measures could face major hurdles in investigating compliance concerns.

²¹ Convention member states established the Ad Hoc Group in September 1994 to strengthen the effectiveness and improve the implementation of the BTWC, including a system of on-site inspections. And in July 1997, negotiations aimed at producing a protocol to supplement the Convention began.

earlier review conferences, the AHG advanced a compliance regime comprised of measures aimed at insuring more intrusive, comprehensive and legally-binding coverage. Under its terms, parties would be subject to:

- Mandatory declarations of bio-defence and biotechnology facilities, including the possibility of onsite visits.
- Consultation procedures to clarify questions that might arise from declarations, including the possibility of on-site visits.
- Transparency inspections of randomly selected declared facilities to check the accuracy of declarations, and,
- Short-notice challenge investigations of facilities suspected of violating the BTWC (either declared or undeclared) as well as field investigations of alleged BW use.

Such provisions represented a considerable improvement over the compliance measures currently informing the BTWC (i.e. Articles V and VI).

Support for the composite text of the protocol was widespread -- particularly among Western and the majority of Non-Aligned nations. Of the 55 States parties who participated in the sessions of the AHG, a full 50 indicated that they were prepared to accept the text or see it as a basis for a final compromise.²² Still, the inability to secure unanimous approval for its terms worked to derail acceptance of the composite text as a basis for future negotiation.

Objections to the text varied. For instance, attempts by certain NAM nations (i.e. Iran, China, India and Pakistan) to withhold support on the protocol in exchange for a reduction of restrictions on technical exchange and cooperation generated attempts at compromise which pleased no one. Indeed, while those seeking revision viewed such efforts as insufficient, the US and other Western nations viewed them as excessive -- objecting that such efforts in effect posed a mortal threat to the future of multilateral export controls.²³ Yet differences over issues of verification loomed especially large. Indeed, while virtually all parties appeared to recognize that the very nature of biological agents and technologies have combined to make absolute verification impossible²⁴ -- some have been more willing accept a mechanism based on the notion of compliance than others.²⁵

²² As reported in Graham S. Pearson, "Return to Geneva: The United Kingdom Green Paper," Strengthening the Biological Weapons Convention, p. 9.

²³ US officials contended that such provisions would in effect threaten the dual-use export control regime as embodied by the Australia Group. The end result could well be to further facilitate rather than inhibit opportunities for BW proliferation in the developing world.

²⁴ Indeed, the nature of such agents and technologies removes the chance that violations can be detected with levels of confidence expected in other arms control and disarmament regimes.

²⁵ The idea of a compliance regime is well articulated by Peggy Mason, former Canadian Ambassador for Disarmament. Speaking at the Third Review Conference of the BTWC in 1991, Mason observed that "...the title *compliance regime* conveys very clearly that it is the obligation of States Parties to *demonstrate compliance with the*

For the majority of member-states, the increased confidence which the mechanism outlined in the chairman's text offered in the area of state compliance provided sufficient reason for supporting it. By providing greater information about and access to, dual-capable facilities and activities that could potentially be misdirected for hostile purposes, the mechanism would enhance the ability to deter pursuit of a BW capability. Indeed, it would further complicate the efforts of countries that seek to evade their obligations under the BTWC. Beyond this, the system of intrusive on-site inspections which the text outlined would offer a reasonable balance between the need to increase confidence in compliance and the need to insuring adequate protection for legitimate national security and trade secrets.

Yet others – most notably the US – viewed such a mechanism as doing more harm than good. According to Washington, the provisions outlined in the draft text were at once too weak and too strong. On the one hand, they would do little to deter dedicated proliferators from developing BW programs. Given the fact that the number of potential BW-capable facilities existing in any given country could be enormous, detection of such activity would be difficult even in the case of a system featuring frequent compliance visits.

Yet the limited number of inspection visits required under the draft Protocol – along with the procedures involved – would make such a task impossible.²⁶

On the other hand, the facility declaration and visits system which the document advanced would threaten to expose information which could prove valuable in circumventing US bio-defence programs. Beyond this, inspections would place US pharmaceutical and biotechnology industries under strain – generating higher administrative costs and increased opportunities for industrial espionage in an increasingly competitive and lucrative industry.

Accordingly, Washington contended that the protocol risked generating a false sense of security,²⁷ urged that efforts to pursue it be terminated and called for future efforts aimed at strengthening the BTWC to be directed elsewhere. The US stand has been widely criticized.²⁸ In fact, many claim that Washington's objections reflect a fundamental misrepresentation of many of the protocol's provisions. For instance, while

Convention. In this way (it puts) the emphasis on co-operative approaches to the resolution of any conflicts that may occur. As quoted in Department of External Affairs and International Trade, Canada, Disarmament Bulletin, No. 17, (Fall, 1991), p. 21. Consequently, and in contrast to traditional notions of verification, compliance implies a somewhat more pro-active and co-operative approach to disarmament.

²⁶ See Michael Moodie, "Building on Faulty Assumptions," Robert Kadlec, "First – Do No Harm," and Alan P. Zelicoff, "An Impractical Protocol," all in *Arms Control Today*, (May, 2001).

²⁷ Indeed, the chief negotiator for the US delegation Donald A. Mahley observed that, "the draft protocol will not improve our ability to verify biological weapon compliance. It will not enhance our confidence in compliance and will do little to deter those countries seeking to develop biological weapons." As quoted in, Canadian Press, "Canada Regrets U.S. Rejection of Anti-Germ Warfare Enforcement Accord, *Ottawa Citizen*, 1 August 2002.

²⁸ For insightful critiques of Washington's stance, see, Barbara Hatch Rosenberg, "Allergic Reaction: Washington's Response to the BWC Protocol," John Steinbruner, Nancy Gallagher and Stacy Gunther, "A Tough Call," both in *Arms Control Today*, (July/August 2001), and Graham S. Pearson, "The US Rejection of the Protocol at the Eleventh Hour Damages International Security Against Biological Weapons," *CBW Conventions Bulletin*, Issue No. 53, (September 2001), pp. 6-9. Notably, the verification provisions for the BTWC at least approximate those of a number of other multilateral security treaties which the US supports (e.g., the NPT and CWC).

it is true that the composite text fails to cover all facilities in which BW activity could be conducted, *strict verification* has never been the chief objective of the protocol. Furthermore, many of the limitations on coverage which *do* exist (e.g. on declarations of bio-defence facilities, on sampling procedures and on rules of access to facilities) emerged primarily at US insistence. Despite concerns regarding the safety and security of proprietary commercial information moreover, critics note that the chairman's draft text was in fact less intrusive than the Chemical Weapons Convention (CWC) – a treaty to which the US has been a party since 1997. And notwithstanding the more liberal tone which the document takes on cooperation and the sharing of technology – its text only offers “guidelines” on exports – not hard obligations. As such, states would continue to retain full discretion over the implementation of such measures.

Nonetheless, efforts to sway Washington have produced little change in the Bush administrations stance. In fact, at the eleventh hour on the final day of the review, the US delegation not only declared the protocol to be “dead and buried” but extended its opposition further by calling for termination of the AHG's mandate²⁹ – a move which not only stunned other delegations but quickly prompted the unprecedented move of adjourning the review's conclusion for a period of one year.

IDEAS AND APPROACHES: THE “MENU” OF CHOICE.

Whether the divide over verification/compliance can be breached any time soon is unclear. While the vast majority of states continue to support a regime based on the composite text of the protocol, current realities suggest that Washington's hard line is likely to persist.³⁰

In addition to its strong objections to the specifics of the document itself, the US stance also reflects a more general conservatism on issues of arms control and disarmament as well as a marked tendency toward unilateralism and reliance on self-help when addressing matters of international affairs. Given the attacks of September 11th along with the anthrax incidents which followed – such tendencies may well have been heightened.³¹ Furthermore, the considerable ill-will which the US action has generated both within the US itself and among other delegations hardly augurs well for the resumption of constructive diplomacy.

Nevertheless, given current dangers, and with the fifth review conference scheduled to resume in November 2002, creative approaches and initiatives aimed at strengthening the regime are sorely needed – both in the area of enhancing compliance with the BTWC as well as in improving its operation more generally. And the “cooling off” period resulting from the review's adjournment offers an much needed opportunity for careful reflection of possibilities.

²⁹ Termination of the AHG's mandate would in effect eliminate the sole forum for negotiating multilateral measures to strengthen the treaty.

³⁰ In fact, some US officials have noted that recent rhetoric notwithstanding – the major obstacle blocking the successful conclusion of the review conference was not US diplomacy but rather non-compliance with the regime. As reported in Seth Brugger, “BWC Conference Suspended After Controversial End,” *Arms Control Today*, (January/February, 2002), pp. 1-2.

³¹ Indeed, given the fact that the US was the principle target of such attacks, the current administration may well feel that it has more at risk from entering into international obligations than others.

Already, a number of ideas and approaches aimed at strengthening the regime have emerged. For instance, in the wake of its strong stand against the draft protocol, Washington has advanced an alternative package of measures emphasizing national efforts to bolster compliance. A number of academics, policy analysts and NGOs have focused on improving the language of the Convention's provisions and strengthening the regimes CBMs. Others concentrate on the creation of new institutional machinery for the Convention itself. And still others have focused on the development of entirely new treaties aimed at complementing and reinforcing the Convention by regulating activities which closely relate to it.

At times, the ideas and initiatives advanced overlap – with variation among them evident primarily in the scope of adoption and/or the coverage sought. Overall, however they fall into two broad categories:

- 1) initiatives directed at the national level and aimed primarily at encouraging governments to alter their national practices, and:
- 2) those requiring some degree of international cooperation primarily for the purpose of fostering regime development through the creation of new practices, institutions and procedures.

a) National Measures

Calls for improving state practices have increased, and include the following proposals:

- **The Development of Criminal Legislation and Extradition Procedures**

Perhaps in part as a result of recent concerns over bio-terror, a number of camps advocate the development and strengthening of national “criminal” legislation governing the acquisition, possession and use of biological arms as well as a tightening of laws governing extradition.³² The results would not only help fulfill the BTWC’s call for state parties to develop national implementation measures (Article IV), but pose a heightened deterrent to sub-state actors and terrorist organizations intent on pursuing BW-related activities.

- **The Creation of Codes of “Ethical” Conduct for Science and Industry**

Calls for the development and active promotion of codes of ethical conduct for scientists working with dangerous pathogens have been on the rise. Indeed, such measures represent a key plank in the Bush administrations reform package for strengthening the BTWC as well as in a recent Green Paper produced by the UK for the same purpose.³³

By actively promoting moral conduct and practice within the research and development communities the prospect that regime norms are internalized among the most familiar with the field will be increased.

³² The proposal represents part of the US package which the Bush administration presented as an alternative to the draft protocol. Details of the package are reported in Seth Brugger, “US. Presents Alternatives to BWC Protocol at Review Conference,” *Arms Control Today*, (December 2001), pp. 1-2.

³³ Ibid.

- **Strengthening Measures Relating to the Handling and Disposition of Biological Agents**

Gaps in the monitoring and regulation of activities surrounding the handling and disposition of hazardous biological agents are widespread. Accordingly, and in order to better prevent the deliberate or inadvertent misuse or mishandling of biological agents, a number of sources call upon states to:

- a) enhance monitoring procedures for laboratories conducting research involving dangerous pathogens (e.g. oversight of “high risk” genetic experiments),
- b) strengthen measures aimed at prohibiting unauthorized access to dangerous agents, and
- c) create more rigorous controls and restrictions on facilities involved in the transport and receipt of dangerous pathogens.³⁴

b) International Measures

International measures are wide-ranging and touch upon almost all aspects of the regime. Thus far, proposals advanced include:

Reaffirming the Convention’s Scope

While the Convention’s general purpose criterion is already broad in scope, concerns regarding its ability to cover future developments remain strong. As such, many have called for more explicit elaboration of the scope of prohibitions under Article I. For some, such efforts would involve the inclusion of language underlining the fact that the Convention prohibits the use of vectors of biological origin such as insects. For others, it requires clearer prohibitions on the use of BW by a state on its own territory. And still others seek language banning the use of anti-plant, anti-crop agents intended for use in drug eradication efforts (e.g. opium poppy and cannabis).

Beyond this, and in light of the fact that the intent of state research programs is not always clear – calls for clarification and reassurance on the defensive character of BW-related research have also intensified. To the end, Nicholas Sims has suggested that signatories move to more fully develop a “regime of research” whereby the onus for establishing the legitimacy of bio-defence efforts would be shifted toward signatories themselves. Accordingly, states would be responsible for establishing the defensive nature of their research should questions regarding it arise.

Extending Confidence-Building Measures (CBMs)

The lack-luster performance of existing CBM’s has generated considerable interest in their improvement. To this end, a number of sources recommend that the present measures should be re-examined with a view to expanding their breadth and scope.

³⁴ See for instance, Brugger. At present, facilities which provide culture collections to researchers number well over a thousand worldwide. Yet few impose particularly rigorous restrictions or controls. Even in the US, facilities sending and receiving dangerous agents were not subject to reporting requirements prior to 1997. Accordingly, coverage should be extended – both within the US – and elsewhere.

For instance, some note that measures might be broadened to include voluntary visits to facilities covered under present CBMs. (e.g. to national bio-defence establishments).³⁵ And as confidence between parties grows, the range of facilities which could be included in the process could, in time, be expanded.

Still others call for an extension of reporting practices to cover work dealing with pathogens not only effecting humans but also plant and animal populations. Such practice could involve declarations not only of facilities used to handle and work with such agents, but of facilities producing animal vaccines, plant inoculants, microbially-based pesticides and bio-control agents. It would also entail an extension of information exchanges to include outbreaks of diseases caused by pathogens or toxins in both animals and plants.³⁶

Creating Advisory Panels and Working Groups Devoted to Threat Assessment

Demands for monitoring the implications of rapid technological change -- both in the biological sciences and elsewhere -- are increasing. In fact, a number of analysts fear that such developments threaten to outstrip the current capacity of the regime to assess their potential impacts. Accordingly, some call for the creation of advisory panels and working groups as a means of increasing the capacity for sustained oversight.³⁷ Such mechanisms could include:

- a) a working group charged with monitoring potential threats to the regime which might stem from such developments and,
- b) a discussion forum focusing on the long-term management of the diffusion of biological-related science and technology.³⁸

Enhancing Assistance to Parties in the Event or Threat of BW Use.

Arrangements aimed at providing assistance to parties in the event that they are threatened with the use of biological weapons or are actually subjected to BW attack must be strengthened. To this end, particular attention should be focused on finding ways to promote greater state collaboration on the issue of bio-terrorism -- and promoting assistance to parties experiencing its occurrence.³⁹

³⁵ See, United Kingdom, "Strengthening the Biological and Toxin Weapons Convention: Countering the Threat from Biological Weapons," (United Kingdom: Foreign and Commonwealth Office; April 2002).

³⁶ See for instance, Government of Canada, Annual Report of Confidence-Building Measures Biological and Toxin Weapons Convention, (Ottawa: Department of Foreign Affairs and International Trade; 2002). In fact, Canada included these modified CBMs in its return with a view to increasing confidence in its BW-related activities.

³⁷ See for instance, Michael Moodie, "Reducing the Chemical and Biological Weapons Threat: What Contribution from Arms Control?," Testimony prepared for the Senate Foreign Relations Committee, 19 March, 2002, pp. 11-12.

³⁸ Ibid., p. 11.

³⁹ Ibid. p. 10.

Enhancing Capacities For Monitoring and Addressing Threats Posed by Infectious Disease

While infectious diseases continue to be the leading cause of death and economic loss throughout the world, solid understanding of their sources and how they spread remains weak.

Consequently, states must strengthen the capacity of existing international organizations to engage in surveillance, detection, diagnosis and treatment of infectious disease. In this regard, parties should not only support the World Health Organizations (WHO's) global system for disease surveillance and control, but assist in the creation of an international team that would aid in fighting outbreaks of infectious disease.

Not only would such measures assist in efforts to control such dangers, but would provide a "substantive demonstration of the importance of scientific and technological cooperation" as emphasized in the Convention. Furthermore, by bolstering capabilities available for identifying unusual disease outbreaks. They would also assist in monitoring compliance with the regime.

Improving the BTWC's Institutional Capacity

It has long been recognized that the institutional capacity of the BTWC is weak. Accordingly, various sources have urged the development of a number of mechanisms aimed at improving oversight and implementation of its provisions.

To this end, some call for the creation of a representative Committee of Oversight served by a small technical secretariat.⁴⁰ The latter organization would be composed of scientific experts drawn from government and perhaps academia and the private sector, and charged with tasks such as compiling, translating and distributing voluntary confidence-building declarations,⁴¹ as well as developing and assisting in the implementation of various efforts aimed at strengthening the Convention (i.e. providing administrative support to strategies aimed at strengthening capacities to assist parties threatened or attacked with BW, assisting in the promotion of universal adherence to the Convention and the Geneva Protocol etc.).

Calls have also arisen for increasing coverage through a system of annual meetings. Indeed, such meetings would be open to all states parties to the BWTC and would serve to help sustain the visibility of key BTWC issues, as well as provide a forum for exchanging views on strengthening the Convention itself.⁴²

⁴⁰ Proposals along this line are advanced by Nicholas A. Sims, Jonathan Tucker and Amy Sands. See Nicholas Sims, "Nurturing the BWC: Agenda for the Fifth Review Conference and Beyond," (September 2001), pp. 4-5, and Jonathan Tucker and Amy Sands, "Averting Failure of the Biological Weapons Regime," Discussion Paper Prepared for the Strategy Session on "Coping with Non-Proliferation Crises," Washington DC, 3-4 November 1999). p. 4.

⁴¹ Not only would this encourage and facilitate BW-related information exchanges among member-states, but could serve as a nucleus for a future compliance organization.

⁴² Such meetings could also be conducted at the national level -- with interested states parties holding meetings featuring various governmental and non-governmental participants as well as representatives from other nations. See, Graham S. Pearson, "Return to Geneva: The United Kingdom Green Paper," pp. 17.

Strengthening the Convention's Compliance Verification/Capabilities

Development of measures to strengthen the BTWC's capacity to verify compliance with its terms remains a paramount concern. Yet while virtually all parties agree that a means of better insuring compliance is essential, ideas and strategies aimed at meeting the challenge vary.

For many, efforts to develop a legally-binding protocol should continue regardless of US objections. Such work could be pursued either through the continuation of the efforts by the AHG or alternatively, via a system of annual conferences backed by expert discussions. Either way, further work is essential to establishing the feasibility of such a mechanism.

Yet others favor the adoption of a more limited verification mechanism. For instance, Washington has suggested augmenting the consultation procedures in Article V of the BTWC by creating a "voluntary cooperative mechanism" for clarifying and resolving compliance concerns by mutual consent, through exchanges of information, visits and other procedures.⁴³ In addition, the existing UN mechanism for conducting field investigations of alleged BW use would be strengthened by obligating BWC member-states to accept investigations on their territory.

Developing an International Regime Criminalizing Chemical and Biological Weapons

While growing concerns over the development and use of BW's strongly indicates the need to strengthen national legislation aimed at criminalizing BW-related activity, efforts to extend such laws to the international arena are also needed. Accordingly, states should move to develop international legislation which would declare the use of both chemical and biological weapons a crime against humanity.⁴⁴ By creating an additional layer of constraint against such weapons, the norm would be strengthened, deterrence would be enhanced and international cooperation in suppressing prohibited activities would be facilitated. Such an effort would involve the development of a draft convention, and eventually, the negotiation of a multilateral treaty setting legal guidelines for the prosecution of those who acquire and use CBW's.

Developing a Global Regime on the Physical Protection of Dangerous Pathogens

An international Bio-Security Convention governing the safe handling, transfer and use of dangerous pathogens would be distinct from the BTWC. Yet it would complement it -- particularly by addressing the threat of bio-terrorism. Indeed, by standardizing and harmonizing the uneven patchwork of regulations governing national practices in this area, such a regime would help close loopholes which such organizations might seek to exploit to gain a BW capability.⁴⁵

⁴³ Others advocate efforts to create a limited, challenge inspection mechanism modelled loosely on that found in the CWC.

⁴⁴ See Harvard-Sussex Program on CBW Armament and Arms Limitation, "International Criminal Law and Sanctions to Reinforce the BWC," *CBW Conventions Bulletin*, Issue No. 54, (December 2001), pp. 1-2 and Matthew Meselson, "Bioterror: What Can be Done?," *New York Review of Books*, 20 December 2001.

⁴⁵ See, Michael Barletta, Amy Sands and Jonathan B. Tucker, "Keeping Track of Anthrax: The Case for a Biosecurity Convention," *Bulletin of the Atomic Scientists*, (April, 2002). While hundreds of companies and labs work

The regime could be modeled on the 1994 Nuclear Safety Convention, and would consist of three basic elements: a legal commitment by the contracting parties; agreed principles for developing higher standards for regulation and licensing of microbial culture collections; and mechanisms for oversight and progressive refinement of standards through a regularized regime of periodic conferences.

Promoting Universal Adherence to the BTWC, and the Geneva Protocol and Encouraging Nations to Withdraw Protocol Reservations.

A number of sources also demand that efforts aimed at promoting universal adherence to the regime be increased. In this regard, member states should undertake greater diplomatic efforts – both individually and in tandem with others – to encourage hold-outs to sign and ratify the BTWC, as well as to withdraw reservations to the Geneva Protocol.⁴⁶

Furthermore, and to the extent that such efforts yield successes, they should be widely publicized.

CRITICAL ASSESSMENT

Clearly, measures proposed for strengthening the regime vary widely in focus, scope and ambition. Some emphasize national action while others focus on improving the regime through international cooperation, many seek agreements that are politically binding while others seek more ambitious legally-binding arrangements. Virtually all address genuine shortcomings in the Convention as well as the regime. Yet while all have certain benefits – most – if not all – possess limitations as well.

Measures that require voluntary action generally demand little – if any – major international negotiation and can thus be adopted relatively quickly. As a result, they offer the advantage of providing a prompt response to the issues they address. In the wake of concerns that faith in the regime is rapidly eroding, such a benefit is not trivial. Nevertheless, their voluntary character also insures that those adopting them may feel less obligated to insure that they are faithfully executed. Indeed, effective compliance may be problematic.

The dangers are especially acute in the case of proposals calling for national efforts to strengthen the regime. For instance, while greater national adoption of legislation to criminalize BW-related activity is desperately needed, such an approach is unlikely to further the goal of establishing effective international standards of conduct. In fact, given widespread differences in state interests and capacities-- the quality of

with dangerous pathogens – regulations on access vary widely. And while international organizations have urged their members to tighten access to dangerous microbes – they lack authority to enforce compliance with their recommendations. Many germ banks do not belong to such associations. Consequently, few of their culture collections are adequately secured or regulated. Nor are controls on germ commerce universal. See, Michael Barletta, Amy Sands and Jonathan B. Tucker, “Keeping Track of Anthrax: The Case for a Biosecurity Convention.” Proposals along similar lines are advanced in, Elisa D. Harris, “Prepared Statement Before the House International Relations Committee,” US House of Representatives, 5 December 2001, and Sunshine Project, “An Introduction to Biological Weapons, their Prohibition, and the Relationship to Biosafety”, *Background Series*, No. 10, April 2002.

⁴⁶ See for instance, Chevrier, “Strengthening the International Arms Control Regime”, pp. 163-64, and United Kingdom, Secretary of State for Commonwealth and Foreign Affairs, “Strengthening the Biological and Toxin Weapons Convention: Countering the Threat of Biological Weapons,” p. 15.

such legislation is likely to vary considerably. And, if the past is prologue, many member states will not pass such legislation at all.⁴⁷ In fact, those *most* in need of laws criminalizing BW-related activity may be the *least* willing or able to develop or enforce them. Consequently, while legislation may well be improved in some countries, the legal loopholes and areas of lax enforcement which would continue to exist would still leave considerable room for exploitation by those seeking to develop a BW capability.

Measures aimed at the adoption of strict national regulations on access to dangerous pathogens, along with the creation of guidelines for the physical security and protection of culture collections and laboratory stocks suffer from similar weaknesses. Despite claims that such measures would be especially important for combating bio-terrorism – many states would not be up to the task of developing – much less implementing – truly effective measures. The sheer number of facilities involved in working with such agents would make oversight especially difficult.⁴⁸

Nor is it entirely clear that national oversight of high-risk genetic experiments and the development of codes of ethical conduct for scientists and industry would appreciably improve compliance with the BTWC. Certainly, by raising awareness and levels of responsibility among relevant communities in compliant states, such measures may ultimately reduce somewhat the chances of inappropriate handling and transfer of dangerous agents. Yet in states already suspected of possessing or seeking such capabilities, ethical codes may be of marginal value at best.

Indeed, in these cases, decisions to pursue BW programs will lie primarily with political and military leaders rather than researchers or scientists. Should such a capability be deemed essential due to military circumstances, it is likely that the latter would be especially vulnerable to pressures favoring implementation of the directives of their political masters.⁴⁹ In fact, even if such codes were to generate greater sensitivity among researchers toward questionable practices – the absence of any substantial protections for “whistle blowers” would insure that their willingness to openly voice such concerns could be minimal.

Initiatives which seek negotiated international solutions to such problems – and which are legally -binding – would largely avoid such problems. In this regard, not only would the continued pursuit of a compliance protocol, the negotiation of a Bio-Security Convention and a treaty criminalizing chemical and biological weapons all work to create common standards of international conduct, but also generate greater pressures for state compliance with their terms. As such, the potential for bolstering international norms would be enhanced.

⁴⁷ On this point, see Tucker, “Putting Teeth in the Biological Weapons Convention”, p. 76.

⁴⁸ At present, thousands of government, academic and industrial laboratories work with dangerous pathogens and more than 1500 microbial culture collections sell or furnish microorganisms for research purposes. Yet access restrictions vary from country to country and from facility to facility.

⁴⁹ In fact, even in relatively democratic states, changes in political and military circumstances can produce corresponding – often convenient – shifts in moral reasoning – both among those holding political power and ultimately – those required to help execute their decisions.

Nevertheless, initiatives aimed at creating legally-binding arrangements also have drawbacks. On the one hand, their development, negotiation and implementation is generally time-consuming and tedious. Given the growing dangers which BW's pose -- inordinate expenditure of time and resources is a luxury which the international community can ill afford.⁵⁰ As experience with the draft protocol suggests moreover -- expenditure of effort does not necessarily guarantee success. In fact, the diplomatic climate created as a consequence of failure may work to reduce the chances for achieving gains in other areas. Given such challenges and possibilities, the case against a decision to expend economic and diplomatic capital elsewhere may not be self-evident.

Measures which seek to develop existing regime mechanisms through voluntary, international cooperation offer a middle ground between proposals relying on national action and those seeking the creation of legally-binding arrangements. Although voluntary in nature, the fact that they involve cooperation with others suggests that their results are likely to be more satisfying than those which are wholly dependent on the actions of individual states. Nor do such initiatives preclude the possibility of the arrangements created ultimately becoming legally-binding as confidence in their performance grows and other conditions change.

Many of proposals advanced in fact fall into this category. And most hold promise -- both for adoption and more importantly-- for actively contributing to a strengthened regime. The development of various supporting institutions (i.e. secretariat, working groups) holds particular promise in this regard. Indeed, by addressing the "institutional deficit" that has long plagued the regime, the prospects that the Conventions terms and conditions are more effectively implemented and observed would not only increase, but that implementation of other proposals could proceed more effectively. Furthermore, the creation of such mechanisms would also better insure the availability of means for facilitating the Convention's further evolution.

Still, some proposals focusing on voluntary international cooperation are problematic. For instance, calls for an expanded global-disease monitoring system run by the WHO may create problems if the organization is too *explicitly* linked to monitoring state compliance with the BTWC. Indeed, such an arrangement could well compromise the political neutrality of the WHO -- a commodity essential to its ability to act as a trusted instrument for investigating unusual disease outbreaks in affected countries.⁵¹

Calls for encouraging universality in the BTWC and the Geneva Protocol raise other issues. While both initiatives are likely to encounter little resistance, they are also highly general in character. Indeed, they offer little in the way of specifics as to how such efforts are best carried forward.

⁵⁰ Developing an effective Bio-Security treaty may be especially time-consuming. The Convention on Biological Diversity, and the Cartagena Protocol on Bio-Safety both touch upon some of the problems it would aim to address. As such considerable effort would be required to insure that such an initiative was complementary with existing legislation and avoided excessive and wasteful duplication of effort. See, Graham S. Pearson, "Return to Geneva: The United Kingdom Green Paper," Strengthening the Biological Convention, Review Conference Paper No. 6, (Bradford, UK: University of Bradford, Department of Peace Studies, June 2002, pp. 19-21.

⁵¹ Jonathan Tucker and Raymond A. Zilinskas, "Assessing US Proposals to Strengthen the Biological Weapons Convention," *Arms Control Today*, April 2002, p. 4.

Nor for that matter, is it clear how voluntary measures can effectively address the shortcomings which plague the BTWC in the area of verification/compliance. In this regard, US proposals for the creation of a "voluntary mechanism" for clarifying and resolving compliance disputes by mutual consent, exchanges of information, scientific visits and other activities may offer little improvement over current compliance arrangements. Relying on information provided by contending parties insures that the consultative process can easily become a propaganda circus -- a fact made abundantly clear during consultations arising out of allegations of US use of BW against Cuban agriculture in 1997.⁵²

Washington's proposal to develop an enhanced procedure for investigating alleged BW use and suspicious outbreaks of infectious disease may raise similar difficulties. In particular, while BTWC member states would be urged to accept UN field investigations on their territory without the right of refusal,⁵³ there is no guarantee that parties would be willing to comply with such a request in the absence of a treaty providing legally-binding rights and obligations.⁵⁴ In fact, without a legal obligation to cooperate, the consequences of refusal would be minimal.

Beyond this, the present capacity of the UN to conduct such field investigations is severely limited. Currently, the UN Department of Disarmament Affairs (DDA) -- the branch of the secretariat possessing relevant expertise in this area has an annual budget of about \$7 million (USD) -- less than that paid for cleaning services at its New York headquarters, and no discretionary funds for the conduct of such actions.⁵⁵

THE WAY FORWARD

Unfortunately, and notwithstanding the range of proposals advanced, efforts to effect far-reaching improvements in the regime clearly face obstacles. Given existing political realities, those measures likely to bolster the regime most are also those which currently hold the least chance of swift adoption. And many of the proposals that are most politically viable in the near term appear to offer only limited benefits.

In fact at present, a phased approach offers the most viable road to achieving a stronger BW regime. Such an approach would emphasize the adoption of a number of voluntary, *politically-binding* measures in the near term -- yet keep options open for the development of additional and legally-binding arrangements over the longer run. It would also focus considerable attention on devising means capable of better insuring that those measures that *are* adopted are effectively implemented.

a) Measures for Immediate Consideration

Accordingly, and upon resumption of the Fifth Review in November 2002 states parties should aim at adopting a number of measures, including:

⁵² Ibid., p. 2.

⁵³ Past experience in the investigation of chemical and toxin weapon use suggests that such a procedure can yield useful insights, but only if access is granted promptly and if access is complete. See *ibid.*, pp. 3-7.

⁵⁴ Ibid., p. 3.

⁵⁵ Ibid., p. 4.

- language aimed at reaffirming the comprehensive scope of the BTWC's prohibitions (language explicitly prohibiting use of biological vectors, of anti-plant/anti-crop agents, etc).
- consideration of more "pro-active" efforts to establish the defensive and/or peaceful character of BW-related research (shifting "burden of proof" for questionable research practices to those conducting them).
- further development of CBMs (e.g. extension of current practices to include reciprocal visits of relevant facilities, extension of reporting practices to cover plant and animal pathogen facilities, etc.),
- the creation of working groups and advisory panels aimed at monitoring the implications of ongoing developments in science and technology for the regime,
- enhancing capacities for assisting parties in the event or threat of BW use (e.g. raising the tabling of general offers of assistance by states parties).
- improving the BTWC's institutional capacity through the creation of a committee of oversight, a technical secretariat, working/discussion groups and through more regularized (i.e. annual) meetings of states parties,
- a continuation of diplomatic efforts aimed at promoting the universality of the BTWC and the Geneva Protocol, and removing reservations to the Geneva Protocol.

Most – if not all – of these measures already command substantial support among states parties, and if properly pursued, they hold considerable potential for enhancing the regimes effectiveness and reputation. The development of supporting institutions and working groups is especially promising. Indeed, such mechanisms could ultimately work to help insure the effectiveness of other initiatives – offering the administrative support and institutional memory needed to oversee their execution and progress.

Calls for state-based efforts to improve national practices should also be pursued. Nevertheless, the inherent limitations which clearly attend such measures demand that additional steps be undertaken to help facilitate their adoption and – to the extent possible – their chances for success.

To this end, consideration might be given to providing state parties with access to examples of good practice and conduct already on the books as well as to sources of expert information and advice on their operation and adoption (e.g. establishment of consultation processes).

In the case of legislation aimed at criminalizing BW-related activity for instance, examples of existing state legislation could be circulated as "models for emulation," and seminars and workshops offered to interested state parties as means of increasing understanding of the manner in which such laws function, and the practices and procedures required for their adoption and effective functioning.

Similar resources could also be made available to states in the areas of bio-safety and security (e.g. model rules and regulations), on codes of ethical conduct for scientists working in the field, on improving the capacity to assist states in the event that they are subject to the threat or use of BW (e.g. offers of assistance), and on strategies aimed at encouraging greater universality of membership in the Convention

and/or the Protocol.⁵⁶ In fact, supporting materials required in all such areas could be collated and distributed through appropriate supporting institutions (e.g. the technical secretariat).

Beyond this, efforts to enhance capacities for meeting the threat posed by outbreaks of infectious disease should proceed, but the role of the WHO in BTWC affairs must be kept indirect. To this end, and to help insure a continuation of the WHO's political neutrality, action should be confined to enhancing organizational capacity through increased funding – with no stipulations on how such funds are allocated.

Finally, and in light of growing concerns over biological terrorism, states parties should move toward the development of guidelines to further strengthen the implementation of the BTWC's Article III prohibitions, as well as to prohibit transfers of dual-use materials to non-state actors. They should also move to more actively monitor actual progress in the implementation of the Convention's provision on scientific and technological cooperation and exchange (Article X) – perhaps initially through the development and distribution of an annual report monitoring ongoing activities. Indeed, such an effort could help identify weaknesses in current practice and eventually, means of improving it.⁵⁷

b) Measures for the Mid- to Longer-Term

Once established, supplemented with the necessary support mechanisms and carefully monitored, many of the arrangements emerging from such initiatives may evoke a level of observance and support which could eventually make their elaboration into legally-binding obligations a relatively straightforward and painless exercise.

As for proposals calling for the creation of a Bio-Safety Protocol and an international convention branding the use of CBW's a crime against humanity, such initiatives should be subjected to further study. Nevertheless – they should be deferred as subjects of serious negotiation for the time being. While each ultimately promises a potentially more valuable approach to strengthening the BW regime than do national efforts, the degree of diplomatic capital required to attain them is likely to be considerable. And the efforts expended on their development would divert attention from areas of the regime which currently demand more attention.

Indeed, if *any* attempts to secure substantial, *legally-binding* measures should be undertaken at present – it is best that they remain focused on improving the verification/compliance provisions of the BTWC itself. Not only do the Convention's weaknesses in this area continue to pose the greatest concerns

⁵⁶ To this end, Graham Pearson suggests that efforts to encourage universality in the BTWC and the Protocol could be advanced by offering up model legislation that could be used by states concerned in enacting national implementing legislation. Such initiatives could also include offers for technical and financial assistance to enable states concerned to take the national and international steps necessary to accede to the Convention and/or the Protocol. Furthermore, and in order to help facilitate the development of effective strategies aimed at realizing greater participation in the regime, parties should also consider the preparation and publication of regional comparative tables listing the status of each states involvement in the various components of the regime. Such an undertaking might be pursued through the UN Department of Disarmament Affairs. See Pearson, "Back To Geneva," pp. 25-26, and p. 36.

⁵⁷ On this idea, see *ibid.*, p. 39.

– but if left unaddressed, they threaten to insure that the benefits which other measures may yield could be neutralized if not reversed.

Certainly, efforts to conclude a draft protocol any time in the near future are unlikely to bear fruit.

Yet the willingness to pursue the goal remains high. Still, while a number of commentators have advocated movement toward such a regime – even without US involvement if necessary – most nonetheless acknowledge that the exclusion of the world’s strongest military power and leader in biotechnology from such an enterprise would significantly reduce its meaning and its effectiveness. Nor for that matter, is it entirely clear what impact such a course might have on achieving consensus on a final declaration at the reconvened review in November 2002., or upon the course of biological disarmament thereafter⁵⁸

Potentially more promising – at least given current political realities – would be greater investigation of some of the measures which have already shown themselves to command a certain degree of interest and support within the US administration itself.⁵⁹

To this end, US proposals calling for a strengthened UN field investigation procedure, under which all BTWC member-states would be obligated to accept investigations on their territory should be pursued as a legally-binding, formal treaty. Under its terms, decisions to launch such missions would be the sole responsibility of the UN Secretary General acting in strict accordance with the criteria for investigations developed by the UN expert group in 1989. A small foundation charged with providing the financial resources needed to conduct such field investigations would be established through funding from BTWC member-states.

By strengthening the obligation on parties to comply with investigations of alleged use, such a mechanism would not only enhance deterrence, but provide an important first step in the effort to substantially strengthen the BTWC’s compliance machinery. In fact, it would clearly address (albeit in limited fashion) growing demands among member states for a legally-binding compliance mechanism and at the same time, effectively side-step many of the objections which informed US opposition to the draft

⁵⁸ Nicholas Sims in fact recommends that states parties consider a temporary abandonment of the consensus tradition for decision-making at the reconvened review in favour of the adoption of measures by a two-thirds majority vote. While past reviews have never utilized this fall-back position for voting, it may well offer a means of getting the Protocol negotiations unblocked. See, Nicholas A. Sims, Return to Geneva: “The Next Stage of the BTWC Fifth Review Conference,” Strengthening the Biological Weapons Convention, *Review Conference Paper No. 5*, (Bradford: Department of Peace Studies, University of Bradford; April 2002). Nevertheless, such action has drawbacks. Not only would resort to such a procedure reveal – in fact advertise – divisiveness at a time when the need for unity is at a premium, but it may work to drive the US even further into diplomatic isolation. Furthermore, given that the US is not only state which has difficulties with the Protocol, others may be alienated as well.

⁵⁹ Certainly, it can be argued that a move away from the protocol option in favour of the US-inspired idea risks conveying an inordinate amount of influence to a single state. It also risks short-suiting the possibility that the US may eventually change its attitude toward the protocol itself (e.g. after the US elections in 2004). Nevertheless, given the current malaise surrounding the regime and the clear need for tangible progress in strengthening it, approaches capable of harnessing US power, interest and active support in its improvement warrant exploration. Whatever one might conclude about the current US stand on the existing biological disarmament regime, it is quite clear that Washington is more than willing to devote considerable energy and resources to combatting the threat posed by BW (most notably through national or “homeland” defence and deterrence). Indeed, given the extent of the US effort, it is clear that an ability to channel such interest back in the direction of the BTWC could pay strong dividends.

protocol.⁶⁰ In time, moreover, the scope of the mechanism could be further extended (e.g., from investigations of alleged use of BW's to suspicions of possession).⁶¹

Admittedly, such a proposal contains inherent limitations. Indeed, it may legitimately be viewed as a partial, very "watered down" version of the draft protocol itself.⁶²

Nevertheless, further exploration of such a mechanism need not preclude work aimed at the eventual creation of an effective compliance protocol. In fact, the attempt to negotiate such a legally-binding arrangement could form a basis for a continuation of the work of the AHG -- offering a useful pretext through which to overcome Washington's current opposition to the continuation of the group's mandate. Simply put -- through active exploration of the US-inspired idea, the position of the AHG -- and the opportunity for pursuing a more ambitious strategy through it at some later date -- would be reinforced.

Alternatively, should such a move prove unacceptable, efforts to continue the work already undertaken by the AHG should go forward through the institutional channels which other initiatives would provide. Precisely what such an approach would entail in terms of specific processes remains somewhat unclear. Yet it would most likely involve gradual movement toward a protocol via a system of annual conferences backed by expert discussions. These discussions would draw upon the considerable experience of the AHG as well as on recent reactions to the existing draft in an attempt to devise -- if possible -- an improved model for future consideration and eventual adoption.

c) A Canadian Contribution

Obviously, the degree to which the measures proposed will actually work to strengthen the regime depends heavily on the willingness of states parties to actively support their adoption and implementation. And given the need to supplement many of these initiatives with tools capable of more fully insuring their effectiveness, much may well depend on the power of existing expertise and example.

To this end, a unique role might be played by Canada -- both at the upcoming review and in its aftermath. Not only has Ottawa been a tireless advocate of biological disarmament and a strengthened BTWC, but has consistently worked to demonstrate Canada's compliance with regime requirements in a manner as transparent and extensive as possible. Such efforts have included not only detailed and timely reporting of ongoing practice in accordance with the regimes existing CBMs,⁶³ but also regular efforts to review its existing export controls and domestic legislation to insure that it is in full accordance with regime

⁶⁰ As such, the measure may well offer a realistic basis for negotiation.

⁶¹ Tucker recommends that the proposal be extended immediately to include such coverage. Yet such a move may be unwise. Indeed this could work to complicate the chances for adoption at a point when even some progress on legally-binding verification is badly needed.

⁶² At the same time, if such a "watered down mechanism" fails to gain support -- it is difficult to comprehend how the "more ambitious" draft protocol could be expected to fair much better -- at least in the near term.

⁶³ As indicated earlier, Canada has included new and modified CBMs in its 2002 return in an attempt to increase confidence in its biological-related activities .

provisions and capable of meeting any challenges which may arise as a result of changing conditions and circumstances.

In fact, Canada's is currently in the process of toughening its existing export controls with "catch-all" regulations, and supplementing its capabilities for regulating domestically-acquired pathogens. It is also bolstering legislation on the domestic front through adoption of a Biological and Toxin Weapons Implementation Act. Such legislation would represent an important supplement to the range of measures already in place and would involve *inter alia*, the establishment of a domestic compliance regime consisting of a responsible authority, submission of declarations and facility inspections.⁶⁴

Given the strong emphasis now being placed on the improvement of national efforts to insure compliance with the BTWC's terms, it is possible that much in the Canadian experience can offer useful models for emulation.

The current move toward adoption of additional domestic legislation offers a case in point. Should such efforts prove successful, attempts to insure wide distribution not only of the legislation itself but also the expertise and experiences (i.e. the lessons) crucial to its development and implementation could prove invaluable. Indeed, not only would it increase awareness of strategies capable of strengthening state compliance with the Convention but also the ability to identify and address gaps in existing state capacities for pursuing them.

Accordingly, and along with its broader strategy for supporting a strengthened BW regime, Ottawa should also consider undertaking an careful inventory of existing Canadian biological disarmament practice and legislation with a view to actively promoting it abroad. Once potentially useful measures are identified, subsequent action might include distribution of the legislation along with supporting documents to states parties, the development of a series of seminars or workshops aimed at explaining it and considering its potential applicability further afield, and ultimately a program aimed at offering requisite Canadian expertise and assistance in those cases where actual adoption of such measures encounters obstacles.

CONCLUSIONS

Clearly, the regime governing biological and toxin weapons is under growing strain. And while many of its shortcomings are not new, developments in the international threat environment along with ongoing advances in science and technology are combining to underline its weaknesses and the dangers they represent in a manner not previously experienced.

Unfortunately, circumstances have also combined to insure that the political capacity to substantially improve the regime has declined at the very time when significant reforms are needed most. In particular, differences over the pursuit of a compliance protocol for the BTWC have worked to generate division among regime members and uncertainty as to how best to insure the future health of the regime.

Fashioning an effective and politically viable strategy for strengthening the regime under such conditions is clearly difficult -- particularly in view of the time and effort already invested in attempts to

⁶⁴ See, Government of Canada, "Background Document on Compliance by States Parties with all their obligations under the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction," BWC/CONF.V/3/Add.6, 28 November 2001, p. 2.

secure a compliance protocol. In fact, consideration of the "sunk costs" which attend the protocol option may not only work to increase resentments against those opposing it but to reduce the ability of states parties to insure not only a successful conclusion to the fifth review, but to fashion a viable game plan for improving the regime in the years which follow.

Should this occur, the regime's future would be placed in still greater jeopardy. Indeed, such outcomes would signal a loss of confidence in the ability of the regime to address the threat of BW -- and thereby -- cause further erosion of its credibility and effectiveness. Absent effective international measures to address the threat of BW, the threat itself will likely increase -- as accessibility to the knowledge and technology required to develop BW spreads throughout the international system. And while stronger efforts at national defence may well serve to help deter the potential threat, they alone cannot eliminate it entirely.

Accordingly, all states parties to the regime -- including Canada -- must put aside past disagreements and resentments and focus on reconciling the desirable with the possible. This involves recognition of the fact that measures capable of achieving swift, decisive improvements in the area of a verification/compliance are limited. Most notably, political realities strongly suggest that the creation of a comprehensive, legally-binding compliance protocol for the BTWC is unlikely any time soon.

Yet it also involves recognition that active pursuit of a number of more limited measures -- both in the realm of compliance and elsewhere -- can pay handsome dividends in terms of strengthening the regime. To this end, room exists not only for the adoption of a range of voluntary measures capable of increasing confidence in the regime but for improving the institutional capacity of the Convention itself.

Beyond this, and to the extent that states parties are willing to adopt a flexible attitude toward the development of a verification/compliance mechanism, opportunities may exist for the creation a limited agreement -- based on the US call for a strengthened UN field investigation procedure focussed (at least initially) on allegations of BW use. While clearly not the "ideal" solution to the compliance issue, such a measure may well offer a means of achieving limited gains while at the same time not foreclosing possibilities for the pursuit of a more comprehensive mechanism in future.

Properly pursued, such measures would offer not only a much-needed boost to the regimes credibility in the short term, but would help lay the foundations for better oversight and development of the regime over the longer haul.⁶⁵ The ultimate result would be a stronger, more robust regime and most importantly, a more effective barrier against the threat of biological and toxin weapons.

⁶⁵ Crucial is a willingness to adopt a pro-active approach -- offering where ever and whenever possible -- the political, technical and financial tools by which to facilitate adoption of the measures themselves as well as insure their effective implementation and observance once they are in place.

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