

Strengthening the Effectiveness of the BTW Control Regime – Feasibility and Options

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Introduction

The biological and toxin weapons (BTW) control regime rests to a large extent on the 1972 Biological and Toxin Weapons Convention (BTWC). The BTWC prohibits the development, production, retention and use of BTW and demands their destruction. It entered into force in 1975 and has attracted more than 140 states parties.

Since the BTWC does not contain any provisions to check on the compliance of its member states or to sanction non-compliance, it has often been called a ‘toothless tiger’ that cannot bite the states which do not comply with its provisions. Worse still, this ‘toothless tiger’ is half-blind and is – due to the absence of verification mechanisms – unable to identify its prey in the first place, i.e. those states who are violating the Convention’s provisions.

In order to remedy this unsatisfactory state of affairs, the states parties to the BTWC agreed in 1994 to negotiate a set of measures to complement the BTWC and provide it with the very capabilities it is lacking. These diplomatic negotiations broke down in the summer of 2001 when the US administration declared that it would not support the package deal of measures that was negotiated by the so-called Ad-hoc group of governmental experts (AHG) over the previous six years.

Against this background the paper asks to what extent the effectiveness of the BTW control regime can be strengthened without the package deal of measures as envisioned in the text for a Compliance Protocol that had been negotiated by the AHG between 1995 and 2001. The paper is divided into three parts. The first of these parts starts with an introduction into regime theory, which forms the conceptual basis of the analysis. Following this, a description is given of the biological weapons control regime with the BTWC at its centre. Then a working definition for the effectiveness of a control regime will be provided and the issue of how regime effectiveness can be strengthened will be addressed.

The paper’s second part consists of an analysis of the central elements of the package deal of measures that was negotiated by the AHG. Which

compliance measures were negotiated in the areas of declarations (to be submitted by participating states), visits to facilities or investigations of suspicious activities? How should export controls and cooperative measures in the peaceful applications of the biosciences be balanced? In sum, to what extent would this package deal have strengthened the BTW control regime?

In the third part of the paper, an alternative mix of measures will be discussed that could be implemented short of the complex BTW Compliance Protocol. Which components of the failed Protocol might such an alternative set of measures include? What additional measures might be integrated in it? Given the fact that the main criticism of the Compliance Protocol was brought forward by the US administration, the US proposals of November 2001 and the subsequent decision of the 2002 BTWC Review Conference are taken as starting point for answering this latter question. How do these measures compare to the envisaged Compliance Protocol in terms of strengthening regime effectiveness?

The Conceptual Framework: Regime Analysis

The Concept of International Regimes

The concept of international regimes entered the International Relations arena in the second half of the 1970s and early 1980s in scholarly works on technology management, monetary issues, international trade, and international environmental policy.¹ An attempt to synthesize different approaches was made in a special issue of *International Organization*, and later in an edited volume.²

There are two central aspects of the consensus definition of international regimes: one is to conceptualize international regimes as a subset of international institutions ‘around which actor expectations converge in a given issue area’.³ The second aspect relates to the four-part structure of international regimes, consisting of principles, norms, rules and procedures. As Krasner has summarized:

Principles are beliefs of fact, causation, and rectitude. Norms are standards of behaviour defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for actions. Decision-making procedures are prevailing practices for making and implementing collective choice.⁴

Since international regimes shape expectations, prescribe roles, guide behaviour and thereby create an order among actors on the international level they can be considered a subset of international institutions.⁵ This characterization also avoids confusing them with either international

organizations or international treaties.⁶ Yet, many regimes have their structure formalized in a treaty and utilize an international organization for putting the regime into effect and verifying compliance by regime members, which – in the area of concern here, international security – are almost exclusively states. Another important characteristic of international regimes is their cooperative character, which sets them apart from other international institutions like, for example, a balance-of-power system. Such a system undoubtedly produces patterned behaviour of states, but not necessarily a cooperative one. The function of a balance-of-power system is to maintain a certain structure of the international system that certainly does not exclude the use of force to achieve this end – a behaviour that can hardly be described as cooperative.⁷ Similarly, international regimes have to be distinguished from other forms of cooperative behaviour, such as crisis management, disaster relief activities, and other *ad hoc* arrangements. Regimes, in contrast, are conceived of as durable cooperative mechanisms.

The above-mentioned definition of international regimes has not enjoyed universal support. Rather, the institutionalist approach followed here has been controversial from the outset. Probably the most widely quoted criticism comes from Susan Strange, who argued against the relevance and usefulness of the regime concept already at the time the consensus definition was formulated.⁸ More recently, international institutions in general and the ‘false promise’ they give, have been the subject of a heated academic debate.⁹

But also among students of regime analysis who have been favouring and applying the concept in their own work, a debate has been going on about whether the four-layered structural approach is actually the best way to conceive of international regimes. The purported ‘wooliness’ of the concept already criticized by Strange has led some to propagate a lean definition of international regimes.¹⁰ As will be shown below, the four part structure of Krasner’s definition can not only be related unambiguously to real-world phenomena, but is moreover important for answering the question of how to enhance the effectiveness of international regimes.¹¹

In the course of the conceptual development of international regimes, the applicability of the concept in the issue area of international security initially has been assessed as problematic at best.¹² Yet, later research has clearly demonstrated the feasibility of applying regime theory to the issue area of security policy in general, and non-proliferation of weapons of mass destruction in particular.¹³

Regime analysis has traditionally focused on three major themes relating to regimes: The first set of questions relates to regime formation. Why and under which conditions are regimes created? Scholars interested in the second theme have tried to enrich the debate by identifying the domestic debates and

prerequisites that have an impact on regime formation. The third focus of regime analysis has been on the effectiveness of international regimes.¹⁴

More recently, regime resilience or robustness has been another focus of research¹⁵ and an attempt has been made to link regime analysis with Anthony Giddens' structuration theory in order to overcome some of the shortcomings of regime analysis identified by Levy *et al.*¹⁶

Regime Effectiveness and Counterfactuals

Why Regimes Matter. Research on regime effectiveness has focused on the questions of (1) whether regimes affect state behaviour in an issue area, and (2) whether regimes have an impact on the observable data in the issue area they regulate. Most of this research has been conducted in the area of international environmental policy.¹⁷

While states' compliance with regime requirements is usually seen as one important aspect of regime effectiveness, Downs has pointed out with respect to environmental regimes, that some caution is warranted when relying exclusively on 'compliance as a surrogate for effectiveness', i.e. when relying only on regime effects on state behaviour as a yardstick of determining regime effectiveness.

Because treaty standards are endogenous in the sense that they represent a joint strategy of the states that set them, and because states and the politicians who run them are motivated to appear successful, actors have an incentive to tie the terms of agreements to what they expect to be achievable.¹⁸

Yet, there is clearly a difference between environmental regimes where the adequacy of the targets to be achieved can be 'freely defined' by participating states, and security regimes in which the abolition of a class of weaponry is the goal to be achieved.

For any regime goal to be realized, states participating in the regime have to internalize the stipulations of the regime. How this process works in individual countries, has been elaborated in some detail by Harald Müller. He analyses the internalization of regime principles, norms and rules and their effect on the decision making process in three case studies on (1) the US and the Strategic Defense Initiative (2) the Soviet Union and the Krasnoyarsk radar, and (3) West Germany and nuclear export controls.¹⁹ Although this may be the best way to assess regime effects in individual member states of a regime or an international institution in general,²⁰ the method is very difficult to apply when the overall effectiveness of a regime with more than 140 states parties is to be judged. Therefore, a different route is chosen here: two counterfactuals will be constructed, which will serve as 'possible worlds' against which actual regime performance will be judged.

No Regime- and Collective Optimum-Counterfactuals. Counterfactual thought experiments are implicit in the establishment of many, if not all, causal connections in political science. As Fearon has summed up:

Counterfactuals make claims about events that did not actually occur ... such propositions play a necessary and fundamental, if often implicit and underdeveloped, role in the efforts of political scientists to assess their hypotheses about the causes of the phenomena they study.²¹

Seen from this perspective, making the explicit claim that a regime has an effect, always implies the hypothesis, that in case of the absence of the regime, state behaviour and the international environment in which states interact would look differently.²² Yet constructing counterfactuals to establish the effectiveness of international regimes is facing the same principal difficulties that any counterfactual reasoning has to overcome: first, the regime has to be ‘isolated’ from a potentially large number of competing explanatory variables, with which it might display a considerable degree of interdependence. Second, the number of possible worlds that can be constructed with counterfactuals are in principle infinite.

In order to address these two difficulties, Thomas Biersteker – drawing on earlier literature by Max Weber and Jon Elster – has formulated five guidelines for the use of counterfactuals in assessing regime effectiveness: first, the use of counterfactuals should be stated explicitly; second, they should be used in a clearly articulated theoretical framework; third, a distinction should be drawn between the causes of events and less stringently related background conditions of events; fourth, a counterfactual has to have a legitimate antecedent, i.e. one that can produce the assumed consequent, i.e. the possible world that is constructed with the counterfactual, and; fifth, so-called branching points that serve as starting points for the historical development of the counterfactual world have to be identified and articulated.²³

Yet, Helm and Sprinz argue that to construct only one counterfactual in which the absence of the regime is assumed, might give only a ‘very vague indication of how well a regime serves the purpose it has been designed for.’²⁴ They present a variant of Downs’ argument – mentioned above – against relying exclusively on state performance as yardstick for judging regime effectiveness. To overcome this vagueness Helm and Sprinz employ a concept advanced by Underdal, i.e. the ‘concept of collective optimum’.²⁵ They suggest to ‘derive the collective optimum by way of another counterfactual – namely, the hypothetical state of affairs that would have come about with a perfect regime.’²⁶

With the no regime and the collective optimum regime counterfactuals as the opposing poles on the spectrum of regime effectiveness, the actual

regime performance in most, if not all, cases of international regimes will fall somewhere between the two poles.

The next part of the paper will link this analytical tool to the BTW control regime and thus make it possible to position the regime in terms of its effectiveness on the spectrum between the two counterfactuals, both of which will be developed in this section, too.

Regime Analysis Meets BTW

Biological and Toxin Weapons – the ‘Nature of the Beast’

Biological and toxin weapons are usually subsumed with nuclear and chemical weapons under the heading of WMD (weapons of mass destruction) or NBC weapons. While these may be convenient shorthands for otherwise unwieldy technical terms, there exists a danger that the careless repetition of these acronyms disguises the properties of BTW more than it reveals their characteristics and alerts to the differences among the three categories of weapons.

In contrast to chemical weapons (CW), the causative agents for BTW are not man-made, but occur in nature. While CW agents are highly toxic synthesized chemical compounds, a large number of pathogenic organisms are endemic in many parts of the world. They can be isolated from naturally occurring samples, grown in (relatively) small laboratories, and disseminated as either ‘wet-slurry’ or in a dried and powdered form. A full-fledged offensive military BTW program would also include the development and testing of delivery systems and storage and stockpiling facilities.²⁷ Not only is the number of potential agents already very large, it continues to grow, as new diseases emerge in nature.²⁸

BTW agents are usually assigned one of five different categories: bacteria, such as *Bacillus anthracis*, the causative agent of anthrax, *Yersinia pestis* which causes bubonic plague, and *Francisella tularensis* which causes tularemia; viruses, such as the ones that cause smallpox, Ebola, and Venezuelan equine encephalitis; rickettsiae which can cause Q-fever, and typhus; fungi, such as the *Aspergillus* fungi; and toxins, which are non-living products from micro-organisms but also plants or animals, like botulinum toxin, ricin, or saxitoxin, respectively. So, most BTW agents are not only different from CW agents²⁹ or nuclear weapons materials, but it is a diverse group in and of itself, in which some agents are mostly incapacitating, while others have a rather high lethality. Also, some BTW agents will be localized in their effects while others – due to their contagiousness – may cause widespread epidemics. Following from this diversity, BTW agents can be employed in a number of attack scenarios,

ranging from assassinations of individuals to large-scale aerosol releases, which could theoretically cover whole population centres and affect many thousand people.³⁰

While the often observable focus on pathogens that would be employed against humans is understandable, one must not lose sight of a number of animal and plant diseases, whose causative agents could be utilized for agro-terrorist attacks against crops or livestock.³¹

To make control efforts even more complicated, the material, technologies, and know-how needed for offensive military BTW-programs or the pursuit of terrorist BTW attacks are of a so-called dual-use character. Not only can they be used for offensive purposes, but many of the 'ingredients' of a BTW program have perfectly legitimate applications. Thus, it cannot be deduced from the mere presence of a seed culture of a particular pathogen or a specific type of equipment that a state pursues an offensive BTW program. This material and equipment might be employed in a perfectly legitimate civilian use such as the production of dairy products or vaccine production. Or some military biodefence activity – which is permitted under the provisions of the BTWC – might be ongoing.

Furthermore, the nature of biological warfare is being changed by the ongoing revolution in biotechnology. As Dando has shown for the 'three generations of offensive biological warfare programs' of the twentieth century, all the military programs were 'developing on the back of growth in scientific knowledge'.³² According to his account, military BTW programs followed scientific discoveries in the areas of (1) bacteriology, laying the ground for the BTW based sabotage activities during the First World War, (2) aerobiology, providing for the knowledge to spread BTW agents over large geographic areas, and thereby giving also non-contagious agents their potential to be used as mass casualty weapons, and (3) genetic engineering, which played an important role in the BTW program of the former Soviet Union. According to one account, the Soviet program encompassed genetically modified pathogens: 'during the 1980s, the Soviet Union developed antibiotic-resistant strains of plague, anthrax, tularemia, and glanders'.³³

Concern about the spread of these technologies and tools has been expressed repeatedly. In the 1997 Report of the US Secretary of Defense on the threats of NBC proliferation, four potential misuses of genetic engineering were singled out:

Genetically engineered vectors in the form of modified infectious organisms will be increasingly employed as tools in medicine and the techniques will become more widely available.

Strides will be made in the understanding of infectious disease

mechanisms and in microbial genetics that are responsible for disease processes.

An increased understanding of the human immune system function and disease mechanisms will shed light on the circumstances that cause individual susceptibility to infectious disease.

Vaccines and antidotes will be improved over the long term, perhaps to the point where classic biological warfare agents will offer less utility as a means of causing casualties.³⁴

Since then the biotechnology revolution has advanced steadily: the human genome as well as the genomes of a number of pathogenic microorganisms have been decoded and functional genomics, i.e. the attribution of parts of the gene sequence to bodily functions is progressing rapidly. One of the driving forces behind this revolution is the pharmaceutical industry which itself is undergoing a 'revolution in the process of drug discovery' where the knowledge of '[g]enomic sequences allow[s] the identification of many new possible targets for drugs.'³⁵ At the same time the knowledge about the numbers, the differences in, and the functioning of cell receptors that would be the target for such treatment has accumulated significantly over the past few years. As Dando points out: 'The more we learn about cell receptors, the more we can potentially interfere with their operation for both benign purposes (when they malfunction in disease) or malign purposes to construct new biological weapons'.³⁶

It is against this background of 'the nature of the beast', that efforts to strengthen the BTWC control regime have to be judged.

Scope and Structure of the BTW Control Regime

The origins of the BTW control regime date back to the 1925 'Protocol For the Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare'.³⁷ Originally being conceived of as a response to the wide-spread use of chemical weapons (CW) during the First World War, the initial focus of the negotiators was exclusively on CW. Only upon a Polish initiative were 'bacteriological methods of warfare' included into the Protocol text.³⁸ It entered into force in 1928 and has currently 133 member states.³⁹ Upon ratification or accession to the Geneva Protocol many states issued unilateral declarations limiting the circumstances under which they would feel themselves bound by the provisions of the Protocol.⁴⁰ As a result, it has been widely regarded as a no-first-use agreement among states parties to the Protocol. This assessment had to be modified in recent years as a number of states have given up their reservations.⁴¹

The 1972 BTWC builds on the legacy of the 1925 Geneva Protocol and vastly expands the 'repository' of regime principles and norms.

Furthermore, there are no unilateral declarations limiting the scope of the applicability of the BTWC and its provisions are to be applied *erga omnes*, not only with respect to other states parties. The regime was further expanded in 1990 when the so-called Australia Group – a grouping of like-minded states which harmonize their export control policies and exchange information on ‘problematic’ export requests – extended the scope of their activities so as to include BTW-related material and equipment.⁴²

Principles Underlying the BTW Control Regime. If one looks first at the principles underlying the BTW control regime, four can easily be identified. The first principle is related to the conviction of regime participants that the *use of BTW agents constitutes an abhorrent act of warfare and is therefore prohibited*. Most commonly, this principle is referred to as the ‘BW taboo’. It was first expressed in the 1925 Geneva Protocol which states that the ‘use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices, has been justly condemned by the general opinion of the civilised world’, ‘the prohibition of such use has been declared in Treaties to which the majority of Powers of the world are Parties’, and in which agreement is reached to ‘extend this prohibition to the use of bacteriological methods of warfare’. In a similar vein, the states parties to the BTWC express in its Preamble their determination, ‘for the sake of all mankind, to exclude completely the possibility of bacteriological (biological) agents and toxins being used as weapons, Convinced that such use would be repugnant to the conscience of mankind.’

According to the second principle, on which the BTW control regime is based, *peaceful uses of the biosciences are a legitimate undertaking*. Again, this principle can be inferred from the wording of the 1925 Geneva Protocol which explicitly bans the use of CW and BTW agents ‘in war’. Peaceful applications of such agents are clearly not covered by the prohibition. More importantly, the wording of the prohibitions contained in Article I of the BTWC reflect this peaceful uses principle. Accordingly,

Each State Party to this Convention undertakes never in any circumstances to develop, produce, stockpile or otherwise acquire or retain:

(1) Microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes.
[emphasis added]

This so-called general-purpose criterion not only makes it clear that peaceful uses of the biosciences are legitimate undertakings for states parties to the BTWC, but makes them such even if they involve pathogenic

organisms or toxins in quantities and for purposes other than use as weapons.

From this reasoning, the third regime principle can be derived. It expresses the *assumption of states subscribing to the regime that defenses against the threat or use of BTW are permitted*, which is also expressed in the above quote from Article I of the Convention. This principle is rooted in the belief that the peaceful uses of biosciences cannot be taken for granted – be it for the lacking universality in membership or for a state party cheating on the obligations it has assumed. However, while this underlying belief has led in both the nuclear non-proliferation regime and the CW control regime to the manifestation of yet another principle – the jointly held belief that verification of treaty obligations is essential for the proper functioning of the regime – this has not materialized in the BW context. Neither the 1925 Geneva Protocol nor the BTWC makes explicit reference to such a principle.

Last but not least, the fourth principle underlying the BTWC control regime is the complementary principle which is clearly stated in preambular paragraphs 2 to 4 of the BTWC: ‘the 1925 Geneva Protocol is complemented by the BTWC’. Nothing in the latter can be construed to contradict the content of the former.

Norms of the Regime. Central to the BW control regime is the *non-use norm*, which is explicitly spelled out in the 1925 Geneva Protocol and implicitly contained in Article I of the BTWC. Although this article of the Convention makes explicit reference only to the *non-acquisition norm*, it can be inferred from this that use is prohibited as well. The *non-acquisition-norm* – in contrast to the nuclear non-proliferation regime – applies *erga omnes*, i.e. the world is not divided into haves and have-nots. Similarly, all BTWC states parties are entitled to BTW-related activities for defensive purposes.

The *disarmament norm* is contained in Article II of the BTWC. It requires that all states parties either destroy or divert to peaceful purposes all agents, toxins, equipment and means of delivery related to their BW holdings within nine months after entry into force of the BTWC. Again, this stands in contrast to the nuclear non-proliferation regime where the nuclear haves have subscribed to a much weaker disarmament norm, and also during the NPT Review and Extension Conference refused to agree on a timetable for nuclear disarmament steps.

The *non-transfer norm* is contained in Article III of the BTWC, according to which states parties forswear to ‘transfer to any recipient whatsoever, directly or indirectly, and not in any way to assist, encourage, or induce’ any actor to acquire any of the items specified in Article I of the

BTWC. The non-transfer norm is additionally strengthened through Article IV of the BTWC which calls for national implementation measures to put the basic obligations under the Convention into effect. A group of states, known as the Australia Group, that has sought to harmonize their national export control activities, regards these two Articles as the legal basis for this activity.⁴³

In addition, the *cooperation norm* is spelled out in Article X of the BWC, representing from the point of view of many BTWC states parties – mostly from the developing world – the flip side of the non-acquisition and non-transfer norms. The *assistance norm* is contained in Article VII. It stipulates that states parties will come to each other's assistance in case of the use or threat of BTW against one of them. The *consultation norm* is spelled out in Article V of the BWC, in which states parties agree to 'consult one another and to co-operate in solving any problems which may arise in relation to the objective of, or in the application of the provisions of, the Convention'.

In addition, the normative requirement to *continue negotiating a CW treaty* was written into Article IX of the Convention.

Furthermore, the *harmonization norm*, albeit manifesting itself in a somewhat different, i.e. implicit form, guides the behaviour of states participating in the Australia Group, which have agreed to harmonize their export control policies, to share information on 'suspicious' requests for supplying CBW-related dual-use items and technologies, and to consult one another in case of export denials of certain dual-use items and technologies to states of proliferation concern.

Finally, an *investigation norm* is practically absent from the existing BTW control regime. Justified as this omission may have been at the time of the conclusion of the BTWC, the clandestine offensive BTW programs of Iraq and the Soviet Union have clearly shown that the hypothesis of military disinterest in BTW no longer correspond to a reality in which even a BTWC depositary engaged in prohibited activities on a massive scale. The absence of both an investigation norm and, consequently, of any concrete rules which could put the norm into effect in everyday state practice is all the more disturbing as in the implementation of other regime norms also would benefit from some form of inspection or at least increased transparency. It was not the least this realization by a large number of BTWC states parties which triggered the process to enhance the BTWC's effectiveness analysed below.

The Missing Parts of the Regime: Rules and Procedures. This points to the missing parts of the BTW control regime, i.e. the rules and procedures for putting into effect the more abstract principles and norms. It also identifies

the area in which the Ad Hoc Group (AHG) could have expected to make the biggest contribution to the strengthening and further development of the regime structures. However, one has to avoid the pitfall of assuming that any rules are good rules as long as they spell out more concretely the less specific guidance contained in the regime norms. This certainly is not the case. Rather, rules and norms have to be related in such a way that the former do not leave the latter as empty shells or, even worse, contradict them.

As to the few existing rules and procedures of the BTW control regime that can be identified, three articles contain vague guidelines for states parties. Article IV tasks states parties to implement the pre- and pro-scriptions of the Convention on the domestic level. In Article V states parties agree to 'consult one another and to cooperate in solving any problems' related to the implementation of the BTWC. The procedures contained in Article VI allow states parties to lodge a complaint of non-compliance with the UN Security Council. The weakness of these rules and procedures stems on one hand from their impracticability or lack of specificity. On the other hand they are not supported or systematically linked to the norms of the regime.

The remaining rules and procedures are exclusively related to the organization and governance of the BTWC. Article XI contains the procedures for amending the Convention, Article XII spells out the initial review procedure, according to which five years after its entry into force a conference of states parties to the BTWC shall be held. Furthermore, the withdrawal procedure is set out in Article XIII, 2 and Article XIV contains the stipulations for ratification of, accession to, and entry into force of the BTWC.

To illustrate what the concretization of the norms of a disarmament and non-proliferation treaty of the BTWC's complexity might look like, a brief look into the CW control regime, where the 1993 CWC is regulating state behaviour, might be a useful exercise. One caveat, however, has to be made at this point. It lies in the differences of the substance matter that the two regimes cover: CW and ways to control them are in many ways similar to BTW, but there are crucial differences, which preclude the option of just copying the detailed provisions of the CWC's Verification Annex and pasting them into the BTWC Compliance Protocol – a procedure that seems all too tempting with the capabilities of modern word processing software, but at the same time a pitfall that was well understood and avoided by the negotiators of the AHG.⁴⁴

Assessing the Effectiveness of the BTW Control Regime

Applying the general remarks made earlier about regime effectiveness and counterfactual analysis to the BTW control regime shall take place in three

steps: first, a plausible no regime historical counterfactual of a world without the BTWC will be developed. Second, an ideal case collective optimum counterfactual will be presented, in which compliance by states parties with the BTWC is assumed to be 100 per cent and goal achievement of the regime in the issue area that it covers is complete. In the third step the actual performance of the BTWC will be located on the spectrum between these two poles.

Historical Counterfactual: A World Without the BTWC. The point of departure for this historical counterfactual has to be taken in the late 1960s when the negotiations on the BTWC came to a standstill, largely because of a disagreement over whether to negotiate one international agreement for both chemical and biological weapons or whether to proceed with negotiations on biological weapons and defer the CW issue to a later time.⁴⁵

This deadlock on the international level coincided with the unilateral renunciation of first biological and then toxin weapons by then US president Richard Nixon. There was no interest on the part of the Nixon administration in just achieving reciprocal action from the Soviet side.⁴⁶ Rather, the aim was to negotiate a multilateral agreement with a large number of member states in order to foreclose the option of BTW acquisition to as many states as possible. Thus it is unlikely that this renunciation – which, as has recently been confirmed by an analysis of newly available sources, was influenced by reasons unrelated to arms control considerations⁴⁷ – would have withstood the failure to conclude the BTWC. Similarly, it is unlikely, that the US Senate would have ratified the 1925 Geneva Protocol. This belated ratification in 1975 was closely linked to ratifying the BTWC.

One can further assume, that, with growing suspicions of Soviet offensive BTW activities in the late 1970s and the overall deterioration of the relationship between the two superpowers, the question of restarting the offensive US bioweapons program would have gained a high political saliency. If this had occurred, it is conceivable that BW would eventually have been introduced into the planning and doctrine of not only US military forces but also of its NATO allies.

With the legitimization of BTW as instruments of warfare having progressed that far, it is conceivable that the example set by one of the world's two leading military alliances would have influenced actors in other conflict-ridden regions of the world, e.g. on the Indian subcontinent, where it has become known only recently, that India had an offensive chemical weapons program.

It also seems fair to assume that in such a counterfactual world the January 1992 UN Security Council statement at the Heads of State and

Government level would not have come about, according to which the proliferation of NBC weapons represents a threat to international peace and security.

Furthermore, in a world without the BTWC control regime, it is unlikely that the action of the international community against Iraq after the latter's invasion of Kuwait in August 1990 would have been as determined as it actually was. First of all, one has to question whether a coalition of the willing could have been formed to oust Iraqi occupation forces from Kuwait in 1991. Although Iraq in the real world had used chemical weapons in its war against Iran and there were suspicions that Iraq was also operating an offensive BW program, the disincentive to engage in military action would have been far greater in the face of an openly CBW-armed Iraqi regime. Second, if this hurdle would have been overcome, one has to wonder whether the UN Security Council Resolution containing the cease-fire conditions would have placed such a strong emphasis on dismantling Iraqi CBW capabilities.

It is equally unlikely that negotiations of the Chemical Weapons Convention would have borne fruit without the BTWC's existence and its Article IX, which explicitly obligates states parties to engage in negotiations with the aim of concluding an agreement prohibiting CW.

This clearly is only one of the many conceivable no-regime counterfactuals of a world without a BTWC. It is not claimed to be the only one possible. The only claim made is to the plausibility of the 'alternative world' briefly sketched out in the preceding paragraphs.

Engaging in Wishful Thinking: A Collective Optimum Counterfactual. How, in contrast, might an ideal world from the point of view of optimal regime performance look? Using the same branching point as in the no-regime counterfactual, one would have to assume, first of all, that the BTWC negotiations were concluded in the way events unfolded in the real world. In keeping with this assumption, it would – for example – not contain an elaborate verification system as is included in the Chemical Weapons Convention. Assuming that such a verification apparatus with intrusive inspection mechanisms could have been negotiated in the early 1970s would require changes in too many factors and would thus run counter to the guidelines outlined above for constructing plausible counterfactuals. Likewise, the assumption of universal adherence to the regime seems to be stretching the counterfactual too far.

Instead, it seems more plausible to assume that states parties, i.e. those states having ratified or acceded to the BTWC, would have complied with the Convention's basic stipulations, and not have sought to exploit its loopholes. This would have led to a world in which especially the former

Soviet Union would not have undertaken the massive offensive BTW program it did. Rather, after some debate regime proponents in the Soviet system would have prevailed and the norms of the regime would have been internalized. In light of Soviet compliance with other arms control and non-proliferation agreements concluded at the time, this is a plausible assumption.

Similarly, the CBMs that were agreed upon during the Review Conferences in 1986 and 1991 would have been taken seriously by states parties, with comprehensive, accurate and timely declarations being made annually. Thereby the transparency of their BTW-related defence activities would have increased considerably over time.

Resulting from the strengthening of the principles and norms of the regime, the response to known cases of violation would have been much stronger. As a result, the situation in Iraq would look much more favourable today, with the Iraqi NBC weapons programs completely dismantled under the conditions of the original UN cease-fire resolution and with the ongoing monitoring and verification of a still existing UNSCOM providing transparency of dual-use activities.

Under the assumption that bioterrorist activities are to some extent 'influenced' by state behaviour related to BTW, one would have to assume that the comprehensive regime compliance would also limit the access to material and technology of terrorist groups and thereby decrease their capability to engage in BTW activities.

Actual Performance of the BTW Control Regime.

The principles of the BTW control regime are shared by the overwhelming majority of states and its norms guide these states' behaviour. In fact, no one state can openly declare to possess and intend to use BTW – even if only as a second strike weapon after deterring an aggressor has failed.

The weaknesses of the regime stem from three sources: (1) its obvious lack of compliance mechanisms and the resulting uncertainty as to the degree of regime compliance; (2) a reluctance or inability to utilize the few procedures that are available, and (3) the known and admitted, at least in part, non-compliance of a very small number of states parties. With respect to the latter, it has to be stressed, that the number of states to which this applies is indeed very small, i.e. the former Soviet Union and Iraq.

The second source of regime weakness can be illustrated by the issue of past Soviet non-compliance and the 'solution' that was adopted for the problem. The past Soviet BTW program clearly violated the disarmament and non-acquisition norms of the BTWC control regime. Yet, the weak, but still existing, consultation procedure contained in Article V of the BTWC was side-stepped by the depositary states of the Convention in favour of

what has become known as the Trilateral Process. This parallel strategy foresaw to create transparency through reciprocal visits to both Russian and US and British industrial facilities. Yet, the process became bogged down and turned out to be unsuited to adequately address Soviet 'non-compliance' by making transparent the extent of the regime violation and by demonstrably showing that the Former Soviet Union offensive BTW work had been brought to an end. Obviously, as Iris Hunger and Marie Chevrier have concluded:

pressing the Russian Federation to provide accurate information about former BTW programmes and their ultimate disposition may simply not be regarded as 'important enough' to policymakers in the other two depositary states to risk other aspects of their relationship with the Russian Federation.⁴⁸

The long-standing rumours and recent public accusations of a number of states of undertaking clandestine offensive BTW programs illustrates the uncertainty stemming from the absence of regime procedures that would allow the resolution of such uncertainties one way or the other. As a result the regime participants have to fall back on national intelligence means, and where these are lacking – which applies to most states parties – states are left to follow or reject the analysis brought forward by the few who dispose of these capabilities.⁴⁹

In sum, the BTWC control regime – although it has influenced the behaviour of the majority of states parties and has led to a world in which open BTW proliferation is practically absent – has proven to be rather weak when it was tested by Soviet non-compliance. Similarly, the high degree of uncertainty surrounding the activities of some states that are viewed by other regime participants with suspicion, has resulted in a low confidence that the expectations of all states parties to the regime are actually converging around the principles and norms of the BTWC control regime. As a result, the regime is regarded as being half-way effective.

In the next section the work of the AHG will be analysed and an assessment will be given as to how far the Compliance Protocol would have moved regime performance closer to the ideal regime world.

The Efforts to Strengthen the BTWC Through a Compliance Protocol

In order to compensate for the lack of verification or compliance measures in the BTWC, the Second and the Third BTWC Review Conferences in 1986 and 1991, respectively, decided on a set of confidence building measures (CBM). The actual submission of these annual declarations by BTWC member states, however, has been unsatisfactory at best.⁵⁰ When the

past Soviet offensive BTW program was officially admitted and with the persisting suspicions about the Iraqi BTW program gaining increasing publicity, the assumption of little military value and consequently little military interest in developing offensive BTW capabilities could no longer be upheld. In addition to agreeing on a second set of CBMs, the 1991 Review Conference set up the so-called VEREX-Group of governmental experts to investigate the technical feasibility of measures to enhance the confidence in compliance with the BTWC provisions. This group reported in the fall of 1994 to a Special Conference of the states parties to the BTWC, which in turn created the Ad-hoc Group (AHG) to negotiate a legally binding instrument to complement the BTWC.

Yet arriving at a consensual negotiating mandate for the AHG was far from easy. First of all, the US was highly sceptical of the AHG to negotiate 'verification'-measures, because it rejected the idea that the BTWC is verifiable on principled grounds.⁵¹ Thus, the AHG was tasked to negotiate 'measures to enhance compliance' with the BTWC. Second, Russia insisted that the AHG consider 'definitions and objective criteria' in its mandate. Third, a number of states of the Non-Aligned Movement (NAM) do not see BTW as a threat to their national security and therefore had to be brought into the process by including into the mandate the negotiation of measures to strengthen international cooperation in the peaceful uses of the biosciences.⁵² Finally, the already existing – but poorly implemented – CBMs were to be taken into account by the negotiators of the AHG and new CBMs should be considered.⁵³ Negotiations started in January 1995 and progressed until July 2001, when the overall approach taken in the negotiations up to that point was rejected by the US administration and the draft protocol text declared to reduce rather than increase security against BTW.⁵⁴

In addition to the topics spelled out in the mandate of the AHG, further issues that had to be addressed were identified during the negotiations. Consequently, it is not possible in this analysis to provide a comprehensive treatment of all aspects of the protocol.⁵⁵ An analysis of all components of the AHG's mandate – let alone all the issues discussed by the AHG over the years like, for example, the structure and tasks of the organisation to oversee the Protocol's implementation⁵⁶ – is beyond the scope of this paper. Thus, only a selection of issues will be covered: first, declarations, visits and investigations are included since they form the core of the Protocol. In addition, export controls and the peaceful uses of biosciences are incorporated in the mandate on the insistence of a number of NAM countries, and were recurrent in the debates on the shape and content of the Protocol.⁵⁷

Declarations

Declarations by states parties on a number of facilities and activities of direct relevance to the object and purpose of the BTW control regime form the basis of measures to increase the transparency of states parties' actual behaviour. Only on the basis of declarations of dual-use facilities – which in principle could be easily transformed from permitted to prohibited use – can a coherent system of declaration follow-up procedures – including visits – be established and administered by the organisation to oversee compliance with the Protocol.

Early in the negotiations of the AHG it became obvious that the sensitivities of some states parties as to a potential loss of national security relevant or commercially sensitive information were much higher than for example in the case of the CW control regime.⁵⁸ This higher sensitivity is related to both the character of the biotechnology and pharmaceutical industries (which in some cases are not established) that require large up-front investments – and with military concerns that too much openness about biodefence activities might reveal one's weaknesses to a potential aggressor contemplating the use of BTW.⁵⁹

The approaches favoured by states with biodefence activities clearly sought to minimize the burden that the Protocol would put on their own biodefence programs and activities through the inclusion of specific declaration triggers. States with big defensive programs for example favoured that only sites be declared, where more than 15 person years were devoted to R&D activities in work on pathogenicity or virulence, aerobiology, or toxicology. In contrast, small biodefence program operators sought to include language in the Protocol so that biodefence facilities had to be declared where more than five person years or persons are dedicated to biodefence work and list those facilities (without getting into the specifics involved in a declaration) where between two and five persons are involved in biodefence work.⁶⁰

The treatment of declarations in the Compliance Protocol reflects these diverging interests both with respect to initial declarations as well as annual declarations that states parties would have to file.⁶¹ According to Article 4 of the Protocol, initial declarations of a number of facilities and activities have to be submitted within 180 days after entry into force of the Protocol, annual declarations not later than the end of April for each year.

Initial declarations are required (1) for past offensive BW programs which BTWC states parties acceding to the Protocol have undertaken between 1946 and entry into force of the Convention for the respective state – in case of the USA and the Russian Federation the latter year would be 1975, and (2) defensive BTW programs and/or activities conducted during the 10 years preceding the entry into force of the Protocol for the state party.

Article 4 further specifies the requirements for annual declarations of national biological defence programs and/or activities, maximum biological containment facilities, high biological containment facilities which exceed 100m² and have produced vaccines or other specified production or have carried out genetic modification of any agent or toxin contained in the ‘List of Agents and Toxins’ as specified in Annex A to the Protocol, plant pathogen containment, specified work with listed agents and toxins and specified production facilities.

These provisions detailing the declaration requirements for states parties to the Protocol would have impacted on the effectiveness of the regime, in so far as they would have provided part of the regulatory basis for a new transparency norm. At the same time, the combination of declaration triggers would have led to a situation where only the most relevant facilities – in terms of presenting a danger to the object and purpose of the regime – would fall under the declaration requirement. Although this would not completely eliminate the risk of loss of national security relevant or confidential proprietary information, it would substantially reduce the associated risks.

Declaration Follow-Up Procedures and Non-Challenge Visits

Proponents of non-challenge visits see a number of positive functions such visits can play, when conducted by an impartial international organisation. They argue that such on-site measures increase the transparency of BW-relevant activities, enhance confidence in the treaty-abiding behaviour of states parties by increasing the likelihood that violations are detected, contribute to the clarification of ambiguous declarations, and enhance cooperation among states parties, either bilaterally or through the international organisation. Critics of non-challenge visits counter that the detection of treaty violations through such weak on-site measures is highly unlikely. Rather, there exists – according to this group of states, which includes the US – the danger that visits lead to the loss of confidential business or national security information and in addition might provide a false sense of security. Consequently, if they cannot be avoided altogether, the frequency and intrusiveness of such on-site measures has to be minimized.⁶²

Over the course of the AHG negotiations, a number of different visit concepts have been advanced and hotly debated. Discussions on these concepts have displayed a second dividing line, which relates to the question of whether visits should only be conducted in declared facilities or whether non-declared ones should be a possible target for visits too. While the Western Group in the AHG hold the latter position, a number of non-aligned countries like China, India, Iran and Pakistan argue that only declared facilities should be subjected to visits.⁶³

Three different types of visits – randomly selected transparency visits, voluntary assistance visits, and declaration clarification visits – were eventually included in the text of the Compliance Protocol, which stipulates in Article 6, paragraph 5 that the total number of all visits shall not exceed 120 per calendar year. Randomly selected transparency visits are to increase confidence in the consistency of declarations with activities at the declared facilities, and to increase the transparency of declared facilities. Voluntary assistance visits allow a state party to invite the inspectorate of the BTWC organization to conduct a visit on its territory in order to obtain technical assistance and information related to the implementation of the obligations under the Protocol or otherwise. In contrast, declaration clarification visits or procedures serve to clarify a potential omission of a facility in a states party's annual declaration. Especially for randomly selected transparency visits and for clarification visits, the Protocol contains detailed guidelines for the initiation, conduct and reporting on these types of visits.

The three types of visits put emphasis on different aspects of the follow-up procedures to declarations to be submitted by states parties. They also present differing degrees of intrusiveness with voluntary assistance visits – to be initiated by the visited state party itself – at the low end and declaration clarification procedures – in the case of facilities that apparently should have been declared but were not – at the upper end of impacting on a state's sovereignty. They thereby offer a graduated set of rules and procedures for bringing to life the transparency norm, allowing states parties to demonstrate their compliance with the non-acquisition norm, and presenting an additional procedure for putting into effect the cooperation norm – all of which are absent from the current BTWC control regime.

Investigations

The purpose of investigations in general terms is to provide the regime with the means to check on suspected non-compliant behaviour by states parties to the Protocol. Compared to the usage of the term 'inspections' in the CWC context, investigations in the context of the BTWC Compliance Protocol only refer to the equivalent of CWC challenge inspections and CWC investigations of alleged use. As mentioned above, the concept of routine inspections as found in the CWC can be compared with the visits concept, but even here some delegations in the AHG – like the US and some NAM countries – were throughout the negotiations very hesitant to agree on anything close to routine on-site measures, whatever the terminology attached to them might be.

One issue, upon which AHG members were unable to agree relates to the initiation of an investigation and the related question of how an investigation that might be frivolous can be stopped. Basically, two different

approaches could be identified. According to the first one, the so called ‘red-light’ approach, an investigation request will go forward unless a majority (which would have to be defined depending on the circumstances of the request) of the executive council of the future organization decides otherwise. This position was supported by states – like the UK – who wish to see a low threshold established for such requests and expect an effective compliance regime to result from such a procedure. The ‘green-light’ approach, in contrast, would allow for an inspection to proceed only if a majority of EC members approves it. This was championed by those states in the AHG who wanted to raise the threshold for triggering investigations and thereby expected to prevent frivolous challenges or minimize the risk to national security assets or of industrial espionage.⁶⁴

The Protocol distinguishes between two types of investigations: field and facility.⁶⁵ While the latter one focuses on ‘the perimeter around a particular facility at which there is a substantive basis’ for a non-compliance concern related to Article I of the BTWC, field investigations are concerned with larger geographic areas, where either similar cause for a non-compliance concern exists or a disease outbreak might be directly related to activities prohibited by the Convention.⁶⁶

Before initiating an investigation states parties are required to consult among themselves with the aim of resolving any matter related to a non-compliance concern – the details of the available consultation, clarification and cooperation procedures being laid out in Article 8 of the Protocol. Only when these measures cannot dispel a non-compliance concern shall a state party initiate an investigation. Depending on the type of investigation requested, the kind of non-compliance concern forming the basis for the request, and the location at which the investigation is to be conducted, different decision-making procedures are to be applied. In every possible scenario the receiving state party, i.e. the state on whose territory the investigation is taking place, has the right to determine the nature and extent of access that is being granted to the investigation team.

The improvement to regime effectiveness which these measures would have brought about becomes obvious if one considers a situation like the one surrounding the 1979 anthrax outbreak in then Soviet Sverdlovsk: even if the authorities had denied any connection of the anthrax cases to military BTW activities and claimed the outbreak was caused by contaminated meat from the black market – as, in fact Soviet authorities claimed back then – another state party would have had the option of requesting a field investigation because of a suspicious disease outbreak. Although such an investigation – according to the provisions envisaged in the Compliance Protocol – would have required a simple majority in the executive organ of the new BTWC organisation, it is likely to have been conducted. Even if it

had ended without a clear conclusion, the investigation of the matter would not have been delayed for more than a decade, until a change in the political environment allowed for the case to be studied.

Export Controls and International Cooperation in the Peaceful Uses of the Biosciences

Export controls on dual-use goods and equipment do have a variety of functions: their primary goal is to ensure the civil application of exported commodities and services and to impede recipients from using them in offensive BTW-programs. To fulfil this function domestically, i.e. in the supplying state, export control measures have to be capable of identifying illegal exports and have to threaten to the potential exporter a level of punishment that exceeds any gain from such an illegal export. Furthermore, export controls on dual-use goods and equipment slow down the procurement process and increase the proliferant's costs. When coordinated among supplier states, export controls provide a level playing field for potential suppliers in different states, thereby increasing the hurdles, which a proliferant has to take even more. Harmonized export controls make it more difficult to play one supplier against the other, since the individual exporters do not have to face comparative disadvantages resulting from unequal export control guidelines.⁶⁷

According to critics of export controls, in the BTWC context such measures are in direct contravention to Article X of the BTWC, which in its Paragraph 2 establishes the cooperation norm and states that 'this Convention shall be implemented in a manner designed to avoid hampering the economic or technological developments of states parties to the Convention or international cooperation in the field of bacteriological (biological) activities'. Proponents of export controls, in contrast, point out that these measures are an expression of their implementing the non-transfer norm contained in the Convention's Article III, according to which states parties are under the obligation not to transfer to any recipient whatsoever – directly or indirectly – any of the agents, toxins, weapons, equipments, or means of delivery specified in Article I of the Convention.

Measures to enhance the implementation of Article III were discussed in some detail beginning with the March 1997 session of the Ad-hoc Group, when India introduced a Working Paper setting out a number of guidelines to strengthen the non-transfer norm.⁶⁸ Should the Indian proposal be put into effect, this amounted to nothing less than abrogating the present export control practice, including a substantial transfer of national sovereignty to a future BTWC organization, which would be empowered to decide on all BW-related transfers to states not party to the Protocol. By implication, transfers among members to the Protocol are free on principle. This would

strip individual member states of their decision-making prerogative and would make the future BTWC organisation the central decision-making organ. Following from that, if national export controls would become obsolete, so would multilaterally agreed upon controls, i.e. those of the Australia Group.

A much more moderate approach to strengthening Article III of the BTWC was presented by Austria and New Zealand. In their Working Paper the two Australia Group members advocate the inclusion in the future protocol of an obligation for each State Party to declare annually 'the national legal measures it has adopted in order to implement Article III of the BWC' and to 'report to the Organization on an annual basis on its administrative and other related national implementation measures with regard to Article III of the BWC to ensure that transfers of agents, toxins, and equipment are only authorized in compliance with the provisions of the Convention.'⁶⁹ If such measures were implemented, not only would the decision-making power continue to reside with the states parties, but the declarations would also be limited to national measures. Multilateral measures such as the Australia Group would not be touched.

The second major bone of contention in the deliberations of the AHG on Article 14 was related to a NAM-proposal to establish a Cooperation Committee within the organisation appointed to oversee the implementation of the Protocol.⁷⁰ The Committee's task would have been to coordinate and promote effective and full implementation of Article X of the Convention and Article 14 of the Protocol.⁷¹ Disagreement remained as to the structure and precise roles and functions of the Cooperation Committee, and the powers allocated to it. It can be assumed that this institutionalized mechanism for cooperation in the peaceful uses of the biosciences was judged by AHG negotiators to be one of the bargaining chips for the end-game of negotiations, in order to be traded against concessions in the field of export controls or compliance mechanisms, areas in which some of the Cooperation Committee's proponents were reluctant to agree on wide-ranging and intrusive measures.

In Article 7 of the Composite Text states parties are tasked to review, amend or establish 'any legislation, regulatory or administrative provisions to regulate the transfer of agents, toxins, equipment and technologies relevant to Article III of the Convention'.⁷² The Protocol further requires states parties to establish transfer guidelines with the aim of ensuring that transfers of dual-use items will be used for permitted purposes only. Accordingly, the supplying state shall require from its recipient an end-use declaration, a no-retransfer pledge (without prior consent of the originating state party) and information from the requesting state on its national laws and regulations pertaining to the items in question.

Article 14 of the Compliance Protocol contains the provisions to strengthen Article X of the BTWC on the peaceful uses of the biosciences. This contains a useful compromise wording concerning the differing approaches to the functions and powers of the Cooperation Committee.⁷³ Accordingly, this Committee is designed to ‘consult on, monitor and review activities fostering international co-operation and assistance’. Its output is limited to reports and its tasks do not include decision-making of any kind. Likewise, the review of concerns raised by a state party that it has been deprived of benefits stemming from Article X of the BTWC is to be undertaken by the Executive Council of a future BTWC-organisation.

Both the compromise solution adopted in the Protocol with respect to the non-transfer norm and the cooperation norm add not only a set of rules and procedures for putting into effect the more abstract norms into everyday state practice but also the compromises having led to the described regulatory underpinning of the two norms would have increased transparency of states parties’ behaviour while at the same time safeguarding their national decision-making prerogatives. Again, the Protocol could have been expected to exert a positive impact on regime effectiveness compared with the actual regime performance.

Effectiveness of the Compliance Protocol

The Compliance Protocol to the BTWC would have added a detailed set of rules and procedures to the normative framework provided by the Convention alone. These rules and procedures together with the organisation to oversee the implementation of the Protocol – especially in the crucial areas area of compliance measures, i.e. declarations, visits and investigations, as well as export controls and cooperation in the peaceful uses of the biosciences – would have led over time to a considerable increase in transparency of states parties’ activities which are of relevance to the BTWC and the Protocol. This increased transparency, in turn, would have led to increased confidence in the regime-compliant behaviour of other states parties and a recognition that the community of regime members indeed shares a set of expectations as to what is considered appropriate behaviour under the principles and norms of the regime.

At the same time, the precautions against misuse of the Protocol measures were sufficiently developed in order to deter potential cheaters from exploiting the provisions of the Protocol for nefarious purposes. In case of declarations the level of aggregation of data would have been such as to prevent the disclosure of details of legitimate biodefence programs or activities, which could be exploited by a potential perpetrator for use in an offensive BTW attack. The same can be said for the other areas of the Protocol covered here. In sum, therefore, the Compliance Protocol to the

BTWC as contained in the draft text presented by the chairman of the negotiations could have been expected to move the regime considerably towards the collective optimum regime counterfactual end of the spectrum of regime effectiveness.

Alternatives to the Protocol Negotiated by the AHG

A good starting point for alternative measures to enhance transparency and thereby strengthen confidence in the compliance of states parties to the BTW control regime with the obligations they have assumed, might be found in the proposals put forward by the US administration in November 2001. The intention to seek alternative measures was announced by the US when she rejected the Compliance Protocol during the AHG session of July 2001. Because leading states in the AHG negotiations made it clear very quickly that they would not pursue a Protocol without the United States' participation, any alternative set of measures will have to revolve around a least common denominator which can also be supported by the US government.⁷⁴ The Fifth Review Conference of the BTWC in November 2002 agreed on a limited set of measures to be discussed in annual meetings from 2003 to 2005, which was derived from the original set of US proposals.⁷⁵

The analysis of alternative measures to strengthen the BTW control regime will proceed in three steps: first, an assessment is made as to which substantive issues could be adopted from the Protocol negotiations. Second, some unconventional, 'outside the box' approaches and their potential to strengthen the BTW control regime will be discussed. Third, the question will be addressed which venues might be utilized for agreeing on any of these measures.

Substantive Issues Adopted from the Compliance Protocol

Compliance Measures. The only measure contained in the Compliance Protocol, which has the highest likelihood of finding the support also of the current US administration, is the investigation of 'suspicious outbreaks [of diseases] or allegations of biological weapons use'.⁷⁶ Yet, when put forward by the Bush administration, it was proposed that an 'effective United Nations procedure' be established. This linkage has puzzled some observers, as a UN Security Council Resolution, that was adopted in 1988, and two Resolutions of the UN General Assembly – adopted in 1987 and 1989, respectively – already foresee such a mechanism.⁷⁷ Similarly, this approach seems only to peripherally strengthen BTWC member states' confidence in compliance as the UNSC Resolutions are related to the 1925 Geneva Protocol, not to the BTWC. This means that only suspected use of

BTW – which might come in the disguise of an unusual outbreak of disease – can be investigated, not a suspicion that a state party is producing or stockpiling BTW agents. What is more, any such investigation request has to go through the bottleneck of the UN Security Council, where the five permanent members still hold veto-power over any decisions. So, in sum, not only would the scope of such an investigation procedure be much more limited than it has been foreseen in the Protocol text, but decision-making would follow established UNSC patterns and not reflect the opinion of BTW regime members.

When included in the Final Document of the Fifth Review Conference, the reference to UN procedure was dropped. Instead, ‘enhancing international capabilities for responding to, investigating and mitigating the effects of cases of alleged use of biological or toxin weapons or suspicious outbreaks of disease’ are foreseen to be dealt with during the 2004 meetings of BTWC states parties under the new process set up by the most recent Review Conference.

In contrast, declarations and visits are not deemed a useful tool by the US administration to enhance confidence in compliance with the BTW control regime. Consequently, they are not included in the programme of work set by the Review Conference. This leaves the non-proliferation dimension of the regime completely unattended until at least the 6th Review Conference in 2006. Implicitly, the absence of declarations and visits also makes the establishment of an international organisation along the lines of an OPBW, or even a small secretariat to oversee implementation of the regime’s provisions, superfluous. The absence of such an organisational structure, in turn, means that states parties are left with their own – or their allies’ – devices for the collection and processing of information related to other states parties activities in the areas of biodefence or dual-use biotechnology. The confidence-building measures adopted at the 1986 and 1991 BTWC Review Conferences might theoretically alleviate this problem, but the poor returns of annual declarations by member states make them in practice an unsatisfactory alternative.⁷⁸ This situation that can hardly be conceived of as contributing to confidence among regime participants that their fellow regime members are actually sharing their expectations about appropriate behaviour under the BTW control regime.

Export Controls and International Cooperation in the Peaceful Uses of the Biosciences

That export controls will form an integral part of the Bush-administration’s policy to counter the threats of biological weapons was made clear in the US statement to the 5th BTWC Review Conference on 19 November 2001, in which ‘tightened export controls’ were explicitly mentioned as being part of

the ‘full range of measures’ envisaged to be applied to the problems at hand.⁷⁹ To the extent that international cooperation on these tightened export controls’ can be anticipated, the Australia Group will be the forum where such cooperation will continue to be located.⁸⁰

The Australia Group was originally created as an interim measure until the conclusion of the CWC. Reportedly, members of the group have reviewed the mechanism after the CWC’s entry into force and have concluded that there is a continued need for the group’s further existence. This has led in the CWC context to a series of complaints such as the one brought forward by Iran, Cuba and Pakistan during the third session of the CWC’s Conference of states parties. They presented a paper on the ‘Fostering of International Cooperation for Peaceful Purposes in the Field of Chemical Activities’.⁸¹ Since the draft text contained a passage which asked the conference to emphasize that the CWC ‘has not envisaged any export control restriction in chemical trade between states parties for peaceful purposes’ and was thus by a number of Western States perceived as being too critical of the Australia Group, a consensus on the paper was not achieved. Instead, the matter was referred to the Executive Council on whose agenda it has lingered ever since.⁸²

As is clear from the CWC experience, the continued existence of the Australia Group at least allows some states parties to that treaty to complain about export control measures that are not being applied equally to all states parties across the board. At worst this confrontative rhetoric might lead to a split in the community of regime members that might ultimately undermine the CW control regime’s continued effectiveness. In case of the BTW control regime, the probability of comparable rhetoric leading to such a result is even higher, since no instruments to balance these perceived disadvantages are part of the regime’s structure. The Cooperation Committee envisaged in the Protocol could have provided such an instrument for a more balanced regime implementation. Yet, in the absence of a comparable mechanism, a mere strengthening of export controls can be expected to lead to a polarization among regime members, which is certainly not conducive to creating shared expectations about the realization of the non-transfer and cooperation norms of the regime.

Legal Status of the Measures and Their Implementation. Implementation of the measures – investigations and export controls – that could be adopted from the negotiations of the AHG would have to be shouldered by the states agreeing on such measures. Neither the United Nations nor the Australia Group have dedicated staff and infrastructure in aiding states to investigate suspicious outbreaks or conceptualizing and implementing export control systems. Similarly, the inclusion of investigations of alleged BTW use and

suspicious outbreaks of disease in the new multilateral process agreed upon by the 5th Review Conference, will not lead to legally binding agreements. All topics to be addressed by the process leading to the 2006 Review Conference suffer from this shortcoming.⁸³

From a regime-analytical point of view this means that in the case of export controls a subset of states participating in the regime is creating their own rules and procedures for the concretization of certain norms in a way that they see fit. To the extent that this creates a 'two-class society' within the regime it also diminishes the prospects for shared expectations and equal treatment within the regime. With respect to the investigations of alleged use and suspicious outbreaks, states parties are left in limbo up until the next Review Conference to see in which way that Conference will 'consider the work of these meetings and decide on any further action.'⁸⁴

Thinking Outside the Box

Criminalization of Biological and Toxin Warfare. Two basic approaches to criminalize biological and toxin warfare are conceivable: first, the one included in President Bush's proposal to strengthen the BTWC put forward in November 2001, and second the establishment of a stand-alone international legal instrument. Both of them shall be briefly considered here.

When presenting its new initiatives to strengthen the BTWC, the Bush-administration included a proposal to the effect that all BTWC states parties 'enact strict national criminal legislation against prohibited BW activities with strong extradition requirements'.⁸⁵ Again, this issue found its way into the decision of the Review Conference, albeit without the reference to any extradition requirements.

An additional normative signpost for individuals' actions could be established through the criminalization of BTW activities in a multilaterally negotiated international 'Convention to Prohibit Biological and Chemical Weapons under International Criminal Law', as proposed by the Harvard Sussex Program on CBW Armament and Arms Limitation.⁸⁶ The convention would build upon and expand provisions contained in the CWC (Article VII) and BTWC (Article IV). Both BTWC and CWC require – to varying degrees – that states parties incorporate the prohibitions contained in them into domestic law.

However the BWC and CWC do not attempt to make the development, production, possession or use of biological and chemical weapons an international crime for which states establish jurisdiction over prohibited acts regardless of the place where they are committed or the nationality of the offender, nor do these treaties contain provisions dealing with the extradition of suspects.⁸⁷

A convention to prohibit CBW under international criminal law would place the above-mentioned CBW-related activities in the same category as aircraft hijacking, hostage taking, torture, and theft of nuclear materials, to mention just a few especially repugnant crimes for which the international community has already established comparable treaties. The convention would use the definitions contained in the BTWC and CWC, thereby re-emphasizing the general purpose criterion, and its scope would cover all activities prohibited in these two conventions even if conducted by an official or employee of a state not party to either BTWC or CWC or the proposed convention on criminalization. According to its authors:

Adoption and widespread adherence to such a convention would create a new dimension of constraint against biological and chemical weapons by applying international criminal law to hold individual offenders responsible and punishable wherever they may be and regardless of whether they act under or outside of state authority.⁸⁸

It has to be noted however, that such a Convention – valuable as it would be – does little to address the shortcomings identified in the current BTW control regime. It would doubtlessly add a useful new dimension to the regime in so far as it would reflect a new principle and norm of the regime, but in terms of increasing confidence in the regime compliant behaviour of states parties its value would be rather limited.

Pathogen Storage and Transfer Register. Two of the seven measures proposed by the Bush-administration deal with the safety and security of pathogenic organisms: first, the Bush proposal called on all BTWC states parties to ‘promote responsible conduct in the study, use, modification, and shipment of pathogenic organisms’; it secondly proposed to ‘establish sound national oversight mechanisms for the security and genetic engineering of pathogenic organisms’. However useful such measures might be, the Bush proposal suffers from two shortcomings. It is very imprecise as to how these measures are actually going to be implemented through concrete rules and procedures. Although this shortcoming might be remedied without too much effort, the second problem is a more fundamental one: the measures would have to be adopted by states individually without any reporting or follow-up mechanisms established that would allow states to check on the adequacy of the measures enacted or the effectiveness of their implementation. So, again, a lack of transparency can be expected to produce a considerable degree of uncertainty as to whether states parties to the BTWC would actually live up to such an obligation – in case they would agree upon it in the first place.

In contrast to this limited approach, the negotiation of a new multilateral biosecurity convention has been proposed by non-governmental non-proliferation experts.⁸⁹ Such a convention could be modelled after the 1994 Nuclear Safety Convention⁹⁰ and – according to the proponents of such a new international treaty – should include three basic elements:

a legal commitment by the contracting parties; agreed principles for developing progressively higher standards with respect to regulation and licensing of microbial culture collections; and mechanisms for oversight and progressive refinement of standards through periodic conferences.⁹¹

The proposed biosecurity convention, however, would contain no rules and procedures for checking on the compliance of its member states. Only a biosecurity convention that would be equipped with a set of compliance measures would not perpetuate the major loophole of the BTW control regime and extend its shortcoming to a yet wider issue area. In addition, the uncertainties for success of the proposal seem to lie in the practicalities and the political support for reaching such an agreement: the Bush-administration, for one, has categorically ruled out the resurrection of the AHG that has been negotiating the compliance protocol to the BTWC and seems in general terms not very supportive of any multilateral control arrangement that would also tie the hands of the US administration. What is more, a large number of states that participated in the AHG negotiations can currently be expected to be critical of yet another multilateral negotiation after having witnessed the fate of the AHG.

Linkage with Environmental and Health Regimes. A related approach has been advanced already during the AHG negotiations, which would borrow from existing environmental and health regimes in order to enhance the effectiveness of the BTWC. Two international agreements which could serve as potential ‘role-models’ for the transboundary movement of pathogenic organisms – and as such strengthen the implementation of the non-transfer norm of the BTW control regime – have been identified.⁹²

One is the ‘Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade’ which was adopted at a Conference of Plenipotentiaries in Rotterdam on 10 September 1998.⁹³ The second international treaty mentioned in this context is the ‘Cartagena Protocol on Biosafety to the Convention on Biological Diversity’, signed in Montreal on 29 January 2000.⁹⁴ Yet, as Article I of the Biosafety Protocol makes clear,

the objective of this Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements.

So not only does the Biosafety Protocol focus on only one of a number of norms contained in the BTW control regime, it is furthermore limited to a subset of agents covered by the BTWC, i.e. living modified organisms, and most importantly, the purpose of the agreement is a completely different one. Similar caveats apply to the Rotterdam Convention. This is not to argue that a closer examination of the provisions of these two international agreements is not warranted. Rather, the point is that one should not lose sight of the different regime goals, and resulting from this, different structures of the regimes, when attempting to borrow from these environmental and health-oriented regimes and making generalizations for the applicability of specific provisions found therein for utilization in the BTW control regime.

Venues for Reaching Agreement on Alternative Measures

Again, the position of the US administration has to be taken as a starting point for thinking about possible venues for reaching an agreement on alternative measures which aim at strengthening the BTW control regime. For the Bush-administration has made its position clear that it considers the negotiating process in the AHG to have failed and rejected its revitalization.⁹⁵ Therefore, an alternative forum will have to be found.

One option might be to give this task to the Review Conference. If the goal is to express the BTWC states parties' agreement on the rather limited proposals put forward by the US administration, this might be a realistic possibility. In light of the political realities, it is likely that the majority of BTWC member states will settle for such an arrangement. Many of them will regard this option as not going far enough in strengthening the BTWC control regime. For a more fundamental regime overhaul, however, the Review Conference is not the appropriate forum.

The Geneva Conference on Disarmament (CD) might represent another forum for reaching an agreement on a set of alternative measures to strengthen the regime. Two problems would have to be solved for this to be a viable solution. First, the current deadlock in the CD would have to be overcome. The CD has been deadlocked ever since the conclusion of the 1996 Comprehensive Test Ban Treaty and negotiations for any measures to strengthen the BTWC regime would almost certainly fall victim to the CD's

inability to overcome these differences. Second, the CD is composed of 66 states parties, and thus would not allow all BTWC members to participate in the deliberations. It is difficult to imagine how this group then could negotiate measures to strengthen the BTWC control regime which would later be palatable to all BTWC states parties.

This leads to a situation where one has to balance the advantages and disadvantages of having either a restricted negotiating body and possibly also a restricted group of states implementing whichever new measures are negotiated/agreed upon or new negotiating body, potentially including all BTWC states parties. The pitfall to avoid is to have too small a group negotiate too strong a set of measures which might not be able to gain the support of the majority of BTWC member states. Prospects for realizing the second path, i.e. to have all BTWC states parties participate in this process in light of current fundamental divergences as to the purpose of any complementing measures aimed at strengthening the BTW regime, seems equally ambitious.

Conclusion – A missed opportunity to strengthen the BTW control regime’s effectiveness

This article set out to apply regime theory to the issue area of BTW controls. This ‘merger’ shows that the BTW control regime – as is – suffers from three serious shortcomings: first, its obvious lack of transparency or compliance mechanisms and the resulting uncertainty as to the degree to which regime members actually live up to their obligations; second, a reluctance or inability to utilize the few procedures that are available, and third, the admitted non-compliance of a very small number of states parties.

The Compliance Protocol to the BTWC would have added a detailed set of rules and procedures to the normative framework provided by the Convention. Being specifically tailored to the already existing principles and norms of the regime, these rules and procedures – especially in the crucial areas of compliance measures, as well as export controls and cooperation in the peaceful uses of the biosciences would have led to a considerable increase in transparency of states parties’ activities which are of relevance to the BTWC and the Protocol. Thereby, these measures would – over time – have contributed to an enhanced confidence in treaty compliant behaviour.

The alternative measures briefly outlined are likely to suffer from a lack of cohesion, which the integrated set of measures of the Protocol would have displayed, as it was specifically tailored to the BTW Convention. In addition, due to the politically charged nature of some of the proposed ‘selected measures’ in the US proposals one can expect only limited support for an alternative set of measures centred on these proposals. Therefore a

less tangible increase in regime effectiveness is to be expected and the regime's effectiveness – should some of these alternative measures be agreed upon among BTWC states parties or a subset thereof – will stay closer to the current state of regime effectiveness than in the scenario of having the Compliance Protocol in force. Following from this, one cannot but conclude that the abandonment of the AHG process is a missed opportunity to strengthen the BTW control regime's effectiveness.

This assessment is reinforced by recent developments both before and during the Fifth BTWC Review Conference which was suspended in November 2001 and reconvened in November 2002 in Geneva. The *Green Paper*⁹⁶ put forward in April 2002 by the United Kingdom Foreign and Commonwealth Office is a case in point: intended as a starting point to find common ground among BTWC states parties, the options for strengthening the BTWC clearly are geared towards the US government positions that were presented at the end of 2001. This represents a step backwards when compared with the EU positions advocated during the Review Conference in November 2001.

During this conference EU efforts were clearly aiming at continuing the process of strengthening the BTWC, if need be outside the AHG framework. To this end the EU tried to include as many proposals as possible for the final declaration of the conference that would necessitate follow-up activities after the conference. Along these lines the EU *inter alia* proposed to set up a Scientific Advisory Panel to report to states parties annually, to explore a set of common principles for export controls applicable on a voluntary basis, and to extend the scope of some of the CBMs and even make two of them mandatory.⁹⁷ The proposals contained in the UK *Green Paper*, in contrast, are much weaker and thus paved the way to acceptance of the minimalist approach contained in the new US-influenced multilateral process.

The five issues to be dealt with in this process represent only a fraction of the issues the AHG was dealing with. Consequently, even if the optimistic scenario will come to pass and the BTWC states parties will agree upon 'effective action' this will consequently lead to a less effective strengthening of the BTW control regime. One of the great challenges in the preparations for the next opportunity to strengthen the regime comprehensively, i.e. the next Review Conference, as Nicholas Sims points out, will be to assure that the review in 2006 will not focus exclusively on this limited set of issues.⁹⁸ If this were to happen, an uneven regime development can easily result, which in turn will lead to divergent, not convergent expectations among states parties and further to a fragmentation of the BTW control regime.

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NOTES

1. See for example John G. Ruggie, 'International Responses to Technology: Concepts and Trends' in *International Organization*, Vol.29, No.3 (1975), pp.557–83.
2. See *International Organization*, Vol.36, No.2, (Spring 1982) and Stephen D. Krasner (ed.), *International Regimes* (Ithaca: Cornell University Press, 1983).
3. Stephen D. Krasner, 'Structural Causes and Regime Consequences: Regimes as Intervening Variables', *International Organization*, Vol.36, No.2, (Spring 1982), pp.185–205, quote on p.185.
4. Krasner, 'Structural Causes and Regime consequences', p.186.
5. See Harald Müller, *Die Chance der Kooperation. Regime in den Internationalen Beziehungen* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1993), Chapter 3.
6. See Andreas Hasenclever, Peter Mayer and Volker Rittberger, *Theories of International Regimes* (Cambridge: Cambridge University Press, 1997).
7. On the balance-of-power concept see Michael Sheehan, *The Balance of Power: History and Theory* (London: Routledge, 1995).
8. Susan Strange, 'Cave! Hic dragones. A Critique of Regime Analysis', *International Organization*, Vol.36, No.2 (Spring 1982), pp.479–96.
9. See John Mearsheimer, 'The False Promise of International Institutions', *International Security*, Vol.19, No.3 (Winter 1994–95), pp.5–49; as well as the debate that followed from this.
10. See the discussion of the two approaches in Hasenclever, Mayer and Rittberger, *Theories of International Regimes*, pp.11–14.
11. For more detailed 'defences' of the four-part regime structure, see Müller, *Die Chance der Kooperation*, pp.39–42; Mark W. Zacher, 'Trade Gaps, Analytical Gaps: Regime Analysis and International Commodity Trade Regulation', in *International Organization*, Vol.41, No.2 (Spring 1987), pp.173–202.
12. Robert Jervis, 'Cooperation under the Security Dilemma', in *World Politics*, Vol.30, No.2 (Jan. 1978), pp.167–214; Jervis, 'Security Regimes', in Krasner (ed.), *International Regimes*, pp.173–94.
13. See Harald Müller, 'Regimeanalyse und Sicherheitspolitik. Das Beispiel Nonproliferation', in Beate Kohler-Koch (ed.), *Regime in den Internationalen Beziehungen* (Baden-Baden: Nomos, 1989), pp.277–313; H. Müller, 'The Internalization of Principles, Norms, and Rules by Governments. The Case of Security Regimes', in Volker Rittberger (ed.) *Regime Theory and International Relations* (Oxford: Clarendon Press, 1993), pp.361–88.
14. See Marc A. Levy, Oran R. Young and Michael Zürn, 'The Study of International Regimes', *European Journal of International Relations*, Vol.1, No.3 (1995), pp.267–330; Stephen Haggard and Beth A. Simmons, 'Theories of International Regimes', *International Organization*, Vol.41, No.3 (Summer 1987), pp.497–517.
15. See Andreas Hasenclever, Peter Mayer and Volker Rittberger, *Justice, Equality, and the Robustness of International Regimes*, Tübingen Arbeitspapiere zur Internationalen Politik und Friedensforschung, Nr.25, Tübingen, 1996.
16. See Bas Arts, 'Regimes, Non-State Actors and the State System: A "Structuralist" Regime Model', *European Journal of International Relations*, Vol.6, No.4 (2000), pp.513–42.
17. See for example Oran R. Young (ed.), *The Effectiveness of International Environmental Regimes. Causal Connections and Behavioral Mechanisms* (Cambridge, Mass: MIT Press, 1999); D.G. Victor, K. Raustiala and E.B. Skolnikoff (eds), *The Implementation and Effectiveness of International Environmental Commitments. Theory and Practice* (Cambridge, Mass: MIT Press, 1998); Peter M. Haas, Robert O. Keohane and Marc A. Levy (eds.), *Institutions for the Earth: Sources of Effective International Environmental Protection* (Cambridge, Mass: MIT Press, 1993). Two notable exceptions to this are Thomas J. Biersteker, 'Constructing Historical Counterfactuals to Assess the Consequences of International Regimes. The Global Debt Regime and the Course of the Debt Crisis of the 1980s', in Rittberger (ed.) *Regime Theory*, pp.315–38; Harald Müller, 'The Internalization of

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18. George W. Downs, 'Constructing Effective Environmental Regimes', *Annual Review of Political Science*, Vol.3 (2000), pp.25–42, quote from p.32.
 19. See Harald Müller, 'The Internalization of Principles, Norms and Rules by Governments: The Case of Security Regimes', in Volker Rittberger (ed.) *Regime Theory and International Relations* (Oxford: Clarendon Press, 1993), pp.361–88.
 20. See Andrew P. Cortell and James W. Davis, 'How Do International Institutions Matter? The Domestic Impact of International Rules and Norms', in *International Studies Quarterly*, Vol.40, No.4 (Dec. 1996), pp.451–78.
 21. James D. Fearon, 'Counterfactuals and Hypothesis Testing in Political Science', in *World Politics*, Vol.43, No.2 (Jan. 1991), pp.169–95, quote from p.169.
 22. The only two attempts to link regime analysis to counterfactual thought experiments were undertaken by Thomas J. Biersteker, 'Constructing Historical Counterfactuals to Assess the Consequences of International Regimes. The Global Debt Regime and the Course of the Debt Crisis of the 1980s', in Rittberger (ed.), *Regime Theory and International Relations*, pp.315–38; and Charles F. Parker, *Controlling Weapons of Mass Destruction: An Evaluation of International Security Regime Significance*, Doctoral Thesis (Uppsala: Acta Universitatis Uppsaliensis, 2001), who employs counterfactuals as one of five yardsticks for judging regime 'significance', a combination of regime effectiveness and robustness.
 23. See Biersteker, 'Constructing Historical Counterfactuals', pp.327–30.
 24. Carsten Helm and Detlef Sprinz, 'Measuring the Effectiveness of International Environmental Regimes', *Journal of Conflict Resolution*, Vol.44, No.5 (Oct. 2000), pp.630–52, quote on p.634.
 25. A. Underdal, 'The Concept of Regime Effectiveness', *Cooperation and Conflict*, Vol.27, No.3, 1992, pp.227–40.
 26. Helm and Sprinz, 'Measuring the Effectiveness', p.635.
 27. See US Congress, Office of Technology Assessment, *Technologies Underlying Weapons of Mass Destruction*, OTA-BP-ISC-115 (Washington, DC: US Government Printing Office, 1993), pp.71–117.
 28. See Laurie Garrett, *The Coming Plague: Newly Emerging Diseases in a World Out of Balance* (New York: Penguin Books, 1995); Madeline Drexler, *Secret Agents: The Menace of Emerging Infections* (Washington, D.C: Joseph Henry Press, 2002).
 29. There is indeed an area of overlap in the category of toxins which fall under the regulations of both the BTW convention and the CW convention, the latter of which lists two toxins on its lists of CW agents.
 30. See Dean Wilkening, 'BCW Attack Scenarios', in Drell, Sofaer and Wilson (eds), *The New Terror: Facing the Threat of Biological and Chemical Weapons* (Stanford, CA, Hoover Press, 1999), pp.76–114.
 31. For up-to-date information on this topic see the Federation of American Scientists website on agricultural biowarfare and bioterrorism at <<http://fas.org/bwc/agr/main.htm>>, maintained by Mark Wheelis, UC Davis.
 32. Malcolm Dando, 'The Impact of the Development of Modern Biology and Medicine on the Evolution of Offensive Biological Warfare Programs in the Twentieth Century', *Defense Analysis*, Vol.15, No.1 (1999), pp.43–69, quotes from p.51.
 33. See Jonathan Tucker, 'Biological Weapons in the Former Soviet Union: An Interview with Dr. Kenneth Alibek', *The Nonproliferation Review*, Vol.6, No.3 (Spring/Summer 1999), pp.1–10, quote from p.2.
 34. See US Department of Defense, *Proliferation: Threat and Response*, Washington, DC, quote taken from the technical annex, last accessed on the internet on 19 Feb. 2002 at <<http://www.defenselink.mil/pubs/prolif97/annex.html#technical>>.
 35. Mark L. Wheelis, 'Biotechnology and Biochemical Weapons', in *The Nonproliferation Review*, Vol.9, No.1 (Spring 2002), pp.48–53.
 36. Malcolm Dando, 'Genomics, Bioregulators, Cell Receptors and Potential Biological Weapons', *Defense Analysis*, Vol.17, No.3 (2001), pp.239–58, quote on p.248.
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 38. On the negotiations see SIPRI, *The Problem of Chemical and Biological Warfare, Vol.IV: CB Disarmament Negotiations, 1920–1970* (Stockholm: Almquist & Wiksel, 1971), pp.58–71.
 39. See the list of states parties at <<http://projects.sipri.se/cbw/docs/cbw-hist-geneva-parties.html>>.
 40. See R.R. Baxter and Thomas Buergenthal, 'Legal Aspects of the Geneva Protocol of 1925',

- in *American Journal of International Law*, Vol.64, No.4 (1970), pp.853–79, esp. pp.869–73.
41. According to Sims this number amounts to 12 states who have withdrawn their Geneva Protocol reservations since 1986; see Nicholas A. Sims, *The Evolution of Biological Disarmament*, SIPRI Chemical and Biological Warfare Studies, No.19, (Oxford: Oxford University Press, 2001), pp.152–62.
 42. On the Australia Group see section on Export Controls and International Cooperation in the Peaceful Uses of the Biosciences below for more details.
 43. The debates this group has stirred during the AHG negotiations are addressed in the section on Export Controls and International Cooperation in the Peaceful Uses of the Biosciences below.
 44. On the limitations of such an approach see Jonathan B. Tucker, 'Verification Provisions of the Chemical Weapons Convention and Their Relevance to the Biological Weapons Convention', in Amy E. Smithson (ed.) *Biological Weapons Proliferation: Reasons for Concern, Courses of Action*, Report No.24, (Washington, DC: The Henry L. Stimson Center, 1998), pp.77–105; A. Kelle and J. Matousek, 'Lessons of the Chemical Weapons Convention for the BTWC Compliance Protocol', in A. Kelle, M. Dando and K. Nixdorff (eds), *The Role of Biotechnology in Countering BTW Agents* (Dordrecht: Kluwer, 2001), pp.33–45.
 45. For the negotiations up to this point and the diplomatic standstill, see SIPRI, *The Problem of Chemical and Biological Warfare, Vol.IV, CB Disarmament Negotiations, 1920–1970* (Stockholm: Almqvist & Wiksell International, 1971).
 46. See the case study on the unilateral US renunciation in Oliver Thränert: *Einseitige Abrüstung? Erfahrungen mit sowjetischen und amerikanischen Initiativen*, [Unilateral disarmament? Experiences with Soviet and American Initiatives] (Frankfurt: Campus, 1991), pp. 42–82.
 47. Jonathan B. Tucker, 'A Farewell to Germs. The US Renunciation of Biological and Toxin Warfare, 1969–70', *International Security*, Vol.27, No.1 (Summer 2002), pp.107–48.
 48. Iris Hunger and Marie Chevrier, *Questions of Compliance: The Case of the Biological and Toxin Weapons Control Regime*, Occasional Paper Series, No.14, Geneva: Geneva Centre for Security Policy, 2000, p.11.
 49. See Jenni Rissanen, 'Acrimonious Opening for BWC Review Conference', *BWC Review Conference Bulletin*, 19 Nov. 2001, available at <<http://www.acronym.org.uk>>.
 50. For detailed assessments of the CBM turnout see Iris Hunger, 'Article V: Confidence Building Measures', in G. Pearson and M. Dando (eds), *Strengthening the Biological Weapons Convention. Key Points for the Fourth Review Conference* (Geneva: Qakers United Nations Office, 1996), pp.77–92, and Marie I. Chevrier and Iris Hunger, 'Confidence-Building Measures for the BTWC: Performance and Potential', in *The Nonproliferation Review*, Vol.7, No.3 (Fall/Winter 2000), pp.24–42.
 51. This was reconfirmed by the State Department Special Negotiator for Chemical and Biological Arms Control, Ambassador Donald Mahley in testimony before the US Congress in September 2000; quoted in Malcolm R. Dando, *Preventing Biological Warfare: The Failure of American Leadership* (Basingstoke: Palgrave, 2002), p.132.
 52. On this latter point see Thomas Bernauer, 'Verification of Compliance with the Biological Weapons Convention: Developing Countries Between Passive Participation and Obstruction', in Oliver Thränert (ed.), *The Verification of the Biological Weapons Convention: Problems and Perspectives*, Report No.50 (Bonn: Friedrich Ebert Foundation, 1992), pp.55–67.
 53. The text of the mandate is contained in: Special Conference of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, Geneva, 19–30 Sep. 1994, *Final Report*, BWC/SPCONF/1.
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 55. The protocol text used as a reference is the one presented by the chairman of the negotiations, Ambassador Toth, in spring of 2001. Although not agreed upon, it was formulated with a view to garner broad-based support and to present compromise solutions for issues unresolved at that point. It has been reproduced as an annex to the *Procedural Report of the Ad Hoc Group of the States Parties to the Convention on the Prohibition of the Development,*

- Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*, BWC/AD HOC GROUP/56-2, Geneva, 18 May 2001, pp.345–570, available on the internet at <<http://www.brad.ac.uk/acad/sbtwc/ahg56/doc56-2.pdf>>. All subsequent references to ‘the Compliance Protocol’ are to this version of the text.
56. This future organization has been discussed under the acronym OPBW – Organisation for the Prohibition of Biological Weapons.
 57. For a more detailed treatment of the AHG negotiations see Malcolm Dando, *Preventing Biological Warfare*, Chapters 5–7 and 9–11.
 58. See Alexander Kelle and Jiri Matousek, ‘Lessons of the Chemical Weapons Convention for the BTWC Protocol’, in A. Kelle, M.R. Dando and K. Nixdorff (eds), *The Role of Biotechnology in Countering BTW Agents* (Dordrecht: Kluwer, 2001), pp.33–45.
 59. See William Muth, ‘The Role of the Pharmaceutical and Biotech Industries in Strengthening the Biological Disarmament Regime’, in *Politics and the Life Sciences*, Vol.18, No.1, 1999, pp.92–7; ‘Testimony of Dr Susan Koch, Deputy Assistant Secretary of Defense for Threat Reduction Policy, Before the Subcommittee on National Security, Veterans Affairs and International Relations of the House Committee on Government Reform: The Biological Weapons Convention: Status and Implications, 13 September 2000’, available at <http://www.house.gov/reform/ns/floor/testimony_of_dr_koch.htm>. See also Dando, *Preventing Biological Warfare*, Chapter 8
 60. See Working Paper Submitted by Germany and Sweden, *Proposed Language for Article III – Declarations*, presented to the thirteenth session of the AHG, Geneva, 7 Jan 1999, Document BWC/AD HOC GROUP/WP.340.
 61. On the following see ‘Article 4 Declarations’, in BWC/AD HOC GROUP/56-2, pp.364–9.
 62. For a more detailed discussion of the pros and cons of non-challenge visits see Douglas MacEachin, ‘Routine and Challenge: Two Pillars of Verification’, *The CBW Conventions Bulletin*, No.39, March 1998, pp.1–3.
 63. See Henrietta Wilson, ‘BWC Update’, *Disarmament Diplomacy*, Issue No.42, Dec. 1999, pp.27–34.
 64. *Ibid.*
 65. On the following see ‘Article 9 Investigations’, in BWC/AD HOC GROUP/56-2, pp.404–14, quote from p.404
 66. On the latter see Mark Wheelis, ‘Investigating Disease Outbreaks under a Protocol to the Biological and Toxin Weapons Convention’, in *Emerging Infectious Diseases*, Vol.6, No.6 (2000), pp.595–600.
 67. See Brad Roberts: *Rethinking Export Controls on Dual-Use Materials and Technologies: From Trade Restraints to Trade Enablers*, Arena, No.2, June 1995, Washington DC: CBACI; Harald Müller, Matthias Dembinski, Alexander Kelle and Annette Schaper: *From Black Sheep to White Angel? The New German Export Control Policy*, PRIF-Report No.32, Frankfurt/Main, 1993.
 68. See *Working Paper by India – Guidelines to ensure Compliance with Obligations under Article III of the Convention on the Prohibition ...*, Document BWC/AD HOC GROUP/WP.126, 5 March 1997; the proposal was then included in BWC/AD HOC GROUP/32.
 69. See *Working Paper by Austria and New Zealand*, BWC/AD HOC GROUP/WP.142, 14 March 1997. This working paper was included in the Rolling Text, too; see BWC/AD HOC GROUP/39, 2 Feb., pp.44–5.
 70. See Working paper submitted by the Group of NAM and Other Countries, *Establishment of a Cooperation Committee*, BWC/AD HOC GROUP/WP.349, Jan. 1999.
 71. See Jenni Rissanen, ‘The BWC Protocol Negotiation 18th Session: Removing Brackets’, in *Disarmament Diplomacy*, No.43, Jan/Feb 2000, pp.21–5.
 72. Article 7, Paragraph 1, BWC/AD HOC GROUP/56-2, p.396
 73. See Section D of Article 14, in BWC/AD HOC GROUP/56-2, pp.427–32.
 74. On part of the European Union states who rejected a ‘go-it-without-the-USA’ approach, this stance was certainly informed by their negative experience in the CW context, where the US industry declaration was submitted to the OPCW only with a three-year delay – a period in which EU chemical industries as a result were shouldering the major burden of industry inspections, while US chemical industry was not inspected once.
 75. See Fifth Review Conference of the States Parties to the Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, (Geneva, 19 Nov.–7 Dec. 2001 and 11–22 Nov. 2002), *FINAL DOCUMENT* (Geneva 2002), document BWC/CONF.V/17, available at <<http://disarmament.un.org/wmd/bwc/pdf/bwccnf17.pdf>>; for an analysis of the resumed

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76. 'Bush Proposes Steps to Strengthen Biological Weapons Pact', available at US State Department website at <[RTF bookmark start: _Hlt49930860]http://usinfo.state.gov/topical/pol/arms/stories/011110103.htm[RTF bookmark end: Hlt49930860]>
 77. The UNSC Resolution 620 can be found via the UN homepage at: <http://www.un.org/Docs/scres/1988/620e.pdf>; the General Assembly Resolutions were A/RES/42/37/C of 30 Nov. 1987 and A/RES/44/115/B of 15 Dec. 1989.
 78. See Marie Isabelle Chevrier and Iris Hunger, 'Confidence-Building Measures for the BTWC: Performance and Potential' in *The Nonproliferation Review*, Vol.7, No.3 (Fall/Winter 2000), pp.24–42.
 79. See *Statement of The Honorable John R. Bolton, Under Secretary of State for Arms Control and International Security, United States Department of State to the Fifth Review Conference of the Biological Weapons Convention*, Geneva, United States Mission to the United Nations, 19 Nov. 2001.
 80. For information on the Australia Group, see the background document provided on its website at <http://www.australiagroup.net/releases/background.htm_Hlt49930967]>.
 81. See the Draft Resolution Submitted by Islamic Republic of Iran, Cuba and Pakistan, OPCW-Documents C-III/NAT.4, 19 Nov. 1998.
 82. See OPCW, *Report of the Third Session of the Conference of States Parties*, OPCW-Documents C-III/4, 20 Nov. 1998, para. 16.2.
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 84. Document BWC/CONF.V/17, p.4
 85. 'Bush Proposes Steps to Strengthen Biological Weapons Pact', available at US State Department website at <http://usinfo.state.gov/topical/pol/arms/stories/011110103.htm>.
 86. See 'A Draft Convention to Prohibit Biological and Chemical Weapons under International Criminal Law, Editorial', *The Chemical and Biological Weapons Conventions Bulletin*, No.42 (Dec. 1998), pp.1–2; 'Draft Convention on the Prevention and Punishment of the Crime of Developing, Producing, Acquiring, Stockpiling, Retaining, Transferring or Using Biological or Chemical Weapons', *The CBW Conventions Bulletin* No.42, pp.2–5.
 87. Ibid.
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 89. See Jonathan B. Tucker, 'Preventing the Misuse of Pathogens: The Need for Global Biosecurity Standards', *Arms Control Today*, Vol.33, No.5 (June 2003); Michael Barletta, Amy Sands and Jonathan B. Tucker, 'Keeping Track of Anthrax: The Case for a Biosecurity Convention', *Bulletin of the Atomic Scientists*, Vol.58, No.3 (May/June 2002), pp.57–62.
 90. For the text of this treaty see <http://www.iaea.org/worldatom/Documents/Infcircs/Others/inf449.shtml>.
 91. Barletta, Sands and Tucker, 'Keeping Track of Anthrax', p.61.
 92. See for example Graham S. Pearson, *Article III, Further Building Blocks*, Briefing Paper No.13, University of Bradford, Oct. 1998.
 93. See *The Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* website at <http://www.pic.int/>.
 94. For the text of the *Biosafety Protocol* see <http://www.biodiv.org/doc/legal/cartagena-protocol-en.pdf/>.
 95. See Transcript: *Bolton Briefing on Biological Weapons Pact, November 19 (He says BWC draft protocol is dead and won't be resurrected)*, available at <http://usinfo.state.gov/admin/006/eur210.htm>, last accessed 5 Dec. 2001.
 96. See United Kingdom, *Strengthening the Biological and Toxin Weapons Convention: Countering the Threat From Biological Weapons*, London: The Stationery Office, Cm 5484, April 2002, available at <www.fco.gov.uk>.
 97. See *Working paper submitted by the European Union*, document BWC/CONF.V/COW/WP.23, Geneva, 27 Nov. 2001, available at <www.opbw.org>.
 98. See Sims, *Biological Disarmament Diplomacy in the Doldrums*, p.12.

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