CHAPTER 1

RETHINKING MULTILATERAL NEGOTIATIONS: DISARMAMENT AS HUMANITARIAN ACTION

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Increasing attention has been focused in recent years on the need for multilateral negotiation processes in the disarmament and arms control field to "think outside the box" in addressing contemporary challenges. But beyond recognition that there are imperfections in current approaches, it is not always clear that the parameters of the existing box are sufficiently understood or, indeed, what these new approaches should be in practical terms. This introductory paper considers some of the assumptions that negotiating practitioners in the multilateral disarmament and arms control field currently hold—among them orthodox notions of national security and "political will"—and questions whether they are always sufficient or appropriate in framing effective multilateral responses.[1] Several different ideas are unpacked (ideas that might initially appear disparate) pointing to some avenues for follow-up in order to assist negotiating practitioners in their work.

Security thinking in the context of multilateral arms control and disarmament has, at least until lately, been dominated by security concepts focusing on external threats to states and, in particular, threats posed by other states. While traditional forms of inter-state military conflict appear (at least for now) to be on the wane, a host of other scenarios involving insecurity and violent conflict are burgeoning in the twenty-first century. These range from transnational violent threats associated with terrorism, trafficking in people and illicit goods, ethnic and communal conflict to the total failure and breakdown of certain states' internal order.

Beyond their immediate and local effects, the consequences of these forms of conflict can be amplified widely because of the increasing inter-connectedness of the international system, as recognized in the recent

report of the United Nations Secretary-General's High-Level Panel on Threats, Challenges and Change.[2] The international system is, for its part, encountering real difficulties in dealing effectively with collective security problems through the usual multilateral arms control and disarmament mechanisms. This lack of progress ultimately has serious human consequences.

At the same time, alternative perspectives have evolved in order to contextualize and devise solutions to problems associated with violent conflict. The United Nations Development Programme (UNDP) *Human Development Report 1994* is generally regarded as a watershed in this regard, incorporating as it did a broad view of "human security" focusing on the security of the individual, rather than of the traditional unit of security— that of the state.[3] A myriad of human security definitions have emerged since then, to the extent that more than a decade later there is no general agreement about what the term means in functional terms, let alone how it should be applied.

Nevertheless, human security and humanitarian approaches to problem-solving do have utility in assisting practitioners in multilateral arms control and disarmament negotiations. This has been shown, for instance, by their limited application in the Antipersonnel Mine Ban Convention process, the 2003 protocol on explosive remnants of war and in the context of combating illicit trade in small arms and light weapons.[4] These approaches differ from the ways in which practitioners in multilateral arms control and disarmament traditionally view issues of security. In orthodox disarmament and arms control negotiating environments the state—not the individual—is the sole referent point for achieving and reaping security benefits.

This "national security" referent point remains relevant and important. Nor is it likely to be eclipsed while the nation state remains the basic unit of international order. But new and complex challenges of security this century, such as small arms and light weapons proliferation and reducing the risk of advances in the life sciences being turned to hostile use, increasingly call for supplementary perspectives in order for them to be addressed effectively. Humanitarian perspectives and concepts can constitute certain of these supplements. They do not need to be viewed as exclusive alternatives to national security approaches in order to assist negotiating practitioners and can help build common ground in responding

to collective challenges in security, especially as states are responsible for contributing to their citizens' security in individual and communal terms, as well as from external threats posed by other states.

To help assist negotiators, UNIDIR recently initiated a project aimed at reframing multilateral disarmament and arms control issues in humanitarian terms from a problem-solving perspective. The project will analyse practitioners' viewpoints in arms control and disarmament processes and suggest new concepts, tools and techniques that might assist them. Hence the project's title—Disarmament as Humanitarian Action: Making Multilateral Negotiations Work.

Answering questions about what makes some negotiations in arms control and disarmament more successful than others (and, indeed, what even constitutes success) is not easy. Nor is it the purpose of this introductory paper. Instead, some basic parameters are introduced here and we outline what we mean by "reframing" multilateral disarmament and arms control as humanitarian action.

TERMS OF REFERENCE

As the first step to doing so, it is important to explain what is meant by terms such as disarmament, arms control and humanitarian action, as used here. Disarmament, for example, is a term that carries various connotations. For our purposes it is "the traditional term for the elimination, as well as the limitation or reduction (through negotiation of an international agreement) of the means by which nations wage war".[5]

It should be noted that disarmament and arms control are not supposed to be interchangeable terms, although they are sometimes used as such. Arms control was a term originally coined in the 1950s referring to international agreements intended to limit the arms race between the United States and the Soviet Union. It was recognized that these activities—limiting, rather than reversing arms competition—differed from disarmament because general and complete disarmament did not seem readily achievable at the time. Non-proliferation is also a term that has been in use since at least the 1960s, and falls within the umbrella concept of arms control.[6]

Defining humanitarian action or assistance is trickier. In fact, these overlapping concepts possess no generally agreed definitions. A recent international meeting of humanitarian negotiators concluded that this was not necessarily a problem from a practical perspective, however. "There had always been different forms of humanitarianism and it had not been proven whether the lack of identity has had a bad impact on humanitarian work."[7] For our purposes humanitarian action can be defined as an inclusive term connoting activities that stem from rules or principles of international humanitarian law (IHL), also known as "the laws of war".[8]

An intrinsic link exists between disarmament, arms control and international humanitarian law:

> All laws of war suffer from one common weakness: the rules of conduct established for belligerents in time of peace may not resist the pressure of military expedience generated in the course of hostilities, and the attempts to "humanise war" may sometimes prove futile. The danger that the weapons prohibited may, under certain circumstances be resorted to—as has occurred on several occasions—will not disappear as long as these weapons remain in the arsenals of States. Hence the intrinsic link between the development of the humanitarian laws of war and progress in the field of disarmament.[9]

On this basis "one could argue that if the principle of distinction or the prohibition on the use of weapons which cause superfluous injury or unnecessary suffering had been respected by all belligerents, disarmament and arms control treaties would be less necessary".[10]

A defining feature of the modern era of armed conflict is humanity's capacity to extinguish itself as a species. Merely the existence of nuclear or biological weapons, for instance, is destabilizing and their use could have terrible consequences. The ever-real potential for escalation of conventional armed conflict to use of so-called weapons of mass destruction necessitates acknowledging that continuum of armed violence, and the requirement for ways to alleviate or prevent such escalation. Disarmament and arms control and IHL have important roles to play in this context.[11]

MULTILATERALISM AND ITS DISCONTENTS

Despite the pressing need for the enforcement, consolidation and further strengthening of such norms, however, some important multilateral disarmament and arms control processes—like the Conference on Disarmament—have lately become moribund. Others like the Ad Hoc Group of states parties to the Bacteriological (Biological) and Toxin Weapons Convention (BTWC) (tasked with negotiating a verification protocol to that treaty), have been rejected or superseded by less robust processes. This has led to questioning by some of the value of multilateral disarmament and arms control.

Moreover, the period since the terror attacks of 11 September 2001 has seen a recasting of many security responses at the state level as elements of an international "war on terror". There are sound reasons for this new emphasis. But, still, the change in emphasis can obscure the reality that states, and the international community at large, remain vulnerable to threats to their security from other states, not only from armed non-state actors like Al-Qaeda.

The change of emphasis has benefited some multilateral forums, though. The United Nations Security Council, for example, has enhanced its institutional role in coordinating non-proliferation against weapons of mass destruction by means of its resolution 1540. This resolution established a Committee of the Security Council for at least two years in order to monitor the resolution's implementation "and to this end calls upon States to present a first report no later than six months from the adoption of this resolution to the Committee on steps they have taken or intend to take to implement this resolution".[12] New types of collective response have also emerged such as the United States-led Proliferation Security Initiative (PSI), which stresses "practical cooperation" by PSI partners in physical interdiction efforts against weapons of mass destruction.[13] The importance of other innovations, such as Cooperative Threat Reduction measures to reduce proliferation risks in the countries of the former Soviet Union, have been reaffirmed.

However, it is significant that these new frameworks for potential action are founded upon existing norms including the Nuclear Non-Proliferation Treaty (NPT), BTWC and the Chemical Weapons Convention (CWC). This relationship is alluded to in Security Council resolution 1540—

although the resolution's text skirts the issue of how comfortably its enhanced role sits with existing review processes under these treaties that include all of their respective memberships and which are more representative than the limited membership of the Security Council. With respect to the role of the PSI its chief advocate, the United States, contends that "the foundation of our ability to act in support of PSI activities is our respective national legal authorities and relevant international frameworks".[14] This is combined with an insistence by Washington that PSI is an activity *not a process* in the face of "a much larger set of apprehensions and uncertainties that have rightfully stirred doubts that the PSI will indeed contribute to non-proliferation goals without undermining international peace and cooperation".[15]

What has *not* changed is that further normative enhancement of international norms—as opposed to just their enforcement—will require multilateral structures for legitimacy, if not for substantive development. Even if collective disarmament and arms control processes have been partially eclipsed by other types of response, they remain commonly agreed benchmarks among a wide spectrum of the international community. Other types of response that lie between the national and broadly multilateral in the international security domain are not necessarily incompatible. But the maintenance and further development of multilateral disarmament and arms control norms are probably indispensable if these other levels of response are to be effective.

Ultimately, disarmament and arms control negotiation developed because of the need for states to enhance their security collectively, primarily for protection from one another. Despite terrorism representing a dominant theme at present, the need to develop multilateral agreements among states on common norms will remain.[16]

Strong calls have been heard from entities such as the High-Level Panel on Threats, Challenges and Change for strengthening the most visible multilateral structure—the United Nations system—through institution-building. And the Panel calls for greater support by member states to reinvigorate multilateral problem-solving in international security.[17] This is important, but not the whole solution. Answers need to be found to underlying questions of *how* momentum to succeed can be brought back to multilateral disarmament and arms control by helping existing processes

to start moving again. Otherwise new processes needlessly risk becoming mired in similar difficulties to current ones.

These issues are especially pertinent in the wake of the re-election in the United States of George W. Bush for a second presidential term. Responding to accusations that it is increasingly unilateralist (or is at least turning away from multilateral forms of international security response) the United States has insisted that it *is* still committed to multilateralism—but will not support negotiating outcomes it does not perceive to be within its definition of the United States' national interest.[18] Both these contrasting perceptions point to the need to ensure that multilateral disarmament and arms control responses are tuned to function more effectively in order to make them more attractive as venues for substantive engagement to solve international security-related problems.

Common sense suggests that, just as sustainable enhancements to international security need the legitimacy that collective multilateral norms can bestow, it is unrealistic to expect key players in the international system, like the United States, to remain committed to multilateral processes when they perceive their vital interests threatened because these lack responsiveness or adaptability. In the longer term, failure to address such criticisms will merely add validity to them, which benefits nobody. "A conscious strategy of multilateral engagement implies a commitment to correcting these deficiencies and improving the emerging framework of global cooperation. It means designing strategies that maximise the benefits of working with others while minimizing the costs and constraints."[19]

POLITICAL WILL

Making multilateralism more effective is certainly easier said than done. Examining factors associated with multilateral negotiations and the ways in which they interact is one place to start in considering how to making it so. Some specific observations to this end are presented later in this volume.[20] A better understanding of how negotiations work—or fail to work—in practice may also cast light on the various phenomena often described as comprising "political will", which is a term often used by multilateral diplomats. But it is questionable whether political will is a concept useful in analysing their dynamics because referring to political will is like describing the weather on a particular day as the product of the forces

of nature: it rather states the obvious and conveys little in the way of useful insight or description.

For all of its deficiencies, however, political will remains firmly part of the lexicon of the disarmament and arms control negotiator. As a shorthand term this is fine. In recent years, however, "lack of political will" has become elevated to the status of an explanation in itself for lack of progress in disarmament and arms control when it is merely a sign pointing to specific obstacles or postures that make effective negotiating outcomes more difficult to achieve.

As indicated above, the reality is that while orthodox multilateral processes have suffered in recent years some other collective responses, like the PSI, have nevertheless been undertaken and may prove quite successful. Even among those states least inclined to use the orthodox multilateral disarmament and arms control machinery, therefore, *there are still extraordinary efforts at the bilateral and plurilateral levels*. This indicates that we are not confronted by a situation of apathy. Rather, political attention and energy are being diverted into channels other than traditional multilateral disarmament and arms control forums.

Although they are more formal terms than political will, disarmament, arms control and humanitarian assistance are, nevertheless, also concepts that have to reflect political imperatives and be elastic enough to be fitted around various contexts for the policymakers and negotiators using them. Consequently they are difficult to test by means of falsification: there are no hard-and-fast rules about what may or may not qualify for consideration within the disarmament, arms control and humanitarian spheres, apart from political acceptability. In a post-11 September world this has already proved more malleable than it was perceived to be previously.

Unlike political will, however, these terms function as descriptions in the context of multilateral dynamics, not as explanations for them. Correspondingly they remain relevant provided they help negotiators conceptualize problems and possible ways to solutions. They lose their value as useful concepts if their boundaries or other characteristics become too confining.

Disarmament, arms control and humanitarian assistance have further value. They help to create (or, in the best cases, to preserve) links between

negotiating practitioners in the disarmament and arms control field with wider constituencies, for example in transnational civil society, in order to enable the latter to understand and mobilize on issues of concern to them in ways relevant to influencing the direction of negotiating processes.

By contrast, explanations of negotiating processes or dynamics predicated simply on perceived levels of political will tend, in practice, to obscure rather than aid transparency to those outside them. This is not helpful in ensuring accountability of policymakers and negotiators to their domestic constituencies or to broader international public opinion. Nor does it help negotiating practitioners distinguish features of their working environment that are intentionally caused by features that were not intended or "designed" into the operation of the system, but arose for other reasons.

A COMMUNITY OF PRACTICE

Rather than couching analysis in terms of political will then, it may be more useful to consider disarmament and arms control negotiators interacting in multilateral forums as members of a distinctive "community of practice".

What does this mean? For our purposes a community of practice simply entails "a group of people who over a period of time share in some set of social practices geared toward some common social purpose".[21] Some of these practices, such as titles, formal rules of negotiating procedure and other working methods—are formal. Some other practices—perennial coffee breaks, "off-the-record" working lunches and dinners as well as the art of fobbing off dull colleagues at diplomatic receptions, for instance—are informal. But an understanding of what they are, how they work and the roles and responsibilities of members is implicitly shared in that community. It is what connects a group of individuals. But it is also what sets them apart from others. This community of practice, however loose and amorphous it may be perceived to be, is what fashions negotiating outcomes within various parameters.

The concept of a community of practice outlined above is also useful because it is a way of viewing multilateral negotiators as more than simply mouthpieces of their governments. It recognizes that their interactions are

dynamic. The exploitation of these dynamics makes negotiation and compromise possible at the multilateral level in the pursuit of policy outcomes.

Moreover, examining these issues in terms of the functioning of a community of practice allows the possibility of structural problems arising in—and across—multilateral disarmament and arms control processes for reasons that are not premeditated in political or diplomatic terms. To put this another way: if we accept that diplomatic and multilateral practices *evolve* over time for reasons other than those designed intentionally, then it follows that some aspects of the community of practice are *not* designed. This can result in dynamics or practices that are unproductive, and which were unintended. In political-will explanations the absence of political will has logically to be the product of premeditated agency—it has to be "somebody's fault". (There is "will" or "lack of will"—"anti-will", if you like—or the "wrong kind of will", which all presuppose conscious agency.) But sometimes there is simply no identifiable culprit for problems or inefficiencies.

The idea of a community of practice should not be a great conceptual leap for diplomatic practitioners. Most already recognize the existence of differences between their informal and formal methods of interaction when they speak, for instance, about "personality", "atmospherics" or "negotiating room dynamics" as *x*-factors in negotiations. These labels also point to the fact that negotiation processes in the disarmament and arms control context are highly iterative. That is, they are affected by many different variables that dispose their dynamics to further change on a continuous basis.

Iterative negotiating dynamics, in themselves, are not sufficient to constitute a community of practice. That is because some of the variables of a negotiation process may be unique to it and reflect particular sensitivities of the parties or dimensions of the substance of the negotiation, which will not be duplicated again. But other variables are likely to be common to disarmament and arms control negotiators' community of practice across various processes—especially as legal and diplomatic precedent usually guide them and the same people often work in different negotiations. Examples include rules of procedure and regional group structures (in forums such as the Conference on Disarmament) and the cohesive attitudes or ideologies of states or groups of states in their

negotiating interaction. They shape iterative negotiating dynamics and are recursive in different processes to the extent that they cumulatively reflect and contribute to negotiators' community of practice. This, in turn, helps to constitute diplomatic precedent.

It follows that while some negotiating variables are visible at the level of the narrative, others only become fully visible by observing negotiating interaction over longer time frames and in the context of broader comparison of various negotiating processes. This does not mean that narrative explanations for specific multilateral disarmament and arms control processes are incompatible with other forms of analysis. But such narratives are unlikely to be complete on their own because changes in the character of their community of practice may be all but imperceptible to disarmament and arms control negotiators, journalists and statespeople in one process or brief time frame. This is especially so because membership of this community tends to be highly fluid, with individual participants also being members of other cross-cutting communities of practice—civil services being one—that see them move in and out at frequent intervals.

COMPLEXITY

While the evolution of a community of practice is usually gradual in terms of the work spans of its individual members, broader changes in the international security context may be rapid and far-reaching. Indeed it has become a common cliché that we live in a globalizing world, which is another way to say it is more interconnected. The consequences of increasing interconnectedness, in conjunction with continuous technological advance, are profound for the maintenance and development of international security by multilateral means.[22]

First, instantaneous communications create new pressures on negotiators to compress information-processing and decision-making time. And there is increasing potential for scrutiny of day-to-day diplomatic negotiating activities and interaction by their governments (as well as others, by means of espionage, for instance). Modern technologies such as the ubiquitous mobile phone, hand-held wireless e-mail devices and jet air travel can be double-edged swords. They enable a negotiator to gain access to distant resources and sources of information more easily. Conversely they lose their value if these links become a straitjacket restricting object-

oriented responses flexible enough to capitalize on opportunities emerging from negotiating dynamics (of "being in the room") of which authorities at home may not be fully cognizant.

Secondly, many of the issues requiring multilateral responses in the field of disarmament and arms control are increasingly complex and inter-dependent. Illicit small arms and light weapons proliferation, for instance, is potentially global in scope. But even a cursory look reveals a complex mosaic of different situations that defy straightforward characterization at a global level. There are no simple answers as to why individuals or groups across a broad range of different societies want to get guns or to use—or threaten to use—them to kill or injure other human beings. The presence of accumulations of automatic weapons in civilian settings in many societies is a menace to stability and safety, but the linkage is not automatic.[23] Solutions that simply address the characteristics of these weapons (which are similar in technical design the world over) without considering contextual factors such as poverty and lack of economic opportunity, for instance, are therefore likely to fail in addressing complex phenomena like illicit small arms and light weapons proliferation that affect (and reflect) the behaviour of many individuals and groups within different societies.

The international humanitarian law and disarmament and arms control domains, for their part, developed in the nineteenth and twentieth centuries as corollaries of security diplomacy at the inter-state level, rather than at the individual or community levels. The basic unit of this diplomacy, the nation state, was recognized as early as the Peace of Westphalia in 1648 at the conclusion of the devastating European Thirty Years' War, although the term "national security" as understood in the modern sense was not used until after the Second World War.[24] Nevertheless, the Westphalian Peace is generally seen as a watershed because it signalled a shift in the character of power struggles from the religious to the secular. Such a shift resulted in the development of inter-state relations along lines dictated by national "interest" or power to an increasing extent as time passed. The development and the centralization of power within European nation states itself reflected the exigencies of waging war (or of possessing the capability to make war) in a geopolitical environment in which potential adversaries were doing the same.[25]

Historians usually date the early days of recognizably multilateral diplomacy from the convening of the European "great Powers" in the

Concert of Europe in 1815 after the defeat of Napoleon. Although diplomatic negotiation in the nineteenth century involved men of different nationalities (and they were virtually always men) they came from similar classes, backgrounds, interests and outlooks. Moreover, in a world in which communication was usually limited to the pace of a horse, sailing ship or slow steam train most geopolitical issues such as wars unfolded over weeks or months.

Nor was the international system multilateral in the sense to which we are accustomed today. Until decolonization began in earnest in the middle of the twentieth century there were only a handful of great Powers. This made negotiating interaction much more manageable in its number of variables than the 190 or so countries belonging to the United Nations today. A few countries, a few people, a few languages, common histories and understandings of what constituted "diplomacy" all helped to cement a common community of perceptions and attitudes towards negotiating interaction.[26] Nor did the influence of the media, while growing, have the same impact that it does today.

Scholars identify varying phases or transitions in the development of multilateral diplomacy. Some perceive a shift from traditional diplomacy based on the principles of Europe's nineteenth-century balance of power to Wilsonian ideals of "open diplomacy". However, such transitions can be (and are) contested: Lippman, Morgenthau and Kissinger are examples of better known so-called "realists". Indeed, the realist school's conception of national security has dominated the development of security thinking both in the "strategic" policymaking community and in the multilateral sphere since the 1940s until at least the late 1980s.[27] Today theoretical frameworks abound for interpreting and analysing the direction of the international system and approaches to achieving security from "clashes of civilizations" (Huntington), "America is from Mars, Europe is from Venus" (Kagan) to an emerging "empire lite" of imperial and humanitarian intervention by the world's leading Powers (Ignatieff), to name but a few contemporary examples.[28]

One way to consider the substance of disarmament and arms control negotiations as they developed through the twentieth century would be to describe them as generally *reductionist* rather than synthetic. All this means is that as disarmament and arms control's community of practice gradually developed it tended to do so along lines that broke down complicated

problems into their constituent elements. Specialists were brought in to deal with technical or military issues within negotiations. Oversight at the diplomatic and political level was supposed to keep this aligned with the broader picture. Reductionism was not so much a driver in interaction between states in terms of their security as a means to help them achieve it.

This "orthodox" model was, and continues to be, very powerful. It is especially useful in circumstances in which each negotiating actor has the time and resources to study and understand the postures of its negotiating counterparts. Moreover, the nature of a number of twentieth-century disarmament and arms control negotiations meant that they could be divided up productively in such a reductionist manner. Examples include nuclear reduction measures agreed between the United States and the Soviet Union, the Conventional Forces in Europe agreement and the CWC negotiations.[29] These agreements all contain discrete components, lists—whether of bombers, tanks, nuclear warheads or toxic chemicals—and are rationally organized to solve concrete problems of identification, verification and other aspects of arms control or disarmament.

Sometimes for practical or political reasons the reductionist tendency could only be taken so far, though. Agreements such as the 1972 BTWC looked very different, for instance, from the CWC agreed later. In the BTWC case the means of verification to ensure confidence in compliance with its prohibitions lagged behind the political commitment underpinning its negotiation. Consequently, beyond containing general undertakings and prohibitions, the BTWC is very general in its drafting—legally binding statements of intent without provision for verification or other measures intended to promote confidence in compliance.[30]

The contrast between reductionist and synthetic modes outlined above is, of course, oversimplified. But it serves to illustrate a limitation of traditional approaches to disarmament and arms control; that they can be confounded when there are too many different but interacting factors to analyse. As mentioned above, new disarmament challenges this century are increasingly characterized by the interdependence of myriad variables, rather than the innate strategic qualities of specific objects or systems. The interaction of these variables creates emergent properties in the international security system, which are not necessarily seen by taking the system apart and examining each of its constituent elements. The *non-*

linearity of some of these interactions is something that may be profoundly counter-intuitive to diplomatic negotiators.[31]

Two differing examples help to illustrate this point. First, a lot of technology with proliferation potential for biological weapons is inherently "dual-use". This means that hostile use of the life sciences is largely a question of intent rather than access to special materials or equipment. Biological weapons can potentially be made with quite basic materials and knowledge usually used for peaceful purposes. "Biotechnology is becoming cheaper, and knowledge of it more widespread. The place that the life sciences occupy in society is widening."[32] Most societies find it excessively difficult or inconvenient to prohibit or regulate access to these technologies too restrictively, especially as they usually have considerable benefits for society when used legitimately.

The life sciences will continue to advance and increasingly permeate society in ways analogous to the far-reaching changes to society that the integration of electronic microprocessors wrought in recent decades. This means the proliferation signature of biological weapons is certain to change. It follows that understanding and minimizing hostile *intent* will become as relevant to efforts in strengthening norms against biological weapons at least as much as simply regulating access to the technologies themselves.

Some of these advances in the life sciences of potential risk for misuse by those with hostile intent are concurrently becoming more *intangible* in form. Examples already exist: the genetic sequencing of a number of viruses such as polio and some members of the orthopox virus family means that they can (and have) been reconstructed synthetically in laboratories using common materials without an original sample of the pathogen being needed.[33] Synthesis of bacteria is predicted to follow.[34]

This greater intangibility of life science technologies of potential relevance to hostile use is likely to have profound implications for non-proliferation efforts in the long term, especially as auxiliary laboratory technologies also become more affordable and widespread. Moreover, scientific and technical knowledge is also diffusing in new ways (like over the Internet) that may not afford close supervision. This convergence of factors invites the likelihood that hostile use of the life sciences will come about for flippant or casual reasons involving misplaced curiosity or lack of

awareness by individuals about the consequences of their actions, as the development and spread of computer viruses already occur now.[35]

A second example, that of illicit small arms and light weapons proliferation, also poses complex challenges, as discussed earlier. But the characteristics of this proliferation—its causes, progression and consequences—although complex, differ in nature from hostile use of the life sciences. Indeed, this issue is perhaps most usefully seen as a cluster of overlapping concerns based on the understanding that the presence of these weapons in post-conflict situations, or in large concentrations in any society, can be profoundly detrimental.

A characteristic of small arms and light weapon proliferation problems in distinct environments is their potential for interconnection. Weapons slosh from conflict to conflict, possession by non-state actors can become widespread, and their humanitarian consequences—forced migration, ethnic cleansing, refugee crises—may take on regional and international dimensions. "Even if one could turn off the small arms tap tomorrow, they would continue to circulate between conflicts, communities and combatants. This is because the diffusion of small arms takes place at the interface of global and local arenas, in situations of inequality and insecurity, posing intricate challenges to national, regional and international actors."[36] For example, "because of their long life span, small arms are continuously recycled from old conflicts. AK-47s and M-16s used by combatants during the Vietnam War have resurfaced as far afield as Nicaragua and El Salvador more than 30 years later. Highly durable, they frequently outlast peace-agreements and can be taken up again well after the conflict has ended".[37] These complex and interconnected characteristics that may defy uniform responses globally call for greater understanding by negotiating practitioners.

In sum, it is not difficult to see why the multilateral disarmament and arms control community, grounded in a national security paradigm, is encountering mounting problems in situations of increasing complexity and interdependence in which the state is not the only, or even the most relevant, unit of analysis or decision-making. This is partly because (as was explained above) its community of practice evolves gradually. It may also be due to limits of understanding among practitioners about the ramifications of these changes for their work. Or, more likely, it may be due

to difficulties in knowing how to operationalize this awareness in negotiating terms.

HUMAN SECURITY?

It is time now to return to "human security" concepts. As noted above, there is no agreed definition of what human security is. A recent survey of 21 scholars in the humanitarian security field revealed a wide range of notions of how it is most suitably defined, from a "bridge between the interconnected challenges confronting the world", "psycho-social well-being over time" to "a concept in search of relevance".[38]

If human security lacks a consensus meaning, what use is it for analysis and decision-making? Those who believe human security approaches have utility note that human security takes the perspective of the individual and of the community, rather than the nation state. A further hallmark of human security approaches and, indeed, of humanitarian responses in general, is the degree to which they recognize interlinkages between different domains, both within and beyond the traditional elements of national security. Successful humanitarian response is inherently multidisciplinary. It is in this sense that concepts deployed or originating in the humanitarian sector may provide useful frameworks for tackling disarmament and arms control challenges: human security concepts are different wavelengths at which to view disarmament and arms control problems.

There is, however, divergence between so-called "narrow" and "broad" conceptions of human security. UNDP, for instance, established a broad concept with seven components: economic, food, health, environmental, personal, community and political security. In the same groundbreaking *Human Development Report 1994* the authors argued that "the concept of security has for too long been interpreted narrowly: as security of territory from external aggression, or as protection of national interests in foreign policy or as global security from the threat of a nuclear holocaust. It has been related more to nation-states than to people".[39] Overall, the UNDP concept "acknowledged the imperative for multi-faceted and human-centred security in daily life and the conviction that the search for stability lay in development rather than in arms".[40] While differentiating human security from human development the UNDP concept of human security was nevertheless very broad in scope.

There are valid criticisms of broad human security approaches. One is that the broader the definition the less useful it is as a basis for analysis and response by the policymaking community, which includes the community of practice of multilateral negotiators. (This is at the crux of the author's difficulty with the Commission on Human Security's conceptualization of human security in terms of a "vital core".)[41] By contrast, proponents of "narrow" concepts of human security focus on evaluating the effects of violent threats as a basis for policy response. They argue that only narrow conceptions have resulted in successful international initiatives using human security parameters. These initiatives include the Mine Ban Convention, the International Criminal Court, as well as the recent international focus on child soldiers, small arms and the role of non-state actors in conflict.[42]

A criticism of these narrower human security approaches is that they can be so pragmatic that they risk losing their analytic clarity and distinctiveness. An additional reservation is that while the results of processes such as the Mine Ban Convention negotiations and small arms might be perceived as outcomes of human security approaches (and certainly have been talked up as such by its supporters), it does not automatically follow that this actually *did* guide negotiators at the time, who often had rather more prosaic concerns. The author (a governmental participant in the subsequent Mine Ban Convention process as well as in the drafting of the 2001 programme of action on illicit trade in small arms and light weapons) remains to be convinced that human security ideas did more than inform the views of those negotiators *already openly disposed towards them* in the turmoil of drafting and deal-making. Nevertheless, it represents a real benefit that human security provided a more coherent intellectual framework for framing issues and negotiating on substance in these contexts. In the Mine Ban Convention context, for instance, it enabled a shared analysis between donor and mine-affected countries to develop and consequently generate money and resources for mine action assistance.

Lately there have been efforts in the human security field to attempt to move beyond disagreement about its broad and narrow conceptions. Some have developed further ideas, such as "thresholds-based" definitions "to let the actual risks determine what human security is not. From this, a regionally defined human security measure can be produced. This stays true to the original focus of the concept but renders it analytically and practically useful for addressing today's climate of insecurity."[43]

Regardless of the ongoing debate, field-based perspectives brought to bear by the humanitarian community in multilateral disarmament and arms control processes have been at least as important as any contribution of human security theory. Multilateral action on anti-personnel mines, small arms and light weapons and explosive remnants of war were all pre-dated, and partly stemmed from, concerns expressed by international agencies, non-governmental organizations (NGOs) and individuals working at post-conflict environments about the effects of these weapons on individuals and the communities to which they belonged. In the case of anti-personnel mines these concerns motivated actors, such as the International Committee of the Red Cross (ICRC), to begin collating data on the injuries caused by these weapons, which in turn helped to establish empirically the case for their abolition and the multilateral negotiating processes that followed.[44]

The humanitarian community's perspective—that the presence and use of anti-personnel mines causes insecurity and acts as an impediment to development—ultimately made sense to the majority of the international policymaking community and in a form that could be acted upon. Not only was it analytically useful in framing the problem of anti-personnel mines, this humanitarian orientation helped to break down splits by political grouping, particularly between North and South, that are common features of disarmament and arms control processes.[45]

The efficacy of a humanitarian framing of the anti-personnel mine problem and potential solution was also confirmed by empirical data of the effects of these mines and by dynamic contact between mine action practitioners with multilateral negotiators. As Don Hubert pointed out:

> … it was precisely [anti-personnel mines'] widespread use that provided the evidence on which to build the campaign … Campaigners directly affected by mines included mine victims, deminers and medical staff tasked with assisting victims. Collectively they had unparalleled expertise and made compelling spokespersons who could not be easily dismissed by politicians, diplomats or military personnel. Anti-mine campaigners could consistently trump military experts by pointing to the clear disjuncture between mine warfare theory and practice.[46]

This is an important observation. Transnational civil society continues to have a significant influence on the operation of the Mine Ban Convention

because of this. And its research on the anti-personnel mine problem and its effects, through publications such as the annual *Landmine Monitor* published by the International Campaign to Ban Landmines, adds credibility to its views.[47] Similar civil society attempts at empirical data collection have begun both on small arms, explosive remnants of war and, in particular, cluster munitions because of their deleterious humanitarian effects.

It is no coincidence that the international humanitarian mine action community was also at the forefront of successful subsequent efforts in the CCW process in Geneva to develop international rules on alleviating the effects of explosive remnants of war.[48] Once again this drew upon the experience of practitioners in the post-conflict humanitarian field, which helped to keep political realities aligned with facts on the ground in humanitarian and military terms, as well with public expectations.

Humanitarian approaches and human security concepts have made far fewer inroads in the context of multilateral processes aimed at curbing so-called weapons of mass destruction. Nuclear, chemical and biological chemical weapons programmes have always been the subjects of particular secrecy for governments and can be central to their notions of national survival and prestige. Moreover, although their use has not been unprecedented, it has been sufficiently rare to make it difficult for a comprehensive survey of their humanitarian effects to be developed by open-source means. First-hand technical knowledge has always been difficult to divulge for reasons of state security, as the Mordechai Vanunu case in Israel showed.[49] (At the forefront of the antipersonnel mine ban campaign, by contrast, were former military engineers turned humanitarian deminers.) In the mine ban campaign, and to some lesser extent in the context of explosive remnants and even illicit trade in small arms and light weapons, mutual trust has evolved between civil society campaigners and government negotiators. A greater divide remains where weapons of mass destruction are concerned between humanitarian and "hard" national security viewpoints that needs to be bridged by more coherent human security ideas.

This does not mean that humanitarian efforts to frame these types of disarmament challenge are not under way. The BioWeapons Prevention Project, recently established by NGOs to "report regularly on developments related to compliance of governments and other entities with the BTWC

and other international treaties that codify the norm against BW", has begun reporting.[50] This civil-society initiated transparency measure may be as significant in prompting public concerns by revealing the limits of publicly available data as any new revelations it contains.

For its part the ICRC launched a public appeal in September 2002 entitled "Biotechnology, Weapons and Humanity" aimed at drawing attention to the need for prevention of hostile use of the life sciences from a humanitarian perspective. (There is a precedent for this: the ICRC launched an appeal in 1918 that helped result in the 1925 Geneva Protocol banning the use of asphyxiating gases on the battlefield.) Basing its actions on its humanitarian mandate, the ICRC has not only undertaken to work with governments but also sought to improve awareness at the individual and institutional level in the professional life sciences. The ICRC is trying to promote international and domestic laws against biological weapons, and prompt actions at the state and non-state level to translate these into effective practical action.[51]

The ICRC approach demonstrates that *bottom-up* humanitarian approaches can benefit the diplomatic disarmament and arms control domain by raising awareness of the relevant international norms and encouraging consistent action. As such, this holds practical lessons for the disarmament and arms control "community of practice" in responding to problems of complexity and individual motivations for hostile use of the life sciences. What is most distinctive about the ICRC approach is that it is derived from public health models of risk assessment and reduction—an approach that appears to resonate with the international scientific and medical communities. In particular, the ICRC stresses the need to contextualize efforts to prevent poisoning and deliberate spreading of disease within the context of broader public health and development efforts rather than simply in terms of fighting "bioterrorism". Rather than predicated solely on a national security approach, which elicits suspicion among many individuals in the professional life sciences, the ICRC *web of prevention* concept can be characterized as a distinctively humanitarian response to a proliferation challenge.

CONCLUDING COMMENT

This introductory paper has suggested some ideas about new ways in which problems associated with multilateral disarmament and arms control negotiating processes might be viewed. It has attempted to do so without leaning on the concept of "political will", because this leads us into an analytical dead end. While useful as an indicator, pointing to political will as an explanation obscures more specific, or deeper-seated, problems in terms of "getting to yes" in multilateral negotiations. "Thinking outside the box" in pursuit of more effective multilateral outcomes requires more than increasing resources or proclamations of political commitment: it requires examining the conditions under which negotiations occur, and optimizing them to respond to current challenges. Past working practices and assumptions should be regularly reviewed to check that they actually make sense in the contexts to which they are applied.

To this end an alternative has been suggested, and that is to examine the multilateral "community of practice" within which negotiators work, and the way in which this contributes to shaping the choices, for better or for worse, that negotiators make. This does not ignore the specific political parameters and political pressures that can make or break a multilateral negotiation that are, naturally, at the forefront of negotiators' minds. But it provides an apparatus for viewing these interactions as more than simply exertion of the levers of national preponderance. Such an approach is necessary because diplomats are more than simply functionaries and spokespeople for their governments. As anyone who has participated in a multilateral negotiation instinctively knows, the inherited structures and working methods of a negotiation juxtaposed with the attitudes, personal style, experience and personal judgement of its participants have a major influence in creating the conditions for success or failure, through the iterative dynamics that develop.

Another theme of this article is that increasing complexity and inter-connectedness are creating new challenges for traditional ways of looking at the world and responses in international security terms. Multilateral negotiators are used to thinking of "progress" or deeper-seated changes in technology, geopolitics, socio-economic conditions or the environment as the backdrop to their play. But, as examples used here indicate (including small arms and light weapons and developments in the life sciences), complex feedback processes involving individual and other non-state

behaviour make risks and responses increasingly tricky to frame adequately for the purposes of problem-solving. Such developments are, in fact, not a backdrop to multilateral processes but the equivalent of a stage floor—a floor that is continually moving. At the very least, new props are going to be needed, and so is fresh dialogue.

One matrix of assumptions that needs review concerns national security, as it is traditionally regarded. Too often it is used as a trump card to prevent debate or reform of aspects of a process, such as rules of procedure or decision-making mechanisms. While it is improbable that national security prerogatives would or could be entirely discarded as a final safeguard in negotiations, diplomatic practitioners need to critique its use on a continual case-by-case basis against a broader range of concerns.

Bringing humanitarian perspectives further into multilateral disarmament and arms control's community of practice would help. Humanitarian approaches have already contributed in substantial measure to success on some conventional weapon issues, for instance in the achievement and implementation of the Mine Ban Convention. Human security concepts have been useful in conceiving how security benefits for the individual and for the community can be met, and have been grounded in reality by the involvement of the field-based humanitarian community alongside governments. Such approaches—bringing disarmament back to what it is really about in practical terms, and offering a window on understanding and capitalizing on individual and community-level behaviours—would yield benefit across the disarmament and arms control spectrum. These are desperately needed, including in "hard-core" national security areas such as nuclear and biological disarmament because preventing or diverting hostile intent is going to become more critical as technology advances and diffuses.

Viewing disarmament as humanitarian action will not be without its costs. Greater non-state actor input into disarmament and arms control processes—like the Conference on Disarmament, or the NPT, for instance, in which such input is currently highly circumscribed—may make some states uncomfortable. But inviting a broader range of input, whether it be humanitarian mine clearance operators in the Mine Ban Convention or physicians and civil nuclear scientists in the NPT, should not be seen as some sort of favour to transnational civil society. In fact, a richer flow of information and of knowledgeable perspectives is a practical means to

making multilateral processes more effective, especially if they lead to questioning features that have lost their purpose and utility. Failure to do so will foreclose options for multilateral effectiveness to improve and, as a consequence, likely undermine states' own security.

Human security or broader humanitarian approaches to disarmament and arms control are not "one size fits all" solutions to multilateral problem-solving. Obviously they are context dependent, but a key characteristic—the involvement of those they are intended to help and those who carry out or live with the realities of work on the ground within a coherent and goal (rather than process) oriented framework—is relevant in any context. One main benefit, in combination with examining negotiation activities in the context of a community of practice, is that it should help multilateral practitioners to choose and, if need be, devise appropriate methods and objectives.

For multilateral effectiveness of disarmament and arms control processes to improve, practitioners must be more willing to be critical of their working methods and behaviours—not all of which persist for sound reasons—and to discard or modify them more readily. The most painful part of such a process may be the point at which respective governments and their negotiating representatives realize that abandoning or transforming old postures or practices will concede a specific advantage. But there is more to be gained than lost from this in the longer run; that is, *if* falling back on crutch explanations like "that's the way it's always been done" or "lack of political will" can be avoided. What is there to lose in a contemporary multilateral disarmament environment beset by stagnation and lack of ambition?

Notes

[1]   Multilateralism as meant here: a commitment to maximum participation in dialogue among political, social, economic and cultural forces as a means of resolving conflicts and designing institutional processes. See R. Cox, *Program on Multilateralism and the United Nations System, 1990-1995*, Tokyo: United Nations University, April 1991, p. 4.

2   See United Nations, *Report of the Secretary-General's High Level Panel on Threats, Challenges and Change—A More Secure World: Our Shared Responsibility*, New York: United Nations, 2004. This report can be downloaded from: http://www.un.org/secureworld/.

3   See Chapter 2 ("New Dimensions of Human Security") in *UNDP Human Development Report 1994,* New York: United Nations Development Programme, 1994, pp. 22-46.

4   Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction of 18 September 1997, Protocol on Explosive Remnants of War of 28 November 2003 (Protocol V to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects of 10 October 1980), United Nations Programme of Action to Prevent, Combat and Eradicate the Illicit Trade in Small Arms and Light Weapons in All Its Aspects (A/CONF.192/15), 20 July 2001. The small arms programme of action was drafted as a political document and is not legally binding on states.

5   Robert J. Mathews and Timothy L. H. McCormack, "The Influences of Humanitarian Principles in the Negotiation of Arms Control Treaties", *International Review of the Red Cross*, Vol. 81, No. 834, June 1999, pp. 331-352, p. 333.

6   The 1968 Nuclear Non-Proliferation Treaty (NPT), for example, explicitly created two categories of State, with the intention of preventing the spread of nuclear weapons. Five countries (China, France, the Soviet Union, the United Kingdom and the United States) were granted status as "nuclear-weapon states", although Article 6 of the Treaty obligates them to eliminating eventually their nuclear-weapon arsenals. The NPT commits its other members ("non-nuclear-weapon states") to forego the right to develop or possess these weapons. See Jozef Goldblat, *Arms Control: the New Guide to Negotiations and Agreements*, 2nd edition, PRIO/SIPRI, London: Sage Books, 2002, pp. 101-109.

7   Centre for Humanitarian Dialogue, *Report of the 3rd Humanitarian Negotiators' Network Annual Meeting—Contextual Considerations*, Talloire, 12-14 May 2003, p. 3, http:www.hdcentre.org.

8   For a comprehensive survey see Adam Roberts and Richard Guelff, *Documents on the Laws of War*, 3rd edition, Oxford/New York: Oxford University Press, 2000.

9   Jozef Goldblat, *Agreements for Arms Control—a Critical Survey*, Stockholm: Stockholm International Peace Research Institute, 1982, p. 89.

10   Mathews and McCormack, op. cit., p. 333.

11   This withstanding, there are differing views over the effectiveness of these norm-building paradigms. Criticism of multilateral disarmament and arms control is not difficult to find, and this paper cites a number of examples. In the IHL field Jochnick and Normand have argued, for example, that "in both World Wars the laws of war played analogous roles. In each conflict the law served as a powerful rhetorical device to reassure anxious publics that the conflict would be confined within just limitations … [and was] subverted to the dictates of battle, reduced to a propaganda battlefield where belligerents traded attacks and counter-attacks". See Chris af Jochnick and Roger Normand, "The Legitimation of Violence: A Critical History of the Laws of War", *Harvard International Law Journal*, Vol. 35, No. 1, Winter 1994, pp. 49-95.

12   United Nations Security Council Resolution S/RES/1540 of 28 April 2004, operative paragraph 4.

13   Statement by United States Under-Secretary of State, John Bolton, *Stopping the Spread of Weapons of Mass Destruction in the Asian-Pacific Region: the Role of the Proliferation Security Initiative*, Tokyo American Centre, Japan, 27 October 2004, p. 1.

14   Ibid., p. 2.

15   Andrew Prosser and Herbert Schoville Jr., *The Proliferation Security Initiative in Perspective*, 16 June 2004, http://www.cdi.org.

16   For useful and concise arguments in favour of multilateral engagement—written with a view to the United States after the attacks of September 2001—see Shepard Forman, Princeton Lyman and Stewart Patrick, "The United States in a Global Age: The Case for Multilateral Engagement", *Paying for Essentials: A Policy Paper Series*, New York: New York University Center on International Cooperation, May 2002. Despite this focus on the United States, the paper is of more general relevance in arguments for the engagement of powerful states in multilateral processes.

17   *Report of the Secretary-General's High-Level Panel on Threats, Challenges and Change,* pp. 1-5.

18   For instance, see United States Assistant Secretary of State Stephen G. Rademaker's statement to the Conference on Disarmament, "The Commitment of the United States to Effective Multilateralism",

13 February 2003, Geneva, Switzerland, p. 2. "On behalf of my government … I reject any suggestion that the United States is not committed to multilateral means of achieving policy goals. To the contrary, properly understood, our policies are profoundly multilateralist. If current US policy differs at all from US policy in the past, it is a result of our recognition that, in the post-Cold War era, multilateralism is more important than ever, and that without leadership—without backbone—multilateralism is predictably condemned to failure. In a number of recent instances where we thought it necessary, we have chosen to provide the leadership—the backbone—required for multilateralism to succeed. Our insistence that multilateralism be effective may not always make us popular, but it hardly makes us 'unilateralist'".

More recently President Bush's new appointment as Secretary of State, Dr Condoleeza Rice, declared in her Senate confirmation hearing: "We must use American diplomacy to help create a balance of power in the world that favours freedom. And the time for diplomacy is now." See excerpts from this statement at: http://news.bbc.co.uk/go/pr/fr/-/1/hi/world/americas/4184751.stm.

[19]   Forman, Lyman and Patrick, op. cit., p. 15.

[20]   See Chapter 4 in this volume by Vanessa Martin Randin and John Borrie, "A Comparison Between Arms Control and Other Multilateral Negotiation Processes".

[21]   Ron Scollon, *Mediated Discourse as Social Interaction: A Study of News Discourse,* Boston: Addison Wesley, 1998, pp. 12-13.

[22]   The author would include the modern life sciences in this description of the information sciences. Molecular structures, including genes are, after all, repositories for information in organic form. Many advances in biotechnology, for instance, involve the interpreting and—in some cases—the modifying of this information.

[23]   See Chapter 6, "After the Smoke Clears: Assessing the Effects of Small Arms Availability" in *Small Arms Survey 2001: Profiling the Problem*, Oxford: Oxford University Press, 2001, pp. 197-249.

[24]   The term "national security" was apparently first used by United States Secretary of Defense James Forrestal at United States Senate hearings on the post-Second World War American defence policy and military structure. See Keith Krause, "Is Human Security More than Just a Good Idea?" in *Promoting Security: But How and For Whom?—Contributions to BICC's Ten-year Anniversary Conference*, Bonn International Centre

for Conversion (BICC) Brief 30, Bonn: BICC, October 2004, pp. 43-46, p. 43.

[25] For a brief (and classic) analysis of this trend see Michael Howard, *War in European History,* Oxford Paperbacks, New York: Oxford University Press, 1976.

[26] See John G. Stoessinger, *The Might of Nations: World Politics in Our Time*, 9th ed., New York: McGraw-Hill, 1990, pp. 227-238.

[27] See Tobias Debiel, "The Need for an Integrated Security Concept" in BICC, op. cit., pp. 52-55, p. 52.

[28] See Martin Griffiths, *Fifty Key Thinkers in International Relations*, London: Routledge, 1999, for an overview. The additional examples mentioned here are: Michael Ignatieff, *Empire-Lite: Nation-Building in Bosnia, Kosovo, Afghanistan*, London: Vintage, 2003; Robert Kagan, *Paradise and Power: America and Europe in the New World Order*, New York: Atlantic Books, 2003; and Samuel Huntington, *The Clash of Civilizations and the Remaking of World Order*, New York: Touchstone/Simon & Schuster, 1996.

[29] For further background on some of these negotiations see April Carter, *Success and Failure in Arms Control Negotiations*, Stockholm International Peace Research Institute, Stockholm: Oxford University Press/SIPRI, 1989; and Jozef Goldblat, *Arms Control: The New Guide to Negotiations and Agreements*, 2nd ed., PRIO/SIPRI, London: Sage Publications, 2002.

[30] Key to implementation of the BTWC prohibitions is the so-called "general purpose criterion" contained within Articles I and III of this treaty, intended to "future-proof" it against future advances in the life sciences and ensure that they fall within the Convention's purview. For more detail on the "general purpose criterion" of the BTWC see "Non-Lethal' Weapons, the CWC and the BWC" in *The Harvard-Sussex CBW Conventions Bulletin,* Issue 61, September 2003, pp. 1-2.

[31] Emergence refers to a process by which a system of interacting sub-units acquires qualitatively new properties that cannot be understood as the simple addition of their individual contributions. These system-level properties arise unexpectedly from non-linear interactions among a system's components. For more background see Steven Johnson, *Emergence*, London: Penguin, 2001.

[32] Professor Malcolm Dando, "Statement to the Commission of the 28th Conference of the Red Cross and Red Crescent Movement on Biotechnology, Weapons and Humanity", Geneva, 4 December 2003, p. 2, http://www.scienceforhumanity.org.

33   For instance, the polio virus was recreated synthetically and reported in 2002. See Jeronimo Cello, Aniko V. Pail, Eckard Wimmer, "Chemical Synthesis of Poliovirus cDNA: Generation of Infectious Virus in the Absence of Nature Template" in *Science*, Vol. 297, 9 August 2002, pp. 1016-1018. Moreover, researchers in the United States reported in early 2005 an "unexpectedly sudden advance in synthesizing long lengths of DNA [which puts] researchers within reach of manufacturing genomes the size of the smallpox virus. See Nicholas Wade, "Synthetic Virus in Reach", *International Herald Tribune/The New York Times*, 12 January 2005.

34   See "The Journey of the Sorcerer" in *The Economist: Technology Quarterly*, 4-10 December 2004, pp. 27-28.

35   See BBC News, "A Glimpse Inside the Virus Writer", <http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/3240901.stm> (5 November 2003).

36   *Small Arms Survey...,* op. cit., p. 234.

37   Robert Muggah and Peter Batchelor, *"Development Held Hostage": Assessing the Effects of Small Arms on Human Development—A Preliminary Study of the Socio-Economic Impacts and Development Linkages of Small Arms Proliferation, Availability and Use*, New York: United Nations Development Programme, April 2002, p. 3, http://www.undp.org/erd/smallarms.

38   See the special section by various authors entitled "What is 'Human Security'" in *Security Dialogue*, Vol. 35, No. 3, September 2004, pp. 345-372.

39   United Nations Development Programme, *Human Development Report 1994*, New York: UNDP, 1994, p. 22.

40   Muggah and Batchelor, op. cit., p. 12.

41   See the Independent Commission on Human Security, *Human Security Now: Report of the Commission on Human Security*, New York: Commission on Human Security, 2003, p. 12. The Commission frames human security in the following way: "to protect the vital core of all human lives in ways that enhance human freedoms and human fulfilment. Human security means protecting fundamental freedoms that are the essence of life. It means protecting people from critical (severe) and pervasive (widespread) threats and situations. It means using processes that build on people's strengths and aspirations. It means creating political, social, environmental, economic, military and cultural systems that together give people the building blocks of survival, livelihood and dignity. The vital core of life is a set of

elementary rights and freedoms people enjoy. What people consider to be 'vital'—what they consider to be 'of the essence of life' and 'crucially important'—varies across individuals and societies. That is why any concept of human security must be dynamic. And that is why we refrain from proposing an itemized list of what makes up international security."

42   See Taylor Owen, "Challenges and Opportunities for Defining and Measuring Human Security" in *Disarmament Forum*, 2004/3, pp. 15-24, p. 19.

43   Ibid., p. 23.

44   See, for instance, Robin M. Coupland, "Amputations from anti-personnel mine injuries of the leg", *Annals of the Royal College of Surgeons of England*, No. 71, 1989, pp. 405-408, Robin Coupland and A. Korver, "Injuries from anti-personnel mines: the experience of the ICRC", *British Medical Journal*, No. 303, 1991, pp. 1509-1512 and Rae McGrath and Eric Stover, "Injuries from Landmines", *British Medical Journal*, No. 303, 1991, p. 1492.

45   See Martin Dahinden, "Humanitarian Demining at a Crossroads—A Farewell Lecture", Geneva International Centre for Humanitarian Demining (GICHD), Geneva, 1 July 2004. Dahinden was Director of GICHD and a career diplomat, http://www.gichd.ch.

46   Don Hubert, *The Landmine Ban: A Case Study in Humanitarian Advocacy*, Thomas J. Watson Jr. Institute for International Studies, Occasional Paper No. 42, Providence: Thomas J. Watson Jr. Institute for International Studies, 2000, p. 31. Hubert participated in the Antipersonnel Mine Ban Convention negotiations as a member of the Canadian delegation.

47   For downloadable copies of this annual report go to the ICBL website at http://www.icbl.org/lm.

48   Protocol on Explosive Remnants of War (see note 4 above).

49   See BBC News story, "Vanunu wanted to avert holocaust", at <http://news.bbc.co.uk/1/hi/world/middle_east/3758693.stm> (Saturday 29 May 2004, 0826 GMT 0926 UK).

50   The first (2004) edition of the BioWeapons Prevention Project's *BioWeapons Monitor* is available from the BWPP website at http://www.bwpp.org.

51   The ICRC mission is to "protect the lives and dignity of victims of war and internal violence and to provide them with assistance. It directs and coordinates the international relief activities conducted by the Movement in situations of conflict. It also endeavours to prevent

suffering by promoting and strengthening international humanitarian law and universal humanitarian principles". See the ICRC leaflet, *Biotechnology, Weapons and Humanity*, Geneva: ICRC, 2003, http://www.scienceforhumanity.org.