Blix, not Bombs[1]

Variance in Weapons of Mass Destruction Threat Assessments

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Weapons of mass destruction (WMD) collectively present a significant risk to humans by the scale of their destructive impact, their indiscriminant effects, their killing power or a combination of all three. However, the attention given to WMD as a group, and to each of the WMD weapon types individually, varies. If governments, expert groups and nongovernmental disarmament organizations show measurably different levels of concern, is there also dramatic disagreement over the perception of threat? Or, if there is variation in emphasis, do underlying political agendas explain at least some of it?

This paper looks at how weapons of mass destruction are defined, the inherent and relative risks they pose, and reasons for variance in attention to those threats. Iraq's real and imagined stockpiles of weapons of mass destruction are offered as a good test case for *assessing the threat assessments*. The paper finds that anticipated responses to WMD threats can affect how threat assessments are made. Political agendas can distort how assessments are received and therefore how responses are formulated.

Variance in definitions of "weapons of mass destruction"

Variance in the assessment of threats has been accompanied by changes in the definition of the collective term *"weapons of mass destruction"* itself. For that reason, it is useful to compare the original use of the phrase with how it has evolved and subsequently been used.

Guilio Douhet argued in 1921 that the best way to "break the morale – the will to resist – of the enemy [is] to bomb cities, killing large numbers of civilians" (in Gentile, 2001: 11). But a 1937 article in

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[1] Hans Blix was worried that his role as chief inspector in Iraq would place his safety at risk if he was recognized on the street during a New York City anti-war protest. His worries were later assuaged, and he wrote:
"Later, the Swedish ambassador, who lived in the same area [in New York], gave me a poster that he had picked up on the avenue after the demonstration. On one side it proclaimed BLIX—NOT BOMBS! It hangs on my wall now." (Blix, 2004:185)

the London Times is likely the first documented reference to *weapons of mass destruction (WMD)*. This was in the context of the "aerial bombing of cities" in Spain by the German air force (and Guernica specifically) in the run-up to the official outbreak of the Second World War. While mention was also made of "chemicals, and other modern weaponry", the author was specifically referring to damage caused by the conventional bombing campaign over Spain, and not the use of chemical or biological weapons (nor nuclear weapons, which had yet to be invented).

To a great extent, the aerial bombardment of Dresden and Tokyo by the Allies, or of London by Germany in the Second World War, contributed to the ease with which the decision to drop atomic bombs on Hiroshima and Nagasaki was able to pass through a significant moral "threshold" -- particularly the violation of the laws of war governing proportionality and the avoidance of civilian casualties (Glover, 2001:99).[2]

In 1997, the United Nations General Assembly passed a resolution[3] in support of a prohibition on "new weapons of mass destruction and new systems of such weapons" including radiological weapons. It underscored the definition agreed to by the UN in 1948[4] by the Commission for Conventional Armaments which had defined WMD as "atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable in destructive effect to those of the atomic bomb or other weapons mentioned above".[5] The first reference to WMD in official documentation at the United Nations, however, was in 1946 in reference to the establishment of a "commission to deal with the problems raised by the discovery of atomic energy". It appeared in the first General Assembly resolution of the UN's first

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[2] For an outline of International Humanitarian Law, see for instance: http://www.icrc.org/web/eng/siteeng0.nsf/htmlall/57JNXM/$FILE/What_is_IHL.pdf?OpenElement

[3] http://www.un.org/documents/ga/res/51/ares51-37.htm

[4] The Stevenson Commission in 1950 referred to a UN 12 August 1948 recommendation by the United Nations' Commission for Conventional Armaments, which stated "[The commission] advises the security council...that weapons of mass destruction should be defined to include atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons..."

[5] See UN document S/C.3/32/Rev.1, August 1948, referred to in Goldblat: http://www.ciaonet.org/isa/goj01/

session, when a call was issued for "the elimination from national armaments of atomic weapons and of all other major weapons adaptable to mass destruction"[6]. Currently the United Nations' WMD Branch of the Department of Disarmament Affairs defines WMD as nuclear, chemical and biological weapons.[7]

The U.S. Department of Defense in 2001 defined WMD as those weapons with "capabilities to inflict mass casualties and destruction: nuclear, biological and chemical (NBC) weapons or the means to deliver them."[8] The U.S. Federal Bureau of Investigation has been more generous, and includes *any weapon that might overwhelm U.S. responders*: "A weapon of mass destruction (WMD), though typically associated with nuclear/radiological, chemical, or biological agents, may also take the form of explosives […] A weapon crosses the WMD threshold when the consequences of its release overwhelm local responders."[9]

The Canadian government currently specifies nuclear, chemical and biological weapons as WMD because of their "ability to cause indiscriminate suffering and death to a large number of people over a wide physical area."[10]

Some disarmament and development organizations have included a variety of conventional weapons within the WMD rubric, including antipersonnel mines[11] ("weapons of mass destruction in slow motion"), depleted uranium[12] (a coating for ammunition that enhances its penetration ability, described by some as "silent weapons of mass destruction"[13]) and small arms[14] ("real weapons of mass destruction"). Harigel argues that WMD should include any weapons that have killed millions of people

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[6] http://www.un.org/documents/ga/res/1/ares1.htm
[7] http://disarmament.un.org:8080/wmd/
[8] http://www.defenselink.mil/pubs/ptr20010110.pdf
[9] http://www.nti.org/f_wmd411/f1a1.html.The Monterey Institute's Center for Nonproliferation Studies notes however that "although large-scale conventional weapons, such as the bomb that destroyed the Alfred P. Murrah Federal Building in Oklahoma or the airplanes involved in the September 11 attacks, are sometimes described as weapons of mass destruction, usually the term is used to refer to chemical, biological, radiological, or nuclear weapons" See: http://www.nti.org/f_wmd411/f1a6.html.
[10] http://www.dfait-maeci.gc.ca/arms/chem_bio-en.asp
[11] http://www.peacecoalition.org/facts/landmines.shtml
[12] http://english.aljazeera.net/NR/exeres/E8C356F9-E89F-4CD3-88B5-BBBDF9E085C1.htm
[13] http://www.thepowerhour.com/articles/du_effects.htm
[14] http://www.iansa.org/media/wmd.htm

in civil wars over the last century, such as machine guns and fragmentation bombs (see Harigel, 2000).

Wolfgang Panofsky,[15]Morrison and Tsipis, however, believe that WMD should be limited to nuclear weapons because they alone have *mass destructive* capability (Panofsky, 2003). And yet concern about biological and chemical weapons, as indicated by the attention given them by the Australia Group of 34 states,[16] suggests that WMD are not only about "mass destruction", but also particularly indiscriminant mass killing (and instant or very rapid destruction of human life).

The variance in definitions is of interest because it suggests there is disagreement over the relative gravity of each unique threat type, as determined by human vulnerability to effects, the political consequences of possession, the ease of access to the weapon or its production components, the opportunities for disarmament, and the preference for exaggeration or diminution of the threat that may relate to the implications of both prevention and response efforts.[17]

There is a range of opinion as to the gravity that should be given to the threat of nuclear weapons, when compared to chemical and biological weapons, but also when comparing the threat posed by states with that of terrorists having access to these weapons.

If detection, verification and prevention can never be 100% assured, what role does fear and manipulation of publics play in perception of threats? Are suspect terrorists with unknown resources and unpredictable political agendas more dangerous than states with known inventories of nuclear missiles programmed to launch on warning?

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[15] http://www.armscontrol.org/act/1998_04/wkhp98.asp
[16] http://www.australiagroup.net/en/origins.htm
[17] If WMD are indiscriminant weapons with massive instantaneous impact, then the term easily captures NW and conventional aerial bombing. Biological weapons claim potentially large numbers of victims over a longer period of time, but not infrastructure destruction. Many chemical weapons claim instantaneous victims but their method of dispersion limits the scale of their impact. Nuclear weapons with payloads of 12 kilotons or larger (the Hiroshima payload) clearly fit the definition of mass indiscriminant killing weapons. But do "mini-nukes" and "bunker-busters", such are being designed for "precision" impact? While some radiation hazard is not eroded by the size of the payload, the scale of the impact is closer to non-WMD weapons. Nuclear weapons opponents do not dispute that impact can vary; rather they contend that any legitimization of small-scale NW may legitimize nuclear weapon technology, which circumvents the norm towards complete eschewal and abolition.

Assessing Inherent and Relative Threats

Most analysts, disarmament advocates and policy-makers share the view that weapons of mass destruction (nuclear, biological and chemical weapons) as a group pose risks by their very nature because of their known lethal payloads, notwithstanding debate about how individual weapon types compare to one another.[18]

A single, relatively small but "typical" nuclear weapon in the two megaton range (140 times the power of the Hiroshima bomb) detonated intentionally or accidentally over a densely populated city will annihilate millions of citizens immediately, and potentially many hundreds of thousands or millions more over an extended period of time due to radiation, burns, contamination and other effects. Today, more than a decade after the close of the Cold War, a total explosive capacity of about 5,000 megatons is retained in global arsenals.[19] 4,600 missiles held by the U.S. and Russia are poised to launch on warning at less than a half-hour's notice.[20] A thermal nuclear war would result in massive global human and environmental destruction, with the potential to cause nuclear winter and eliminate human life.[21]

When compared to the inherent threat of nuclear weapons (or biological weapons), many question whether chemical weapons (CW) fit the category of weapons of mass destruction at all (Cirincione et al, 2002:11, Pilat, 1997:4). Some note that chemical weapons have been rarely used. Others insist that

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[18] While the original UN documents and several states, including Canada, have included radiological weapons within the WMD family of weapons, dirty bombs or RDDs (or radiological dispersal devices) are not usually considered the equivalent of chemical and biological weapons, and certainly not nuclear weapons, even though RDD are a nuclear-based weapon. "Few, if any, people would die immediately after exposure to the ionizing radiation from an RDD" notes Isenberg. "However, the use of such a 'dirty' bomb would undoubtedly spread panic and produce severe economic damage, due to extensive cleanup difficulties." (See http://www.basicint.org/pubs/Notes/DirtyNukes.htm)

[19] See http://www.ceip.org/files/nonprolif/numbers/default.asp and for comparison: Bulletin of the Atomic Scientists: http://www.thebulletin.org/issues/nukenotes/nd02nukenote.html

[20] Phillips argues that in the current political climate, *accidental* nuclear war is the most likely cause of a global nuclear holocaust, making abandonment of Launch on Warning an urgent and rational necessity. See: http://www.web.net/~cnanw/nolaunch.htm

[21] Carl Sagan is best known for calculating the effects of the detonation of between 5,000 and 10,000 megatons of nuclear explosive power, which he argued would lead to "nuclear winter". He noted that the effects would be quite aside from the conservative estimate presented by the WHO: "The World Health Organization, in a recent detailed study chaired by Sune K. Bergstrom (the 1982 Nobel laureate in physiology and medicine), concludes that 1.1 billion people would be killed outright in such a nuclear war, mainly in the United States, the Soviet Union, Europe, China and Japan. An additional 1.1 billion people would suffer serious injuries and radiation sickness, for which medical help would be unavailable. It thus seems possible that more than 2 billion people-almost half of all the humans on Earth-would be destroyed in the immediate aftermath of a global thermonuclear war."

while rarely used by terrorists, among WMD they have been used the most -- and they are the most likely to be used (OTA, 1993:11).

It is the ease by which CW components can be made accessible for purposes of weaponization because of the relatively low technical barrier, that produces a continuing worry (Stern, 1999:183, Pilat, 1997:10). For that reason, the proliferation risk of chemical weapons is said to be lower than the risk of "basement" or "home-made" weapons.

Where there is ease of manufacture, there is likely also to be complexity in tracking and verification. Many of the components found in chemical weapons are readily available and used for industrial processes[22]. While chemical weapons are relatively easy to obtain and use, they are not as easily kept in stable condition. But, as with biological weapons, CW have been found by the US Army to be effectively disseminated from ships near seaports, or subways and with crop duster aircraft – an indication that their use and dispersal is likely straight-forward. And they can certainly be lethal: One estimate is that five metric tons of sarin nerve gas carried by bomb or in 36 Scud missiles "could kill 50 percent of the people over 4 square kilometers" (Cirincione et al.: 12).

The primary threat of CW is still thought to be from terrorist groups, although they are known to have been used in the Iraq-Iran war.[23] Large-scale production, on the other hand, was suspected, proven and (by most estimates) halted in Iraq. This was possible because of the effectiveness of an international inspection regime, albeit, imposed in a coercive environment.

There are only a handful of well-documented incidents involving genuine terrorist bio-weapon (BW) and toxin attacks[24] or attempted attacks. For some, rarity of use or attempted use offers some evidence that the difficulty of access to BW, difficulty in dispersal, or continuing adherence to a taboo

[22] Thiodiglycol, for instance, a precursor for mustard gas, is also used to make the ink found in some ballpoint pens (Stern 1999:183).
[23] For that reason, if the products are readily available, and because many suspect groups are unpredictable or likely irrational, most responses are likely to be too late.
[24] Parachini and others draw attention to the high frequency of hoaxes, the greater likelihood of use of conventional weapons, and the extraordinarily low number of actual WMD incidents.

against bio-weapon use are significant impediments to the weapon being used.

In 1995, the religious sect Aum Shinrikyo, released sarin gas (a chemical agent) in the Tokyo subway system. Twelve people died and thousands became ill. While the cult also attempted to use biological weapons (spraying botulinum toxin and anthrax in downtown Tokyo over a two year period, 1993-1995 as many as ten times), there was no apparent known effect. It has been suggested that the switch to sarin gas from bio-agents is an indication of the relative ease by which chemical weapons can be administered, as compared to bio-weapons. But Parachini also challenges the view that the Tokyo incident was evidence at all of a watershed event that fundamentally changed the nature of terrorism. The sparse historical record, he suggests, does not yet warrant a shift in priorities away from the "more basic but essential activities of law enforcement, intelligence, border and customs control, diplomacy, and military action" (Parachini, 2003:40,48).

Biological pathogens may die easily if released in clear water because of ultraviolet radiation; their delivery through building ventilation systems may or may not result in large numbers of casualties (and may not exhibit "mass destruction" effects even if effectively dispersed). Some biological agents are not transferable person-to-person through the air. Lowe concludes that such complications as these will result in a "wide gap between possible and probable" use, and therefore, "it seems unlikely that biological terrorism will achieve the fearful results popular misconception conjures". The risks increase, however, where state-sponsored terrorists have access to BW establishments (Lowe, 1997:64).

Regardless of the frequency of contemporary attacks, the potential for risk by biological agent dispersal cannot be ignored. It is calculated that 100 kilograms of anthrax spores could be dispersed, in ideal conditions, killing between 130,000 and 3 million people over a large US city – a level of lethality "matching or exceeding that of a hydrogen bomb" (Pilch, 2003). Walter Laqueur argues that while chemical weapons may kill thousands, "biological agents are far and away the most dangerous: they

could kill hundreds of thousands…". Yet, because of technical difficulties,[25] terrorists are less likely to use nuclear devices over chemical weapons and bio-weapons may be the least attractive overall, although difficulties can be overcome (Laqueur, 1996:30).

The greatest present danger of a biological weapon risk may be the brain drain of Russian former bio-weapon scientists. Stemming that flow of expertise (and loose stockpiles) is potentially the most cost-effective of nonproliferation efforts. For that reason a lack of urgency shown by major states (the U.S. and Russia in particular) in developing and implementing effective verification and enforcement measures is of concern (see for instance Koblentz, 2003:122). Ironically, the fall of the Soviet regime (which had fostered extensive CW and BW defences) has led to the weakening of centralized control, which in turn has led to a criminalization of the chemical and biological weapons sector in Russia (Adam,1997:31). Nonetheless, those risks of leakage out of the former Soviet Union, despite efforts such as the G-8 Global Partnership Program and Nunn-Lugar Cooperative Threat Reduction Program[26], are also tempered by continuing technical restraints. For that reason, as Adam notes, "acquiring an effective BW capability is not as simple as setting up a small laboratory in the basement and getting to work. On the contrary, it is a lengthy and complex problem" (1997:40).

The United States (2002) describes WMD as nuclear, biological, and chemical weapons, but highlights that it is those weapons in the possession of hostile states and terrorists that "represent[s] one of the greatest security challenges facing the United States."[27] That is an important caveat, in that all

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[25] There is a wide range of opinion about whether biological weapons are "difficult" to manufacture. WILFP argues that while production of BW agents is "relatively cheap" in large quantities, "sophisticated weapons are slightly more difficult to develop and produce." (WILPF web resource, Calling for Nuclear Disarmament: Biological Weapons).

[26] Richard Lugar indicates that despite an overall successful scorecard, efforts to destroy WMD materials in the former Soviet Union have been thwarted by funding and political resistance in the U.S. Congress.

[27] http://www.whitehouse.gov/news/releases/2002/12/WMDStrategy.pdf
The Weapons of Mass Destruction Control Act of 1992, (enacted October 23, 1992), relates "to the proliferation of nuclear, biological, and chemical weapons (weapons of mass destruction) and their related technology . . ." http://www.nti.org/f_wmd411/f1a1.html Compare this definition with that of the FBI, noted earlier in this paper. See also: http://www.state.gov/www/global/arms/treaties/mtcr_anx.html It should be noted that the Clinton administration in the U.S. issued a similar directive in 1995, in which it was stated that there was "no higher priority than preventing the acquisition of this capability or removing this capability from terrorist groups potentially opposed to the U.S." A related policy was implemented in 1998 (Koblentz, 2003:109).

permanent members of the U.N. Security Council are in possession of nuclear weapons, but none is included in the current list of "rogue states".[28] NATO member states are collected under the umbrella of the Alliance's "Strategic Concept", which defines nuclear weapons as "essential" to NATO member security. Several NATO members maintain "nuclear-sharing" agreements with NATO nuclear weapon states, the United States in particular.

The official[29] nuclear weapon threat is composed of between 20,000 and 35,000 nuclear warheads[30], held primarily by the USA and Russia, but also China, France, United Kingdom, Israel, India and Pakistan. This is a reduction in arsenals from a high in 1986 of 65,000 warheads and mostly reflects successful efforts to reduce nuclear arsenals after the end of the Cold War.

The nuclear weapons states are required, according to their legal obligations, to begin the process towards progressive elimination of all nuclear weapons. The Nuclear Non-Proliferation Treaty, which entered into force in 1970, and to which 185 states are signatories, highlights "the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples".[31] Making nuclear weapons a permanent or essential element of national or alliance security is a violation of the treaty's intent[32], and in conflict with the 1996 World Court Opinion that declared the threat or use of nuclear weapons "would be 'contrary to the rules of international law applicable in armed conflict' in just about any imaginable circumstance".[33]

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[28] The current U.S. National Security Strategy identifies "the new threat" in this way: "the nature and motivations of these new adversaries, their determination to obtain destructive powers hitherto available only to the world's strongest states, and the greater likelihood that they will use weapons of mass destruction against us, make today's security environment more complex and dangerous". See: http://www.whitehouse.gov/nsc/nss5.html

[29] While USA, Russia, China, France and the UK are considered the official declared "nuclear weapon states", Israel, India and Pakistan (and possibly others) are undeclared weaponized states and are not officially recognized.

[30] One current estimate is at: http://www.web.net/~cnanw/a3.htm See also: http://www.pugwashgroup.ca/events/documents/2004/image002.jpg

[31] http://www.fas.org/nuke/control/npt/text/npt2.htm

[32] Article 6 of the NPT reads: "Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control."

[33] See: http://www.prop1.org/2000/ialana.htm

Disarmament activists and many governments argue that the flouting of these international agreements and institutions will encourage proliferation of nuclear weapons by non-nuclear weapon states (such as North Korea, Iran, India and Pakistan) who may perceive continued possession by powerful states as manifest evidence that nuclear weapons are the currency of power.[34] Constraints against chemical and biological weapons may be showing evidence of erosion, but if nuclear weapons are considered to be essential deterrents and the ultimate leveling threat held "for the foreseeable future"[35] by the world's most powerful states, that fact may 'legitimate' them further in terrorists' eyes as well (Jenkins in Roberts, 1997:135). As suggests Mathew Bunn, while the "nuclear-weapon threat is probably the most difficult of all for terrorists to implement and to that degree might be regarded as the least likely […] the massive, assured, instantaneous, and comprehensive destruction of life and property that would result may make nuclear weapons a priority for terrorists despite the difficulties" (Bunn: 2002).

Terrorist threats

The perception of terrorist risk is aggravated by declarations by individuals such as Osama Bin Laden who declared it a "religious duty" of *Al Qaeda* adherents to acquire WMD. Terrorists have been intercepted in their efforts to access nuclear weapon scientists and it is believed that a relatively small group of experts (Bunn, 2002) could develop a simple "gun-type" bomb with a small amount of plutonium or HEU (highly enriched uranium). There is sufficient separated HEU in global stockpiles, much of it poorly secured (particularly in the former Soviet Union), to construct a quarter of a million nuclear weapons. The International Atomic Energy Agency has documented at least 18 incidents of stolen HEU or plutonium. IAEA Director General ElBaradei noted in 2001 that while there have been

[34] See for instance the statement of the New Agenda Coalition states: http://www.wagingpeace.org/articles/2003/09/23_minister_declaration.htm
[35] See Pugwash and MPI, 2004.

375 nuclear smuggling incidents over the past decade, "none have involved anything close to enough fissionable material to construct a nuclear weapon". Nonetheless, the concern is real, particularly where there is evidence of a "willingness of terrorists to sacrifice their lives to achieve their aims…"[36]

It is difficult to dispute the claim that a terrorist threshold *may have been breached* by the Aum Shinrikyo and World Trade Center attacks, or that there is evidence of a rise in the rate of terrorist incidents comparing the 1970s with the 1990s (Brister and Taillon, 1998; Pilat 1997:5). Yet the number of terrorist attacks using WMD is still very small, and the availability of materials, or ease of their manufacture can be overstated. The trend in number of terrorist incidents can actually be said to have declined if the most recent US state department "Patterns of Global Terrorism" data is any indication.[37] Pilat has noted that the predictions of NBC terrorism had, until Aum Shinrikyo's chemical weapon attack, been low on government agendas. Since then, the prevailing view is that presumed taboos have fallen. While a sober reconsideration may be in order, the meaning of that single attack in Tokyo in 1995 is "probably overblown, and certainly premature." The attack, Pilat notes, was not an instance of mass destruction (there were only 12 deaths) and was less deadly than many other conventional terrorist attacks. While large numbers may have been targeted, the attack was fortunately unable to claim success in mass scale killing (Pilat, 1997:2).

Roberts agrees that rarity does not preclude WMD terrorist possibilities into the future, but "we should be reticent about embracing unquestioningly the notion that 1995 was a watershed year and that the noted terrorist events are the harbinger of a new wave of terrorism employing weapons of mass destruction" (Roberts, 1997:123).

Before the September 2001 terrorist attacks against the U.S., some believed that the constraints against WMD use were disappearing because of public apathy and improved defences against

[36] http://www.iwar.org.uk/cyberterror/resources/nuke/11-05-01.htm
[37] http://www.state.gov/s/ct/rls/pgtrpt/2002/html/19997.htm

conventional attacks that might encourage WMD attacks (Brister and Taillon, 1998). Even if true, that may not be evidence of an increase in the likelihood of a major bio-terrorist event. As Moodie argues for instance, "the number of technical pathways available for achieving a catastrophic bio-terrorism incident is limited. The technical pathways for producing a low to mid-range bio-terrorism incident, however, are more numerous, less technically challenging, and fit better within the motivations and constraints of more traditional concepts of terrorism." (Moodie et al., 2001:206. Emphasis added.)[38] This challenges us to question whether small-scale attacks using chemical, biological or nuclear weapons but which result in a limited casualty count could constitute *mass destruction*, or (as our earlier discussion suggests) that the definition assumes a cataclysmic impact.

Leitenberg wonders whether U.S. government and public assumptions about the anthrax scare in the wake of the September 2001 terrorist attacks, were evidence of reasonable assessments, or an "enormous overreaction" generated by hoaxes, media attention and government officials[39]. Despite the high quality of anthrax contagion in circulation, "the level of real danger to public health that was posed remained trivial because of the ineffective distribution mechanisms used by the perpetrator." Leitenberg concludes that the real and most serious risk continues to be proliferation of pathogens from state sources that feel "emboldened to engage in such warfare", and from the USA and Russia in particular (Leitenberg, 2003:50). This is consistent with Crowley, who views the quantity-to-effect ratio of bio-weapons the key criterion elevating them to a strategic weapon of interest to states. Failure to adequately assess this risk can lead to a counterproductive over-reaction to small-scale terror threats, and subsequent predictable hoaxes and escalating fear (Crowley, 2001. See also Pearson, 1998a).

In contrast to Brister and Taillon, Ron Purver's survey of open source literature indicates that (at

[38] CBACI Report Bioterrorism in the United States: Threat, Preparedness, and Response http://www.cbaci.org/CDCSectionLinksMain.htm

[39] He notes, for instance, that even specialists in the chemical and biological weapons field "who had previously taken the position that terrorist groups would be very unlikely to be able to produce and carry out an attack […] now expressed the opinion that perhaps that judgment should be reassessed." (2003:23)

least until recently) terrorists have generally not sought the use of weapons of mass destruction in pursuit of their goals for both technical and political reasons. WMD may be uncontrollable once released, although ethical concerns about indiscriminate effects probably vary according to "terrorist type". Some terrorists may not believe that WMD are useful where conventional weapons (or aircraft in the case of September 11, 2001) will suffice. Alienation of political followers may occur if political objectives are put at risk through intentional harm waged against innocents.[40] However, "some terrorist groups may also believe themselves to be invulnerable to retaliation, may be unconcerned by it, or may even intend to provoke it" (Chyba, 2002:203). Most "traditional" terrorists may have concluded that chemical, biological and nuclear weapons are not useful for their purposes, but "new" terrorists seem "increasingly to prefer indiscriminant types of attacks", which is turn may result in "traditional" terrorist groups eventually turning to chemical or biological weapons (Roberts, 1997:130).

In the case of biological weapons, "claiming credit" may be compromised because of the ambiguity of an outbreak of a naturally occurring disease that develops relatively slowly. Biological weapons in the hands of belligerent states may be deterred by the threat of an overwhelming military response but their use may be "unstoppable" in the hands of certain non-state actors and terrorist groups (Chyba, 2002:202-3). Purver concludes that there is consensus that while constraints persist in many cases, they may be eroding in others, and therefore the threat may be said to be both "real and growing" (Purver, 1997:73).

There is also evidence that suggests, despite recent U.S. claims about Iraq and other "rogue states", the likelihood of states sponsoring terrorist use of weapons of mass destruction is currently low. This is because culpable states may expect an abrupt and decisive response to discovery of their association with WMD terrorists. Retaliation against terrorists groups may overwhelm the ability of the

[40] Roberts notes, for instance that neither the Palestine Liberation Organization nor the Irish Republican Army have shown interest in acquiring WMD for fear of alienating domestic and international public opinion from their cause (Roberts, 1997:129).

terrorist organization to function afterwards, and is therefore also a significant deterrent -- but punishing sponsoring states' leadership and institutions offers an even easier target. Sponsor states risk retaliation even without having a clear ability to control terrorists' activities or to hide their own culpability (Pilat,1997:14-15). For those reasons it is even more unlikely that states will offer support for acts of NBC terrorism or be willing to provide WMD terrorists sanctuary.[41]

Variance in Attention to WMD Threats

Atomic bomb elimination enjoyed unanimous international support at the United Nations, six months after the first two were dropped on Japan (Rotblat and Goldanskii, 1991:205). As early as 1960, Canadian government endorsement of the "Irish" disarmament resolution was considered provocative enough also to be a challenge to the legitimacy of NATO's developing nuclear policy. There is a long, if ambiguous, history of Canadian government support for nuclear disarmament (See Collins, 2003a). Even though few nongovernmental organizations in Canada have significant independent research capability for the study and analysis of the broad range of WMD threats, there has also been sustained nuclear disarmament advocacy by civil society, peace groups and individual activists that continues to today.

The Canadian Pugwash Group and Middle Powers Initiative[42], for example, in 2004 presented a policy paper to the Canadian government, and in which they describe nuclear weapons as "the antithesis of security, standing in fundamental contradiction to international and humanitarian law and threatening the indiscriminate destruction of human life and the natural environment." (CPG and MPI, 2004: 1).

While nuclear weapons abolition advocacy has been in evidence, NGOs in Canada are not greatly interested in the problems of chemical or biological weapons. As notes Canadian CBW academic Ron

[41] The relationship between *Al Qaeda* and the Taliban in Afghanistan is worth further analysis in this regard.
[42] The Middle Powers Initiative is chaired by Canadian Senator Douglas Roche.

Sutherland, there is neither a "knowledge base nor independent advice available in Canada".[43]

A survey of Canadian organizations involved in nuclear weapons abolition advocacy,[44] (the most likely collective to be engaged on all WMD issues), indicates that none currently study either chemical or biological weapons issues[45].

This inattention cannot be explained by any self-evident rationalization that biological and chemical weapons do not pose a significant global risk. While worst-case apocalyptic predictions may be alarmist, unhelpful and are likely overstated (Roberts, 1997:128, Sprinzak, 1997:3, Hoffman, 1997:218, Pilat, 1997:241-245), the extent of the CBW threat is at best ambiguous.

The attention deficit can be accounted for by a number of factors. Primary among them is a perception shared by most NGOs, defence strategists and weapons experts, that nuclear weapons are the sole weapon that can instantaneously cause massive casualties and infrastructure destruction and, if combined within a nuclear exchange, can cause global destruction and human extinction. That view is not inconsistent with the attention given to nuclear weapons (in excess of attention given to chemical and biological weapons) by governments at the United Nations. Only since the Tokyo subway sarin attack in 1995, have states – and particularly the United States – significantly increased their own resources in pursuit of the "new" WMD terror and proliferation threat.[46] Analysts such as Klare are suspicious that the appearance of "rogue states" can be best explained by WMD proliferation

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[43] Personal communication by e-mail.

[44] While one CNANW (Canadian Network to Abolish Nuclear Weapons)member organization), Canadian Coalition for Nuclear Responsibility, is explicitly focused on nuclear issues (and three others, Veterans Against Nuclear Arms, Canadian Pugwash Group and Physicians for Global Survival, have nuclear weapons issue origins) all others can be broadly defined as peace, disarmament or global governance organizations. CNANW is composed of 19 organizations: Les Artistes pour la paix, Canadian Peace Alliance, Canadian Coalition for Nuclear Responsibility, Canadian Pugwash Group, Centre de Ressources sur la Non-Violence, End the Arms Race, Lawyers for Social Responsibility, Peace Research Institute Dundas, Peacefund Canada, Physicians for Global Survival, Project Ploughshares, Science for Peace, United Nations Association in Canada, Veterans Against Nuclear Arms, Voice of Women, Women's International League for Peace and Freedom, World Conference on Religion and Peace, and World Federalist Movement - Canada.

[45] The exception, it might be argued, is WILPF Canada, which through its international ties, has linkage to the BW and CW backgrounders of the parent WILPF organization. WILPF Canada does not focus on WMD issues other than nuclear weapons, however.

[46] Arguably, the inattention gap between governments and disarmament organizations covers only the period since the 1995 sarin gas attack in Tokyo. Others have correlated U.S. attention to the end of the Cold War, the decline of the "Soviet menace", and the rise of the "rogue state". See in particular (Klare, 1995).

conveniently substituting for communism as "the greatest perceived threat to U.S. national security", whether or not any of the "rogues" actually possess weapons of mass destruction (Klare, 1995:129).

Disarmament groups also note the continuing ownership of nuclear weapon arsenals by a small number of powerful states and conclude that the threat of nuclear annihilation continues to be seen as a doorway to political power, either because of its threat capability or because of its perceived deterrent effect.[47]

Many NGOs see a correlation between *nuclear weapons and power* (particularly the power of the United States; and less so Russia; and to a much reduced degree the United Kingdom, France and China, India, Israel and Pakistan). Chemical and biological weapons, "the poor man's bombs", are associated with lesser or weaker powers, or even terror organizations, none of which garner much NGO sympathy, even if linked to legitimate grievances.[48] It has not gone unnoticed either that state eschewal of chemical and biological weapons has sometimes come as a result of their being redundant when nuclear weapons remain in inventory.[49]

With very limited financial, technical and human resources, disarmament and peace organizations in Canada have chosen nuclear weapon abolition advocacy as their WMD focal point.[50] To a lesser degree, because of the ease by which chemical weapons can be manufactured and that biological weapons can be confused with pharmaceutical products, NGOs may consider the nuclear weapons

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[47] The Canadian government in its response to the Standing Committee on Foreign Affairs and International Trade report in 1998 indicated its agreement with the need to "reduce the political value" of nuclear weapons, en route to their elimination. See: http://www.dfait-maeci.gc.ca/nucchallenge/POLICY-en.asp#7

[48] The peace and disarmament community condemned the terrorist attacks against the United States in September 2001. The attacks were on a scale approaching that of WMD, although "WMD" were not used. United Nations Secretary-General Kofi Annan, as did Canada's Ambassador to the United Nations Paul Heinbecker, commented that the effects would have been significantly worse if nuclear or other WMD had been used. (See Collins, 2001)

[49] Richard Price wrote in his book *The Chemical Weapons Taboo* that: "Fundamentally, the [US] Defense Department supports giving up the right to retaliate with chemical weapons because we have an effective range of alternative retaliatory capabilities. We have reached the judgment that we do not need to retain chemical weapons to deliver an effective response to the use of chemical weapons against us." Koblentz (2004:104-105) argues that biological weapons are not suitable for strategic deterrence. Susan Martin argues to the contrary (Martin, 2002:80). In addition, major powers developing new nuclear weapons or discovering new uses for nuclear weapons suggests a tendency towards broadening of nuclear capabilities, and not progressive restrictions towards abolition. See for instance commentary on bunker busters, "earth penetrating weapons", abandonment of No First Use of nuclear weapons in Russian military doctrine (Arms Control Today, March 2003 and April, 2003; Hess, 2004).

[50] See for example: http://www.ploughshares.ca/content/ABOLISH%20NUCS/echurch.html

abolition campaign the *most feasible* project as well. The nuclear weapon campaign is, after all, placed within the envelope of developed verification and compliance measures delineated by the Non-Proliferation Treaty regime, but also an extensive campaign history already embraced by civil society and the majority of governments worldwide. Success on the nuclear weapons abolition front may be considered the most resource-effective means to address the WMD threat family.[51]

Civil society (disarmament, peace and development organizations) inattention to non-nuclear WMD is similar outside of Canada, although there is a *very small but well-informed core* of NGOs internationally that have significant resources available to place toward the study of chemical and biological weapons and their risks. The British-American Security Information Council (BASIC), Federation of American Scientists, Bulletin of the Atomic Scientists, Chemical and Biological Arms Control Institute, Swedish International Peace Research Institute (SIPRI)[52], Carnegie Endowment for International Peace, and the Monterey Institute of International Studies do address non-nuclear WMD. However, almost all are scientific-academic experts groups and think-tanks, and not activist disarmament groups. Other well-known broad-based arms control and disarmament groups like the Union of Concerned Scientists, the International Physicians for the Prevention of Nuclear War, Human Rights Watch and the Center for Defense Information do not address biological and chemical weapons as a significant plank of their programming.

Not only NGOs have shown limited interest in CBW. In March 2003, an international appeal in support of the Chemical Weapons Convention was circulated, calling for the "strict observance of the Chemical Weapons Convention [as] an essential component of international peace and security. Regrettably, governments have reduced, to less than a routine level, the attention they give to the Convention. A proactive policy is needed, geared to the full implementation of the Convention and its

[51] The linkage is important because just as chemical and biological weapons possession or use (by states) *may or may not* be a "trip-wire" for nuclear weapons retaliation, the reverse is equally true.
[52] Including its association with the University of Bradford.

adaptation." Signatories to the Biological and Toxin Weapons Convention (and the U.S. in particular) have also failed to agree to a verification and compliance mechanism for the treaty.

Iraq as a Case Study, and its Broader Implications

The preceding discussion provides background for consideration of the recent assessments of Iraq's alleged weapons of mass destruction threat. The US/UK coalition military intervention into Iraq in 2003 is a good test case for evaluating the reliability of intelligence, the response to that intelligence, and therefore also for understanding the variance in risk assessments assumed by different governments and nongovernmental organizations.

In the aftermath of the first Gulf War, under the conditions of the UN ceasefire resolutions (and in particular UN Resolution 687), UN inspectors were given wide access to Iraq to seek and destroy chemical, biological and nuclear weapon materials. Cleminson has outlined the range of UNSCOM and IAEA methodologies and mechanisms put in place to verify Iraqi compliance with its obligations. Intelligence gathering methods included satellite imagery, high-, medium- and low-altitude aerial imagery, on-site inspections, ground-penetrating radar, radiation detectors, remote sensors, analysis and human intelligence (Cleminson, 1996:47). While there was a great deal of international support for the inspection regime (SIPRI, 1998:7; Blix, 2004:271), there was mixed support for prolonged sanctions, and criticism (particularly from the peace community) of the regular US/UK military strikes throughout the inspection period which were seen as unilateral at best, and likely illegal.

There was a great deal of consensus however that, despite limitations of UNSCOM's mandate and due to Saddam Hussein's "cat and mouse game", Iraq had successfully been contained, and stockpiles of weapons and weapon materials were being found and destroyed. The U.N. Security Council established a panel in 1999 that determined that "the bulk of Iraq's proscribed weapons programmes has been

eliminated", and that a continuing presence of inspectors was an effective way of inhibiting the new acquisition or the rebuilding of prohibited weapons in the future. The panel also recommended the establishment of UNMOVIC, which had a clearer mandate and more robust capability for continued intrusion (Blix, 2004:38-40).

In September 2002, after the September 11 terrorist attacks against the United States, a new National Security Strategy[53] was adopted in the U.S. It encouraged the government to respond "preemptively" to threats (preventing assaults on the United States before they happened), but it also assumed that threats could be accurately predicted. Just prior to the release of that document, U.S. Vice-president Cheney had begun to advocate preemptive invasion into Iraq as a substitute for inspections, claiming that "inspectors would provide no assurance whatsoever of compliance with U.N. resolutions". Instead he began to rely on Iraqi defectors for his source of intelligence (Blix, 2004:70-71).

However, the intelligence assessments began to conform to the political agenda, and not necessarily the facts on the ground. Mathews and Miller point out how the original classified U.S. National Intelligence Estimate produced by the Central Intelligence Agency (parts of which were released after the 2003 Iraq war) compared to the unclassified report released in October 2002. "Uncertainties turned into fact" and words such as *we judge* and *we assess* were "deleted from five key findings of the classified document" when the assessments appeared in the subsequent released report (Mathews and Miller, 2004). Cirincione et al. also note how several threat assessments changed immediately after 2001's terrorist attacks, even without any direct evidence that Iraq had reconstituted its weapons programs. The nuclear weapons threat was hypothetical in early 2001, but in the first report issued after September 11, the nuclear program was moved "from the last program mentioned to the front of the assessment." Linkages to *Al Qaeda* were being made. The higher profile nuclear threat was then embellished with dubious evidence of aluminum tubes and yellow cake used in nuclear weapons

[53] http://www.whitehouse.gov/nsc/nss.html

programs. The claims, however, were quickly disputed by IAEA's ElBaradei (Cirincione et al., 2003; Gellman, 2003; Blix, 2004:232-234).

As Hans Blix notes,

> [T]he outside world's concerns about Iraq's weapons would never have been a very big issue it if had not been for Iraqi initiatives to acquire nuclear weapons capacity, and for the level of success it had attained by 1990 in enriching uranium. It is the more disturbing, then, that categorical and key contentions about continued Iraqi nuclear efforts and attainments, made at the highest levels of the U.S. and UK governments from 2002 on, were simply wrong, and could have been avoided with a moderate dose of prudence. (Blix, 2004:260)

When the United Nations Security Council was called together to determine whether Iraq was *sufficiently* responding to its obligations, the threat assessments of the United States and United Kingdom, to a great extent, were challenging UNMOVIC and IAEA inspectors' threat assessments.

This paper lacks the space to detail the debates surrounding Iraqi compliance or non-compliance with UN resolutions. However it notes simply that the majority of the Security Council's permanent membership (the "P5"), the majority of the full 15-member Security Council, and the majority of member states that spoke to the issue, agreed that conditions did not justify UN-sponsored military intervention into Iraq[54]. Not surprisingly, that was also a view shared by a majority within the peace and disarmament community who, not unlike the U.N. Security Council, were obliged to rely on the assessments of others. UNMOVIC Director Hans Blix, who considered that it was possible (and even likely) that Iraq had continued to conceal prohibited weapons, concludes that no damning evidence was

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[54] The Canadian policy on Iraq's weapons of mass destruction can be found at: http://www.dfait-maeci.gc.ca/middle_east/iraq_weapons-en.asp. A summary of the "non-vote" tally at the United Nations can be found at: http://www.ncrb.unac.org/newsletter3/interventioniraq.html While no official Security Council vote was ever taken at the United Nations, many states made statements in the presence of the Council on March 26 and 27, 2003 indicating opposition, support or neutrality towards intervention into Iraq. They are summarized at: http://www.un.org/News/Press/docs/2003/ For the purposes of this tally, "opposition" is recorded as indicating intervention into Iraq was opposed on the grounds of its being in violation of UN principles or international law. This tally is based only on the statements made on March 26-27, regardless of positions taken elsewhere (Canada's position, for instance was ambiguous, and is therefore entered as "neutral".
Total number of states making statements: 80 Total opposed to intervention: 41 Total in favour: 26 Total neutral: 13
Of 15 Security Council members: Total opposed to intervention: 11 Total in favour: 4
Of the Permanent 5 Security Council Members: Total opposed to intervention: 3 Total in favour: 2

forthcoming, and certainly there was little evidence of an *imminent* threat (Blix, 2004:194). That observation is consistent with the report of the well-respected Carnegie Endowment for International Peace (CEIP) which concludes that while "Iraq's WMD programs represented a long-term threat that could not be ignored [they did not] pose an immediate threat to the United States, to the region, or to global security". CEIP also finds that "the intelligence community began to be unduly influenced by policymakers' views sometime in 2002" -- immediately after the terror attacks on New York and Washington (CEIP, 2004:47, 50).

As Treverton argues, there is a tendency for policy-makers to privilege secret information. To solve the mysteries of the day, however, "intelligence needs to be opened wide, not cosseted in secret compartments" (Treverton, 2003a). It is not clear at this point in time whether the secret source information relied upon by the U.S. and UK was "sexed up", distorted, manipulated and falsified, or whether it was simply misinterpreted. While Treverton argues that the U.S. intelligence gathering process in the Iraq context overall was "quite impressive", he also emphasizes the "continuing value of multilateral inspections through the U.N. or other bodies" and notes that

> it appears that the inspection process was working, and if it had been given enough time and enough resources, could have continued to work and effectively stymied and prevented any new Iraqi efforts on weapons of mass destruction. **Never have so few been criticized by so many with so little justification**" (Treverton, 2003b, emphasis added).

A growing consensus also suggests that secret human intelligence (HUMINT) supplied by Iraqi defectors was unreliable at best, particularly in comparison with the methodical UNMOVIC/IAEA inspection process.

Several non-government organizations, particularly those that are avowedly pacifist in orientation, were concerned that weapons of mass destruction risk assessments would lead ultimately to military intervention by powerful states, with or without evidence of any genuine imminent threat, let alone

authority in international law (from the Security Council). The experience of the 2003 intervention into Iraq suggests that there is significant justification for these fears and for NGOs being wary.

Conclusions

There is broad agreement that nuclear, biological and chemical weapons (in that order) inherently pose a grave danger to global security, either in the hands of states or terrorists. This paper finds that the definition of weapons of mass destruction has varied over the years for many of the same reasons that actual WMD threats have been assessed differently: Governments have had an interest in responding or not responding to those perceived threats, depending on whether WMD are in the hands of political friends or foes (rogues).

NGOs are concerned that critical threat assessments will be used to justify selective military interventions. After the Soviet threat had been vanquished, some states (and especially the U.S.) determined that new WMD threats have come to prominence, however ambiguous the evidence. After the September 2001 terrorist events, U.S. threat assessments were ratcheted up a notch or two more.

Civil society disarmament organizations have emphasized the nuclear weapons threat over other WMD threats because of the relative danger to global survival posed by nuclear weapons (and the heightened risks from an all-out nuclear war). Limited human and financial resources have also contributed to Canadian NGOs attention being focused almost exclusively on nuclear weapons. Cautious about how government threat assessments might lead to military interventions, disarmament NGOs may privilege the threats that major nuclear powers pose compared to threats from other quarters. But neither have states given much attention to biological and chemical weapon threats until the Tokyo sarin attack in 1995 (an incident that fails as an example of "mass destruction" by any measure).

There is some evidence to suggest that state WMD threats are more serious than terrorist WMD

threats, in part because of the technical difficulties faced by terrorist groups in pursuit of a large-scale destruction event. Nonetheless, terrorist threats are real, particularly if sponsored by WMD states, and even if their likelihood is more a possibility than a probability. Worst-case possibilities have sometimes trumped sober reflection.

The above outline of WMD threat perceptions is the backdrop to the international community's attempt to isolate and contain Iraq for its past weapons programs and to seek and destroy any remaining WMD inventory and capability. There was significant consensus that Iraq posed a *potential* threat, just as that the subsequent UNSCOM-UNMOVIC-IAEA inspection reports and process were on the whole successful, objective and reliable. The U.S./UK threat assessments, on the other hand, were likely faulty or falsified in the service of dubious priorities (including the freshly minted preemption doctrine). As a result, the credibility of the U.S./U.K. intelligence process itself has been severely challenged.

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