The Pursuit of Non-Lethal Capabilities

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The Pursuit of Non-Lethal Capabilities

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Non-lethal technologies, once attributed primarily to civilian law enforcement, are currently being developed at unprecedented levels for use in military operations. Technology that uses sound to topple walls or coherent lasers to transmit electrical impulses through the air seem to be more science fiction than reality. However, the reality is that the pursuit of such exciting technologies has roused considerable interest from domestic as well as international human rights-based organizations, which oppose the use of such technologies. There are four principle arguments against continued non-lethal research: (1) the lethality of “non-lethal” weapons (NLW), (2) secrecy and lack of government disclosure regarding development and testing of non-lethal technologies, (3) applicability and use in emerging conflicts, and (4) illegal use of compromised technologies by

> rogue organizations. The United States is presently leading the way in developing concepts based on these arguments, which push the envelope of traditionally accepted means of force. Opponents of these programs claim that the U.S. should not employ such technology, either unilaterally or as a member of a coalition force. Further, that restrictions and limitations on their use mitigate the advantages such technology promises to offer. Non-lethal weapons increase the ability to operate effectively in environments that may severely preclude or restrict the use of conventional force. It is these restrictions and limitations that have led to increased focus on non-lethal solutions.

The Marine Corps became involved with NLW during U.S. operations in Somalia. The Somalia experience demonstrated that the contemporary operational environment will include exceedingly large numbers of noncombatants, who will be drawn into military conflicts. Joint Vision 2010 proposes

that this is in part due to increased urbanization within conflict areas, as well as increased U.S. focus/involvement in military operations other than war. This environment forces commanders to make difficult choices regarding the use of force. Typically, restrictive measures aimed at protecting noncombatants increase the threat to friendly forces as an unintended consequence. The media often referred to as the "CNN factor" only compounds this difficulty, as no commander wants to endanger the lives of innocent civilians. At the time of the U.S./Somalia conflict, U.S. Marines turned to civilian law enforcement for expertise in obtaining non-lethal capabilities for use during this campaign. In particular, the Marines were seeking capabilities that could fill the existing void between impact weapons (such as riot batons) and deadly force. The use of pepper sprays, sting ball grenades, beanbag rounds, and other non-lethal munitions proved very effective in this capacity and have subsequently led to the pursuit of additional capabilities.

In March of 1996, the Under-Secretary of Defense for Acquisition and Technology published a memorandum, which named the U.S. Marine Corps as the executive agent for the Department of Defense non-lethal weapons program. The principle objective of the program was

> "To field systems designed to give U.S. military forces on the ground options for achieving their mission and defending themselves without having to resort to the use of lethal force."

This resulted in the creation of an entirely new organization, the Joint Non-Lethal Directorate, dedicated to developing such systems. Last spring, The Marine Corps Times released an article entitled the "People Zapper," which described several emerging technologies the Marine Corps was currently researching. The disclosure of such technologies as directed energy and sound wave propagation sent many human rights-based organizations opposed to this research, into a frenzy.

The first argument against continued development of non-lethal technology concerns the lethal potential of these weapons. An Internet article by John Yaukey of the Gannett News Service states the leading argument of non-lethal opponents is that "there is no guarantee that non-lethal weapons are always non-lethal." Unfortunately, conflict is inherent to military operations and deadly force is justified under certain conditions, though it is employed as a last resort. Non-lethal means may be utilized as a viable alternative to deadly force under specific circumstances, but this does not preclude the possible use of deadly force should the situation warrant.

The diagram depicts a common continuum of force spectrum (see Diagram 1).

Employment of non-lethal means, whether by pepper spray or bean bag round, typically occurs at the upper end of the spectrum. Without non-lethal options, a Marine would potentially have to resort to deadly force or face further risk by continuing to employ lesser means against an increasing threat. Non-Lethal weapons are designed give the Marine more options; however, there are risks associated with their use. The difficulty lies with employing a weapon system with a specific set of safety parameters, against a violent and unpredictable target. Department of Defense Policy Directive 3000.3 (9 July 1996) defined non-lethal weapons as

> "Weapon systems that are explicitly designed and primarily employed so as to incapacitate personnel or material, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment."

There is no existing requirement for a NLW system to have a zero probability of producing fatalities or permanent injuries. This is because virtually any object or system, when used with intent, has the capability of inflicting serious bodily harm or death. Therefore, what is acknowledged and implied by the term "non-lethal weapon"

are two different things. Perhaps better terminology to clarify true intent would be less-than-lethal.

The next aspect involving controversy with non-lethal research is the requirement for operational security in protecting these emerging capabilities. A white letter from the Commandant entitled "A Joint Concept For Non-Lethal Weapons" states,

> "Technologies with a potential for generating non-lethal military capabilities cover a very broad spectrum. At the low end of this spectrum are capabilities, which have been in use for many years . . . .riot-batons, pepper spray, and rubber bullets."

While simple in concept, these tools lack adequate standoff distance and the ability to influence large crowds or groups. The emerging concepts (such as microwaves, infrasound, lasers/dazzlers) are highly advanced, complex and unprecedented in nature, hence, the controversy. They focus on directed energies beyond that of previously employed kinetic-based munitions. Because of this complexity, they often require an environment within a specific range of variables to be employed effectively. These variables could conceivably be manipulated to decrease or negate the desired effects of a particular non-lethal system. For example, microwave radiation used to temporarily heat sub-dermal skin layers could be blocked, absorbed, or even redirected. Without adequate security,

these technologies can be countered and rendered ineffective even before they become operational. Retaining the element of surprise is essential to the successful employment of many of these systems.

Accusations that the U.S. is conducting inadequate testing of non-lethal devices on human targets without oversight are absurd. The Department of Defense as well as the Department of Justice, in cooperation with the Department of Energy, have routinely funded studies, such as Sandia National Laboratory's testing of the sticky-foam restraint system and Oak Ridge National Laboratory's tests on thermal and magneto-phosgene guns. These studies were conducted to determine the viability of such technologies as a less-than-lethal option. In any case, use of non-lethal technology will continue to receive considerable attention from the international community, and as such, it is imperative that research withstands the scrutiny of the international forum. For example, in September of 1997 a NATO group was formulated to pre-empt controversies which erupted over laser weapons used during 1995/96. This group also sought to formulate policy and guidelines on the development of similar technologies. U.S. Special Forces in Somalia, who had contemplated the use of such weapons,

reportedly did not use them due to the unacceptable levels of risk these weapons posed toward noncombatants.

A third argument assumes that non-lethal force, at best, can only be employed in specific environments, for example, where large crowds can easily be dispersed, and there is no credible threat of organized retaliation with lethal force. This argument introduced a dilemma for policymakers, specifically the issue of “duel use” weapons systems. The Joint Concept for Non-Lethal Weapons states that “to realize their fullest potential, they (NLW) must be capable of delivering varying levels of effects.” The same document also states that for individual weapons systems

> “If non-lethal capabilities require modifications of existing weapons systems, these modifications must not in any way reduce the capability of those systems to fire lethal munitions.”

This stance incurred much debate during the 2000 Jane’s Non-Lethal Weapons Conference in Scotland, in which many, including British allies, concluded that the requirement existed for weapon systems to be classified as either lethal or non-lethal. The principle opposition centers on the requirement to have an immediate lethal capability should the situation escalate. It was also argued that the average rioter could not distinguish non-lethal from lethal

weapons, thereby negating the purpose of the classification. Clearly, the need exists for the ability to tune individual levels of force to fit the situation. However, what is also implied is the need to employ lethal and non-lethal weapons simultaneously, i.e. toward specific targets that may pose varying threats, for example, a sniper hidden amongst an agitated crowd. These arguments, while focused on the applicability of the various impact-and-stun-related munitions, do not address current research into such advanced capabilities as microwaves, or directed energy weapons.

The final argument concerns the illegal use of compromised technologies by rogue nations/organizations specifically, the proliferation and misuse of such technologies as instruments of torture. Two articles in Amnesty International Medical Group, Vol. 8, No. 3, summer 1996, “Trading in Torture” and “The Stun Belt – A new Potential for Torture,” explore the potential misuse of devices that can cause considerable pain without the visible effects of torture or abuse. There is clearly a growing international market for such capabilities. However, such a market seems limited to those capabilities often described as 1st Generation, i.e. impact munitions, stun guns, pepper spray, most of which have been available

to the general public, unregulated, for years. The real concern is in protecting those technologies that deal with new and emerging capabilities: the lasers, microwaves, sound generators, etc. This argument furthers the previously stated requirement for continued security during research/development and acquisition cycles in order to protect the technologies until adequate control measures can be implemented. Such measures will need to be aimed at controlling proliferation, and enforcing information security with regard to training, countermeasures, and force protection. The bottom line is that while illegal proliferation, use, and abuse are of concern, they do not negate the advantages and enhanced capabilities non-lethal weapons provide. This is an unfortunate, but acceptable risk when weighed against military necessity.

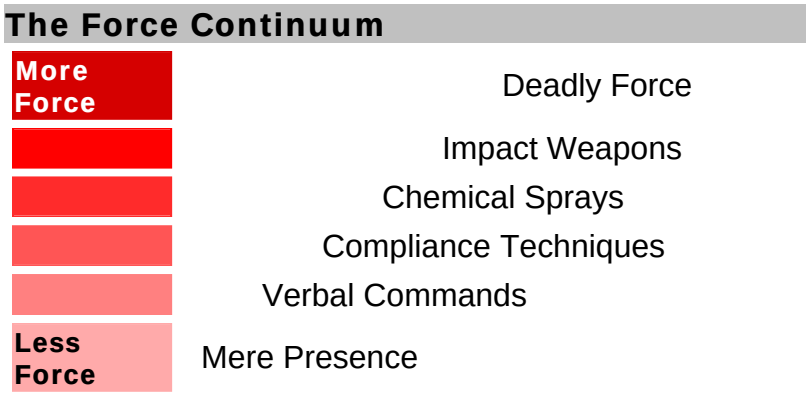
The previous arguments against continued research toward developing enhanced non-lethal capabilities share a common denominator in that they arise largely due to lack of information and misconception. As such, they fail to pose valid justification against the continued development of NLW. Non-lethal weapons offer today's Marines increased options for dealing with escalating threats. They provide solutions to scenarios that have previously resulted in loss of life or unnecessary suffering by persons directly

and indirectly involved in conflicts. While providing more options that may preclude the use of lethal force, they do not invalidate the requirement for it should the threat escalate. While non-lethal weapons may be a first choice against non-combatants, the same may not be said against a forceful adversary equipped with lethal means. The pursuit of new technologies that bridge the gap between existing non-lethal capabilities (largely kinetic-based munitions) and lethal force, while being developed in secret are not being developed in a vacuum. Several international forums, such as the Jane's Non-Lethal Weapons Convention have been instrumental in resolving issues and developing policy with reference to non-lethal research.

The real challenge toward acceptability of non-lethal concepts will be in the application of “traditional” moral and ethical values. This means that these values must now encompass the spectrum of not only conventional weapons but also non-lethal options. The challenge for Marine leaders will be in training operators, and ensuring that these concepts are employed in a manner consistent with their intent. Marines must fully understand the concepts behind the use of force, escalation of force and how non-lethal technologies are integrated. Despite the arguments against

non-lethal weapons, they will continue to have increased importance on the modern battlefield.

DIAGRAM 1:


The Force Continuum
More Force
Deadly Force
Impact Weapons
Chemical Sprays
Compliance Techniques
Verbal Commands
Less Force
Mere Presence

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