

USAWC STRATEGY RESEARCH PROJECT

**ARE THE DEPARTMENT OF DEFENSE NON-LETHAL WEAPON CAPABILITIES
ADEQUATE FOR THE 21ST CENTURY?**

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ABSTRACT

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In today's 21st century global security environment, non-lethal weapons are essential to Joint Force Commanders' capabilities. The current Department of Defense (DOD) non-lethal weapon capabilities attempt to provide flexible, tailored, and incremental options to avoid unintended consequences: non-combatant casualties and/or destruction to civilian equipment and infrastructure. However, given the adaptive global security environment of the 21st century, the ability of DOD to effectively and efficiently develop, resource, deploy, and employ non-lethal weapon capabilities is debatable because: (1) There is no satisfactory national guidance or strategy that clearly defines or unmistakably outlines the importance of non-lethal weapons; (2) DOD does not have the appropriate Joint organizational hierarchy with adequate resources and processes to develop and procure non-lethal weapon capabilities; (3) DOD's institutional kinetic culture inhibits the development and procurement of non-lethal weapon capabilities. This project will review the lack of current national policy, DOD structure and processes for non-lethal weapons, while recommending solutions in cultural change to advance adaptable capabilities in today's volatile, uncertain, complex, and ambiguous global security environment of the 21st century. Finally, policy recommendations from this assessment will suggest enhancements to strike a suitable balance between lethal and non-lethal weapon capabilities for our soldiers, marines, airmen, and sailors.

ARE THE DEPARTMENT OF DEFENSE NON-LETHAL WEAPON CAPABILITIES ADEQUATE FOR THE 21ST CENTURY?

So far, The United States Department of Defense is spending only tens of millions of dollars a year on such [non-lethal] technology – pocket lint to the Pentagon. But with an eye to future military conflicts, laboratories and major defense contractors are investing more. And while the nation's professional warriors were once quite dubious about non-lethal weapons (just as they had grumbled over peacekeeping missions), they now acknowledge a world of terrorism and failed states where much of their work will involve civilian settings and a heightened need to keep casualties to a minimum.

- Brad Knickerbocker¹

Today's global security environment is challenging at best. Noticeably, during the past two decades, the global security environment significantly changed from conventional to unconventional, symmetric to asymmetric, and from both known to unknown transnational or even non-state adversaries, all with improved capabilities brought about by globalization. A historical examination of military operations clearly suggests that small-scale contingencies like operations other than war, stability and support operations, and reconstruction operations, are more likely to occur in the 21st century than major combat operations. A chronology of United States military operations during the last 20 years unmistakably documents that although we resource, equip, and train for the high-end – major combat operations – we continuously discover ourselves engaged in the low-end spectrum of military operations early in the 21st century.

In today's global security environment, non-lethal weapons are essential to the Joint Force Commander's capabilities.

During conflict, the commander will use precision engagement to obtain lethal and non-lethal effects in support of the objectives of the campaign. Regardless of its application in combat or non-combat operations, the capability to engage precisely allows the commander to shape the situation or battle space in order to achieve the desired effects while minimizing risk to friendly forces and contributing to the most effective use of resources.²

Therefore, as noted in the Joint Vision 2020, the Joint Force Commander must be provided the means to obtain precision lethal and non-lethal effects in this uncertain and unpredictable future security environment, just as our adversaries must do.

The current Department of Defense (DOD) non-lethal weapon capabilities attempt to provide flexible, tailored, and incremental options to avoid unintended consequences: non-combatant casualties and/or destruction to civilian equipment and infrastructure. However, given the adaptive global security environment in the 21st century, the ability of the DOD to

effectively and efficiently develop, resource, deploy, and employ non-lethal weapon capabilities is debatable for the following reasons: (1) There is no satisfactory national guidance or strategy that clearly defines or unmistakably outlines the importance of non-lethal weapons; (2) The DOD does not have the appropriate Joint organizational hierarchy with adequate resources and processes to develop and procure non-lethal weapon capabilities; (3) The DOD's institutional kinetic or lethal weapon culture inhibits the development and procurement of non-lethal weapon capabilities. This project will review the lack of current national policy and DOD structure and processes for non-lethal weapons, while recommending solutions in cultural change to advance adaptable capabilities in today's volatile, uncertain, complex, and ambiguous global security environment of the 21st century. Finally, policy recommendations from this assessment will suggest enhancements to strike a suitable balance between lethal and non-lethal weapon capabilities for our soldiers, marines, airmen, and sailors.

Non-Lethal Weapons

Weapons 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. a. Unlike conventional lethal weapons that destroy their targets through blast, penetration, and fragmentation, non-lethal weapons employ means other than gross physical destruction to prevent the target from functioning. b. Non-lethal weapons are intended to have one, or both, of the following characteristics: (1) They have relatively reversible effects on personnel or materiel. (2) They affect objects differently within their area of influence.

- Joint Publication 1-02³

The above *Joint Publication 1-02, DOD Dictionary of Military and Associated Terms*, definition of non-lethal weapons does not make a distinction for its employment between major combat operations or operations other than war – the use of non-lethal weapons are practical and certainly acceptable across the entire range of military operations. This paper's scope is narrowly focused on non-lethal weapon capabilities and not intended to holistically address the non-lethal or non-kinetic *effects* achieved through other means, either resembling information operations, or any other element of power – its focal point is primarily on non-lethal weapon capabilities. Presently, non-lethal weapons consist of a wide range of weapons intended to reduce fatalities and undesirable damage to equipment, facilities, and the environment. They function in three core areas: (1) *counter-personnel*, which include controlling crowds, incapacitating individuals, denying areas to personnel, and clearing personnel from facilities or area of operations; (2) *counter-materiel*, which include denying, disabling, and neutralizing

areas to vehicles, vessels, or aircraft; and (3) *counter-capability*, which include disabling or neutralizing facilities and systems.

The 21st Century Global Security Environment

The military-security environment of the next 25 years will be shaped by a unique and substantially unfamiliar set of political, economic, technological, social, and cultural forces.... Violence within states, on the other hand, could reach unprecedented levels. Generated by ethnic, tribal, and religious cleavages, and exacerbated by economic fragmentation and demographic shifts, such as violence will form by far the most common type of conflict in the next quarter century.⁴

The United States Commission on National Security prepared the above predictions for the first quarter of the 21st Century. Their supporting research and analysis published in September 1999, vividly describes the military security environment for the next 25 years. The Commission believes that crisis will be driven by disruptions in the political process, social disturbance, economic divisiveness, and cultural partition – all of which demand protection capabilities against this unprecedented range of threats and actors.⁵ The Commission also emphasized that unmanageable tribal or ethnic-based groups will often be the major belligerents of such conflicts, making it commonplace to operate in complex urban terrain that may counter our current technological military advantage.⁶ Lastly, the Commission alleges that the growing resentment against western culture and values will portray the United States as arrogant and selfish, which breeds many forms of conflict.⁷

As noted above, the likely future operational environment for our military forces will be tremendously dynamic, which characterizes promising adversarial challenges to be catastrophic, irregular, disruptive, and traditional. The August 2005 *Capstone Concept for Joint Operations* accurately describes the 21st century as "...expanding webs of social, economic, political, military, and information systems..." which "...afford opportunity for some regional powers to compete on a broader scale..." achieving substantial influence on the global landscape.⁸ This Capstone Concept amplifies that change is brought about by increased globalization based on rising powers (state, non-state, and transnational actors), rapid population increases, strong or weak governance, and demand for natural resources, which creates an all-encompassing sense of international insecurity.⁹

The *Capstone Concept for Joint Operations* further purports that complex urban environments will ever more characterize potential operational areas, which will require the DOD capabilities to operate simultaneously across the spectrum of military operations. Formidable and adaptive adversaries will continually seek out new capabilities and methods to

counter the military superiority of the United States. On the one hand, the traditional conventional advantages currently enjoyed by the United States in employing military capabilities will no longer be commonplace. On the other hand, as new ways of employing lethal and non-lethal capabilities are developed, which through globalization become more available to potential adversaries, the nature of warfare will continue to change. The Capstone Concept goes on to explain that while war remains a contest of wills in pursuit of lucrative political ends, future conflict will contain permutations of "...conventional and unconventional, kinetic and non-kinetic, and military and non-military actions and operations, all of which add to the increasing complexity of the future security environment."¹⁰

In recognition of this changing and adaptive security environment described above, the February 2006 DOD *Quadrennial Defense Review (QDR) Report* recently detailed how the United States military will fight the *long war*. The QDR outlines the strategy required to reorient the military's capabilities and forces, with clearly defined strategic aims of defeating our adversaries in the 21st Century. Among those key programmatic decisions outlined in this document, the QDR proposes, in order to "...hedge against future strategic uncertainty, the Department will develop a wider range of conventional and *non-kinetic* deterrent options."¹¹ However, achieving the goal of more non-kinetic deterrent options requires a paradigm shift in how the DOD develops, resources, deploys, and employs non-lethal weapon capabilities. In today's environment, it is no longer feasible or politically acceptable when conducting stability and support operations – the likes of humanitarian or peacekeeping – that the only means available of imposing the United States' will is by needlessly killing the people or destroying the infrastructure United States forces were sent to protect.

Historically, the United States military aggressively pursues enhancement to its lethal weapon capabilities to better accomplish military objectives towards defined political *ends*. This approach – acquire the necessary lethal weapons to successfully wage war – may not be the most effective *ways* and *means* to maintain stability in the current volatile, uncertain, complex, and ambiguous environment in order to win the peace. The September 2002 *National Security Strategy of the United States of America*, clearly states that our strategic *end* is to "...make the world not just safer but better..." and the goals will be centered around "...political and economic freedom, peaceful relations with other states, and respect for human dignity."¹² The application of lethal force within this environment is challenging and oftentimes problematic given the unconventional and asymmetric characteristics of the battle space regarding large amounts of non-combatants and civilian infrastructure. The March 2005 *National Defense Strategy of the United States of America* further expounds this strategic *end* state by reinforcing

the requirement for "...favorable security conditions..." with other nations, as well as, aggressively taking the necessary "...steps required to protect against these threats."¹³ The diplomatic, information, and economic instruments of power require that future military operations minimize collateral non-combatant casualties and damage to civilian infrastructure in order to achieve the *ends* simply by balancing the application of force.

Even so, the last two decades of conflict imply that our military will continue to experience worldwide security challenges, greater-than-before media focus, and short national tolerance for protracted, lethal, and costly campaigns even where vital interests of the nation are clearly defined. There are numerous historical examples that underscore this significant paradigm shift and highlight the complexity and danger of the strategic security environment in which our armed forces must operate. Whether it is operations reminiscent of peace enforcement in Bosnia, humanitarian support in Somalia, or simultaneous combat and stability and support operations in Iraq and Afghanistan, the common thread amongst all is the peculiar dynamics of a complex environment populated with both combatants and non-combatants. These conflicts have demonstrated that soldiers, marines, airmen, and sailors are at risk during military operations other than war, and it is fundamental that they be provided every means available to employ overwhelming decisive combat power – lethal and non-lethal – in accomplishing their missions through lucid strategic policy.¹⁴

National Policy

Generally in war the best policy is to take a state intact; to ruin it is inferior to this. To capture the enemy's army is better than to destroy it; to take intact a battalion, a company or a five-man squad is better than to destroy them. For to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill.

- SUN TZU¹⁵

Concurring with the Army's Training and Doctrine Command, as this paper suggests, non-lethal weapon capabilities can and will afford enhanced crisis and contingency response options available to commanders by applying force proportional to the threat.¹⁶ However, the adequacy to holistically resource non-lethal capabilities efficiently and effectively within the DOD is debatable given the lack of policy, or *ends*, as the impetus to shaping the appropriate *ways* and developing the *means* of non-lethal weapon capabilities. Presently, there is no national level policy (*ends*) – either Presidential directives or specific references in the national security or national defense strategy documents – that outline our nation's strategy or intent to balance the military instrument of power by reducing unintended consequences through improved

non-lethal weapon capabilities. A clearly defined national level policy (*ends*) for non-lethal weapons would noticeably gesture the United States' global commitment towards its judicial application of force to reduce non-combatant casualties and civilian infrastructure destruction. This defined national level policy is also critical to incite the necessary change in military *kinetic culture*, advocating the proper balance of employing non-lethal and lethal weapons, thus reducing the unintended consequences of kinetic effects in the 21st century.

Although there is a DOD *Directive* that outlines how the military will procedurally develop non-lethal weapons, it is not doctrinal, nor does it reinforce a national level policy (*ends*) since there is no such policy published. The existing *Department of Defense Directive (DODD) 3000.3, Policy for Non-lethal Weapons* states, "...non-lethal weapons, doctrine, and concepts of operations shall be designed to reinforce deterrence and expand the range of options to commanders..." in achieving objectives to "...discourage, delay or prevent hostile actions, limit escalation, protect our forces and temporarily disable equipment, facilities, and personnel."¹⁷ According to the DOD policy, non-lethal weapons are intended to strengthen deterrence and increase the range of options available to commanders.¹⁸ The purpose of non-lethal weapons is to discourage, delay, or prevent hostile actions by limiting escalation in situations where the use of lethal force is not the preferred option to better protect our forces and temporarily disable equipment, facilities, and personnel.¹⁹ Designed to assist in decreasing collateral damage and post-conflict expenses of reconstruction, non-lethal weapons are not required to have zero probability in producing fatalities or permanent injuries.²⁰ Lastly, non-lethal weapons do not limit the commander's authority to use all necessary means available in self-defense and are intended to be augmented with lethal weapon systems.²¹ In order for the United States to maintain its reputation as the world's lead nation, a carefully crafted national level policy is required to influence the DOD's ability to develop, resource, deploy, and employ non-lethal weapon capabilities.

Today's departmental *ways* for non-lethal weapon capabilities can basically be characterized as an *economy of force* or, as this paper suggests, *status quo*, while the following *means* are integral in its policy for non-lethal weapon capabilities. At present, the DOD Directive assigns *policy* oversight responsibility to the Assistant Secretary of Defense, Special Operations and Low-Intensity Conflict, for the development and employment of non-lethal weapons.²² The Under Secretary of Defense for Acquisition, Technology, and Logistics has principle oversight responsibility for the department's non-lethal weapons program, to include joint program coordination designed to avoid duplicative efforts within the department.²³ The Chairman of the Joint Chiefs of Staff advises the Secretary of Defense, assesses military

capabilities, monitors the development of Service specific programs, and promulgates doctrine to incorporate emergent non-lethal weapon capabilities.²⁴ Combatant Commanders identify requirements and integrate non-lethal weapon capabilities into operational mission planning.²⁵ The Secretaries of Military Departments and Commander, United States Special Operations Command, implement Title X responsibilities in the development and implementation of non-lethal weapon programs. Lastly, the Commandant of the Marine Corps is designated as Executive Agent for the DOD non-lethal weapons program, responsible for program recommendations and coordinating capabilities within the department.²⁶ Additionally, in 1996, the Joint Non-lethal Weapons Directorate (JNLWD) was created to fulfill the executive agent's bidding and currently operates with an average budget of only \$50 million per year.²⁷

Non-lethal weapon capabilities considered as an *economy of force* is inherently risky given the historical precedence and the most recent lessons learned as a clairvoyant lens for future warfare and its operating environment. The 2004 *National Military Strategy of the United States of America* correctly describes emergent and adaptive adversaries throughout the range of military operations for the future operating environment.²⁸ The document clarifies that the United States' "...goal is Full Spectrum Dominance – the ability to control any situation or defeat any adversary..."²⁹ across the "...traditional, irregular, catastrophic, and disruptive challenges."³⁰ The inability to recognize, or more importantly, aggressively develop and employ non-lethal weapon capabilities, for this uncertain and unpredictable environmental challenge is accepting entirely too much risk. Only through comprehensive policy (*ends*), coupled with the proper organizational structure, processes (*ways*), and resources (*means*), will DOD reduce and/or mitigate the risk of unintended consequences in the application of force.

Joint Organizational Hierarchy

A staff of 19 is insufficient for the JNLWD to process the information to which it potentially has access, both from the services and from international non-lethal weapon programs. An increased budget could not only stimulate research and development conceptual efforts and help mature potential non-lethal solutions but could also assist in financing the acquisition of a greater number of non-lethal weapons ... Despite the existence of various coordinating groups and integrated product teams, the JNLWD remains formally as a line item in the Marine Corps budget that must compete with other Marine Corps programs.³¹

The Independent Task Force sponsored by the Council of Foreign Relations, shrewdly captures above the organizational structure, or lack thereof, to resource, develop, and procure non-lethal weapon capabilities for the DOD. Today, non-lethal weapons are at best considered a specialty capability, which is predominately suited for operations other than war and not

normally considered suitable for traditional combat operations. Currently, there is no efficient harmonization amongst the Services, while the integration and coordination of non-lethal weapon capabilities is relegated to the Joint Non-Lethal Weapons Directorate (JNLWD) under the charge of the Commandant of the Marine Corps.

Instead of non-lethal weapon capabilities being treated as an *economy of force or way*, they should be characterized as *mutually supportive* in correlation with the *2004 National Military Strategy*. The 2004 National Military Strategy states that "...the goal is to design joint force capabilities that increase the range of options – from kinetic to non-kinetic – available to the President and Secretary of Defense."³² In order to execute this, the *means*, or current policy as written, must be revised to reflect a more efficient and effective joint organizational hierarchy and process that create unity of effort and direction for the Department of Defense.

For example, the DOD must incorporate in-stride changes to these functional areas as resolutions are feasible, acceptable, and suitable starting first with increasing the budget for non-lethal weapons Science and Technology (S&T) and Research, Development, Testing, and Evaluation (RDT&E). Only by paying up front for good ideas in the battle labs and defense industrial base will better capability become available. Additionally, the DOD must partner with Departments of Justice and Homeland Security to leverage and harmonize fiscal efforts and expertise to stimulate future non-lethal weapon capabilities.

Another problem is that as the Services continue to focus independently of the other comprising disparate S&T programs; they do not necessarily achieve unity of effort or interdependence in developing non-lethal weapons. Especially disappointing is the staunch lack of non-lethal weapon *operational concepts* that become the impetus for S&T and RDT&E budgetary decisions within the Services to gain the necessary momentum to justify the appropriate fiscal stewardship. The reality is that investments for non-lethal weapon capabilities do not compete well in a resource-constrained department where traditional lethal weapon capabilities normally dominate Service S&T and RDT&E programs.

Additionally, a declining budget, significant changes in threats, and an accelerated pace of technology development have challenged the ability to adequately respond to the military's rapidly evolving capability requirement. On one hand, the DOD RDT&E budget slightly increased by 0.1 percent to \$71.0 billion for 2006, a total of 5.9 percent of the entire DOD budget.³³ On the other hand, the JNLWD RDT&E Budget – comprising the entire DOD non-lethal weapon capability – is just \$55.8 million for 2006, a total of only 7.8 percent of the entire DOD RDT&E budget.³⁴ Likewise, the proposed JNLWD RDT&E budget decreased for 2007 to \$50.8 million, a total of 6.9 percent of the DOD RDT&E budget of \$73.2 billion.³⁵ In essence,

non-lethal weapon capabilities are an insignificant investment within the DOD budget despite the compelling requirement to balance the strategic and operational options available to Joint Force Commanders application of force.

In an effort to rectify the current shortfalls, the distinguished institution of Council for Foreign Relations (CFR) released a 2004 report on non-lethal weapon capabilities. In summary, the CFR recommends as much as a "...sevenfold increase in funding with a broader mandate to conduct and fund programs in science, technology, and engineering by creating a bureaucratic entity of sufficient size and budget to serve as the single focal point for all non-lethal weapons activity."³⁶ Additionally, the CFR recommends that this reorganization enjoy a much higher budget for the JNLWD as well as increase in size, scope, and authority.³⁷ This expansion is an opportunity to stimulate the research and development of the nation's, and its allies', science and technology efforts to improve the next generation of non-lethal weapon capabilities.

In addition to the changes recommended by the CFR, there are also efficiencies with the DOD that can easily be leveraged to enhance the non-lethal weapons program. For example, most, if not all, of the Services have non-lethal weapons initiatives as part of their Service Transformation Roadmaps. However, collectively they lack the program oversight and unity of effort to achieve the required joint synergy. This problem can best be remedied by reassigning the Executive Agent responsibility from the Marine Corps to the Army. While the Marine Corps has done a commendable job managing non-lethal weapons at its current level, to force non-lethal weapons from *status quo* to the level required in today's environment, *mutually supportive*, necessitates moving its oversight responsibility to a larger organization which has more manpower, a larger budget, and a more robust and established programmatic hierarchy. Additionally, the Army is the Service with by far the largest requirement for non-lethal weapon capabilities.

The 2004 National Military Strategy carefully describes that "...while U.S. Armed Forces will continue to emphasize precision, speed, lethality, and distributed operations, commanders must expect and plan for the possibility that their operations will produce unintended 2nd and 3rd order effects.... Commanders must prepare to operate in regions where pockets of resistance remain and there exists the potential for continued combat operations amidst a large number of non-combatants."³⁸ This paradigm shift in the global security environment and preceding *means* coupled with the *mutually supportive way* will create the interdependence required to reduce the department's risk in the application of non-lethal force.

DOD Kinetic Culture

Non-Lethal Weapons suffer a lack of prioritization by key civilian leaders. The fielding of a robust non-lethal weapon capability requires that Congress (members and staff) and the administration (both the White House and the Defense Department) determine that non-lethal weapons play an essential role in American defense policy. Only decisive political direction will enable non-lethal weapons to compete with the plethora of mission-critical program priorities.³⁹

As Roderick von Lipsey so accurately noted above, without decisive political direction, the DOD will not make non-lethal weapons a priority because the *kinetic culture* of the DOD routinely inhibits, rather than enables, the development of non-lethal weapons capabilities at the expense of major defense lethal weapons program. The DOD is keenly adept at developing and decisively using lethal weapon capabilities, while the DOD *kinetic culture* impairs, or reluctantly encourages, the development and employment of non-lethal weapons, despite the benefits of balancing the graduated response with non-lethal weapons or unintended consequence of lethal weapons throughout the battle space. In contrast, non-lethal weapons provide a tolerant means of determining hostile intent – forcing adversaries to declare their intentions as combatants – without unreasonable risk to reinforce deterrence and expand the range of options available to commanders. However, most of the interest and focus evolves from lethal weapon capabilities and not from the details required in leveraging the necessary development for non-lethal weapon capabilities.

The revolutionary shift, or process, to identify current and future military capability gaps to carry out joint warfighting missions and functions in response to the future operating environment is called the Joint Capabilities Integration and Development System (JCIDS). In 2003, the JCIDS replaced the requirements and threat-based generation system used by the DOD for many decades. The JCIDS involves an analysis of Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) in an integrated, collaborative analytical process to define excess and gaps in warfighting capabilities proposing both materiel and non-materiel solutions. The Chairman of the Joint Chiefs of Staff (CJCS) Instruction 3170.01E, JCIDS, describes the policy and top-level description of JCIDS. The detail for identifying, describing, and justifying warfighting capabilities is provided by the CJCS Manual 3170.01B, Operation of the Joint Capabilities Integration and Development System.

Capabilities embody top-level warfighting requirements that are assessed as part of the JCIDS Capabilities Based Assessment (CBA) process. Out of the analytical processes emerge materiel or non-materiel approaches to provide the required capability based upon identified capability gaps. The analytical rigors of assessing military capabilities within the DOD are

facilitated by the eight Functional Capability Boards (FCB); Force Application, Protection, Battlespace Awareness, Command and Control, Net-Centric, Focused Logistics, Joint Training, and Force Management.

Today, non-lethal weapon capabilities are binned under the Force Application FCB. The Force Application portfolio, amongst the other seven FCBs, is undeniably where most of the defense lethal weapon programs exist. The 5 March 2004, *Force Application Functional Concept* characterizes the overarching force application capabilities and associated attributes required to meet the future military challenges in the 2015 timeframe.⁴⁰ The *Functional Concept* defines Force application as "...the integrated use of maneuver and engagement to create the effects necessary to achieve assigned mission objectives."⁴¹ This *Functional Concept* demands that engagements in the future battle space capitalize on the synergies of timely and effective use of kinetic and non-kinetic means to create lethal and non-lethal effects.⁴²

As a descriptive example to illustrate the DOD *kinetic cultural* effect, consider the Advance Concept Technology Demonstration (ACTD) called the Active Denial System (ADS). The ADS is a non-lethal, counter-personnel directed energy weapon that uses advanced technology to provide an unprecedented non-lethal capability well beyond small arms range. The ADS projects a focused beam of millimeter wave technology creating an intolerable heating sensation to the skin, thereby repelling the individual without causing injury. This capability will enable military forces to delay, deter or deny an approaching antagonist without resorting to the use of deadly force. The ADS is designed to minimize non-combatant fatalities and reduce collateral infrastructure damage.⁴³

Although the ADS is clearly a capability that should be binned to the Force Application FCB, because it is not lethal and considered to be force protection by the *kinetic culture*, it is relegated to the Protection FCB despite the inherent attributes of the Force Application *Functional Concept*. Unless the capability kills or destroys adversary capabilities, it is not consider part of Force Application or contributing to the kinetic cultural effects. If non-lethal weapon capabilities were routinely and rightfully binned to the Force Application FCB – the *Functional Concept* that describes the requisite force application attributes – the proper analysis, advocacy, and stewardship would better facilitate the value added to the Joint Force Commander capabilities by balancing both lethal and non-lethal means. Furthermore, this becomes especially important when it involves identifying program off-sets or trade space for the desired capability gaps within the eight FCB portfolios. On one hand, you have the Force Application FCB, which is not required to recommend any lethal weapon off-sets at the expense of non-lethal weapons, since these capabilities are normally binned to the Protection FCB.

On the other hand, non-lethal weapons relegated to the Protection FCB, fall significantly short in fulfilling the required capabilities and attributes of the Protection Functional Concept, which routinely demonstrate advocacy challenges or recommending off-sets within their portfolio. Finally, in order to adequately respond to combatant commanders, non-lethal weapon capabilities should be sponsored by the Force Application FCB, despite its intended role on the battlefield to better balance lethal and non-lethal weapon capabilities. As a result, this will create necessary conditions for change to the DOD kinetic culture in adapting to the realities of the 21st century.

Recommendations

The DOD ought to implement incremental changes with intentions to put into action comprehensive changes as a result of the Department's capability-based assessment of the Department's non-lethal weapon capability development and employment processes by reviewing:

- The United States' policy and strategy.
- The Joint organizational hierarchy size and budget.
- The Science and Technology (S&T), and Research, Development, Testing and Evaluation (RDT&E), to include the synergy required for each Service battle lab.
- Doctrinal and Training implications.
- Combatant Commanders' priority integration and employment requirements.
- Media and Congressional education and awareness training.
- DOD kinetic cultural adjustment for the appreciation and application of non-lethal weapon capabilities.

This review should be led by the JNLWD, with the Deputy Director for Force Application, J8, Joint Chiefs of Staff, as the DOD's non-lethal weapons advocate to bring the assessment before the Joint Requirements Oversight Council (JROC) for guidance and validation. Concurrently, the Service with the largest land component capability and budget – The United States Army – should be designated as Executive Agent for the Department's non-lethal weapons capability. Additionally, the DOD must partner with Departments of Justice and Homeland Security to leverage and harmonize fiscal efforts and expertise to stimulate collaborative development on future non-lethal weapon capabilities.

Upon completion of the assessment and designating the United States Army as the Executive Agent for Non-Lethal Weapon Capabilities as part of the incremental change, the DOD should implement the following two comprehensive changes. First, and perhaps most

importantly, it is paramount that the Secretary of Defense and the Chairman of the Joint Chiefs of Staff solicit the Commander-in-Chief through the National Security Advisor to approve a written National Security Presidential Directive that highlights our nation's effort and commitment to minimize collateral damage to both non-combatants and civilian infrastructure. Additionally, the Secretary of Defense should promulgate this message in all DOD strategic planning documents: the National Defense Strategy, the Strategic Planning Guidance, and the Quadrennial Defense Review. A clearly defined national level policy (*ends*) for non-lethal weapon capabilities would plainly signal the United States' global declaration towards its judicial application of force to reduce non-combatant casualties and civilian infrastructure destruction. This national policy is absolutely essential in order to change the military *kinetic culture* in advocating the necessary support for what has probably been the most costly lesson learned in the military over the last two decades – the unintended consequence of the application of lethal force.

Second, the Secretary of Defense should create a Non-Lethal Weapon Joint Project Office (JPO) with increased size, budget, and authority, led by a Flag Officer specifically intended to provide non-lethal weapon capabilities to the Department. This organization would be a Chairman's special activity similar to the Joint Theater Air and Missile Defense organization, yet with the budget authority for the Department's S&T and RDT&E of non-lethal weapon capabilities. The Service Departments would ultimately have responsibility for procurement and sustainment of fielded capabilities. This JPO would respond to combatant commander capability priorities through collaborative Service representation within the JCIDS, specifically the Force Application FCB, to develop and procure non-lethal weapon capabilities. This JPO would be best suited to consolidate disparate service acquisition programs under one milestone decision authority, bring synergy and greater efficiency to developing non-lethal weapon capabilities to respond to the warfighting combatant commanders, and demonstrate responsiveness to adapt to the changing global security environment of the 21st century. The JPO would receive direction from the JROC and follow the existing DOD acquisition rules and procedures.

Conclusion

Our National purpose – enduring beliefs, ethics, and values – necessitates enhanced formulation of policy and strategy for the Department of Defense Non-Lethal Weapon capabilities to mitigate the current *ends-ways-means* mismatch. The last two decades of conflict involving military engagement reinforces the non-linear and complex urban

environments populated with both combatants and non-combatants. Non-lethal weapons will become more important for both political and military reasons as we continue to engage around the world in the long war on terrorism or even future unforeseen conflicts. Americans have consistently grown increasingly aware of and extremely sensitive to all casualties on any side in even the most permissible conflicts. Non-lethal weapon capabilities do not imply a new instrument of national power; its application is simply an extension of military force (lethal capability) to bridge the gap between warnings and the actual use of deadly force. Conversely, non-lethal weapons will never become a surrogate for deadly force since the right of self-defense remains paramount and our lethal capability as a rule protects that inherent right.

In summary, non-lethal weapon capabilities are intended to decrease the risk of apparent excessive military force, encourage international diplomatic support, ease environmental challenges, and improve post conflict transitions and termination.⁴⁴ Simply stated, the desired end state is to promote favorable security conditions by balancing the application of force between lethal and non-lethal means to avoid unintended consequences with enduring strategic effects across the diplomatic, information, military, and economic instruments of power. Finally, the DOD is not doing enough to adequately develop non-lethal weapon capabilities – getting it right today will ensure soldiers, marines, airmen, and sailors are provided adequate capability to manage the strategic and operational consequences by having the capability to balance the application of force. The intent is not to make increases in non-lethal weapon capabilities at the expense of lethal weapons. Rather, the goal is to strike an appropriate balance to reduce the risk caused by excessive force at the strategic and operational levels in the global security environment of the 21st century.

Endnotes

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