NEW TECHNOLOGY, WAR

AND INTERNATIONAL LAW

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I. ONCE AND FUTURE WAR

A. TECHNOLOGY AND WAR

The defense policy and military service communities stand at the brink of a new era in warfare. A unique confluence of technological innovation, policy requirements and stipulations in international law bring us to this point -- and requires that planners and decision makers work out the relationships among and between these elements to meet the challenges of this new era.

This paper will attempt a "high order, first cut" at such a reconciliation, knowing that it is but the first step in many which subsequently need to be made to define further policy and program development.

War is a regrettable attribute of the international system. While it is not always inevitable, its frequency has caused states to remain armed and ready to defend national interests. Technology has played a leading role in extending the scope of the battlefield as well as its scale. It has also contributed to its savagery -- and it is in reaction to this savagery that just over one hundred and twenty years ago, men convened to attempt an amelioration of this brutality through the instrument of international law. More will be said later about the remedies which have evolved in the intervening years; suffice it to say here that an early principle in this evolution is that the means that belligerents use to wage war upon each other are not unlimited. Hence, a principle underpinning in the law is the search for restraint in the means (as well as the ends) of war. This search for restraints harkens back to an earlier tradition -- that of just war doctrine -- which tried to place normative restraints on decisions to wage war in the first place. These efforts have resulted in a system of objective and subjective criteria which places clear responsibility on both civilian and military leaders for ensuring "restraint in waging war and...[making] the initiation of just...war a moral and politically responsible action".(1)

As mentioned before, new advances in technology, political requirements and international legal considerations make a review of the international laws of war now all the more pertinent. The promise of new technology to lessen the lethality and the unintentional damage occasioned by war makes it useful to review the assumptions and principles in these foundation rules and standards. While we may not be able to totally banish war as an instrument of state policy, new influences may move us in directions which will allow us to limit and control -- perhaps even avert -- unnecessary violence and death as a result of state actions.

B. JUST WAR DOCTRINE

Just war doctrine derives from efforts on the part of legal theoreticians to limit or restrain the ways by which states go to war with one another. By establishing distinguishable criteria for leaders to ponder, the decision to go to war is no longer as trivial a matter as it was in the past. According to one noted scholar, the essence of this doctrine lies in "the formulation of conditions that individuals and societies must apply in conscience to their decisions concerning war."(2) There are a variety of conditions which scholars and tradition have established for determining whether a war is "just" or "unjust". What is important for this discussion is that some of these conditions or criteria find resonance in the analysis of non-lethal and discriminate weapons. In particular, we find significant cross-linkage between the measured means which these technologies promise and the sentiment that "just war cannot be initiated unless there is reason to believe that the just belligerent can make a controlled, limited use of the military instrument."(3) In like manner, new technological advances allow both lethal precision and proportionate damage limitation features which have not been available to states in the past. Coupled to a new national security strategy that emphasizes the emergence of a new world order based on law and deterrence, there exists an opportunity to fulfill the goal stated by legal scholars that "there can be no just war without limited war policies and capabilities."(4)

C. LIMITED WAR

What we are positing however, is not simply an open-ended justification of state means and ends disguised as "just war doctrine." In the future, war and armed conflict short of war will continue to exist and pose threats to the US, our friends and allies around the world. What is important to understand is that crisis and contingency management will need to consider solutions which are limited, not only in duration, but also in scope, scale and commitment. This philosophy is inherent both in current and foreseeable US national security policy, and it is also as a practical implication of down-sized US military budgets and force structures. Large-scale confrontations are not ruled out altogether; they have merely moved down the scales of probability and short warning from "most likely" to "least likely." Thus, the long-range outcome of these policy and budget decisions is a future in which "limited war" at the regional level reemerges as the principal focus of US politico-military attention. Planning for limited war situations places new requirements on option development: No longer can a single response be tailored to fit all contingencies. Indeed, it is essential to just war doctrine -- as well as flexible response and credible deterrence -- that the US possess the technical capabilities, planning flexibility and the political will to execute new options which do not necessarily entail unlimited ends or means.

Thus, in terms of a basic "re-understanding" of what limited war will mean in the future, one scholar writes that the "political ends [will] always determine military means" and if this is so, then some portion of the military means must be limited or constrained.(5) In classic just war doctrine, limited war requires "economy of force, the limiting of military assets and efforts to what is genuinely necessary to take an objective."(6) Implementing limited practices in the conduct of armed conflict is now more possible then ever before because current and future military technologies will emphasize proportionate response and feature damage limiting capabilities unrealized in military technology up to this point in history. Proportionate response and deliberate damage limitation are two elements at the core of the international law of war -- beyond that, these characteristics are "indispensable" to the conduct of armed conflict in accordance with just war doctrinal standards.(7)

D. DETERRENCE AND FLEXIBLE RESPONSE

Concurrent with a concern over just and limited war formulations, defense planners and decision makers must contend with ensuring the continued viability of the twin pillars upon which US defense policy stands -- deterrence and flexible response.

Some may argue that these elements are derelict leftovers from the Cold War era. However, that assessment is incorrect. Deterrence as a bedrock defense policy transcends any particular era and is, in fact, one of the few immutable elements of a successful defense strategy whatever the state, whatever the era. Without a strong and credible deterrent capability -- provided by robust enforcement assets -- deterrence is a hollow shell, and one stands susceptible to coercion and conquest. With it, threats and encroachments can be held at bay. However, the deterrent must be visible, believable and, most importantly, available.

What policy and military planners have been faced with is a capabilities gap -- a gap by which US deterrent policies chance being rendered incredible, unbelievable. In the lower end of the operational spectrum, between normal peacetime operations and conventional military engagement, lies a gray area of escalatory potential. Adversaries bent on foiling US interests or imposing their will on others have a relatively free hand to operate along this conflict scale. The point may soon be reached where potential adversaries are no longer intimidated by conventional military threats -- capabilities and assets more suited for doing full-scale battle then for contending with "gnat bites". Threatening to throw sophisticated capabilities into lower-level contingency situations may have just the opposite effect -- that of rendering such means incredible, unbelievable, at least in terms of real employment.

However, new non-lethal and discriminate lethal technologies promise to infuse new credibility into US deterrence statements and positions by allowing more timely and proportionate responses

to crises and lower-level contingency situations in which off-the-shelf conventional, indiscriminate capabilities would be less effective, if not counterproductive. Thus, as we enter the post-Cold War era, the era of the New World Order, we need to ensure that we have the capability to reinforce deterrence and to be able to actively de-escalate crises before they put us in a position where we have to respond with more conventional means.

Should deterrence fail, we then need to be in a position to flexibly respond to a crisis situation at an appropriate level of intensity. Beyond simply a term synonymous with the Cold War era, flexible response conveys the letter as well as the spirit of national level crisis decision making in the new post-Cold War period; that is, development and deliberation of response options appropriate to the location, scope, scale and intensity of US engagement and interests at stake. This posture assumes that we have the military assets and resources ready and available to respond as directed. Its essence is to be "prepared to meet a great variety of challenges at whatever level of intensity...within limited war guidelines."(8) But this presupposes a great deal of prior planning for major (and not so major) contingencies, and that such planning be linked to capabilities to deal with them, as well as the politico-military strategy necessary to ensure adequate response options for decision makers to act upon. The new class of non-lethal and discriminate weapons and technologies provides decision makers and planners with a wide range of response options which will allow the flexible response posture to remain relevant and robust well into the new era of post-Cold War developments.

In summary, while not totally discounting a major nuclear confrontation, future armed conflict and war will more likely occur at the regional or national level, and be largely conventional in nature. The US will remain engaged in international politico-military affairs, but at a lower level of presence abroad. Far from seeking territorial gain or other unlimited ends, US policies will be geared to accomplishing specific, limited goals to protect vital national interests and international commitments. New technological capabilities and systems enable the US to achieve limited ends policy goals at lower levels of engagement or confrontation than ever possible before. Just war doctrine will have new relevance in the emerging international system because (1) offers criteria for decision makers and commanders which can assist in the policy planning and response development process, and (2) because new technologies and capabilities allow us to meet and comply with doctrinal guidelines as never before. Deterrence will therefore be enhanced, but should deterrence fail, the US will have a variety of new capabilities to respond to and (optimally) avert or de-escalate a crisis situation at the lowest cost in lives and other resources on both sides. International law plays a major role throughout this decision and action cycle, guiding both policy development and operational implementation of national directives.

In all these activities, new opportunities arise for us to capture: to incorporate significant new military capabilities, to reinforce and strengthen basic tenets of international law, to more closely approximate the moral goals of just war doctrine, as well as re-invigorate and find further application for basic politico-military doctrines which have successfully ensured international security since World War II. How we respond to these new opportunities will have a profound effect on how the President's vision of a New World Order will evolve, and what its legacy will be for future generations at home and abroad.

II. ONCE AND FUTURE LAW

A. PHILOSOPHY OF THE LAW OF WAR

Because of the many political, military, diplomatic and economic implications of going to war, decisions to commit the state to such a course of action should be informed judgements -- judgements informed not just by political information and military intelligence, but also by the law of war or, in its modern guise, the law of armed conflict. According to legal scholars, this means that not only should the conditions of just war doctrine for events leading up to war (jus ad bellum) be met, but that if hostilities ensue, that they should be conducted in accordance with doctrinal requirements for the conduct of operations in war (jus in bello). Just war doctrine and international laws of armed conflict are not exactly one and the same; however, they draw principles from one another and, from that perspective, are similar.

The law of armed conflict is itself a sub-set of international law. These laws relate to armed conflict (whether on land, at sea, in the air or in space) and convey fundamental duties, rights, obligations, privileges, powers, immunities, constraints, liabilities and disabilities on all parties to a conflict situation. Much of this law is written, but a significant body is also unwritten and deduced from state actions.(9)

The intent of these laws is to "regulate the conduct of armed hostilities between states."(10) The intent of this regulation is to inject an element of humanitarian concern into armed conflicts. This is done to ensure both the ethical employment of weapons and technology and to ensure basic rights, particularly protection for combatants and non-combatants alike from what is called "unnecessary suffering."(11) Such protective restraint is necessary because state means are not unlimited -- indeed

> the law of war places limits on the exercise of a belligerent's power...[,] requires that belligerents refrain from employing any kind or degree of violence which is not actually necessary for military purposes [and enjoins parties to] conduct hostilities with regard for the principles of humanity and chivalry.(12)

The amount or degree of unnecessary suffering can be reduced by parties to an armed conflict by

> prohibiting certain weapons[,] regulating their use[,] by forbidding certain modes of weapons use and prohibiting specific methods of warfare.(13)

By attempting some regulation in international armed conflict, states keep wars from degenerating into brute savagery and facilitate the restoration of peaceful and friendly post-war relations.(14) Thus, while war remains a phenomenon of interstate and international relations, the law (as a regulatory vehicle) emphasizes that it can and must be controlled.

B. IMPORTANCE OF THE LAW OF WAR

There are compelling reasons why the law of war or armed conflict is still important -- and particularly so when we consider the many subtle relationships between the law and new non-lethal weapons and discriminate technologies.

1. POLITICAL REASONS. The principle of national self-interest plays an important role here, for historically, in the conduct of armed hostilities "much of the law...has not been violated and has been observed."(15) This due to the fact that violations of the law have been found to be counter-productive to the political aims of the parties to the conflict, often producing negative and unwanted reactions, such as arousing hostile public opinion, mobilizing neutral parties, stiffening resistance and unnecessarily increasing "antagonisms on both sides [which] prevent successful negotiation of differences..."(16) Thus, according to one source, "mutual and reciprocal self-interest is an underlying basis of the law." (17)

2. MILITARY REASONS. There are a variety of operationally-significant reasons why the law of international armed conflict is important. Many of these reasons have been shaped, (or derive from) the concept of military necessity in war. This concept

> justifies [undertaking] those measures not forbidden in international law which are indispensable for securing the complete submission of the enemy as soon as possible.(18)

This concept will be discussed in more detail below but for our purposes here, it suffices to say that this principle undergirds much of the law as it applies to such diverse operational concepts as

> accuracy of targeting, concentration of effort, maximization of military advantage, conservation of

> resources, avoidance of excessive collateral damage and economy of force...(19)

Military Necessity ensures that state military practices are in full compliance with the legal requirements of the law, and by this compliance, states reinforce its observance.

3. HUMANITARIAN REASONS. Major humanitarian considerations also underpin the laws of armed conflict and are mainly focused on protecting the rights and privileges of non-combatants, sick, wounded and prisoners of war without "sacrificing material military advantage."(20)

In a consideration of non-lethal weapons and discriminate technologies, one can see that new opportunities present themselves for ensuring a more complete compliance with international laws of armed conflict. These opportunities become especially evident as one considers basic operational principles incorporated into the law, and to which we now turn our attention.

C. BASIC PRINCIPLES OF THE LAW OF WAR

As previously mentioned, the most comprehensive principle enshrined in the laws of armed conflict is that articulated in the Hague Convention of 1907; namely, that the means available to parties to an armed conflict are not unlimited. This basic regulatory prescription in the law has helped to shape a number of militarily-significant operational principles which are not only a part of international law but also codified in US military planning and operations. As will be seen below, these basic principles also play a significant role in the rationalization of new non-lethal and discriminate weapons and technologies.

Among the basic formulations encountered in the law are three main military principles: (1) Military Necessity; (2) Humanity and (3) Chivalry.

1. MILITARY NECESSITY. As mentioned above, the principle of Military Necessity

> justifies measures of regulated force not forbidden by international law which are indispensable for securing the prompt submission of the enemy, with the least possible expenditures of economic and human resources.(21)

This principle acts as a regulatory device on state means; but it also protects the state's right to "use any degree or means of force, not forbidden, necessary to achieve the objective sought."(22)

If we examine it closer, we find that it is composed of four constituent criteria, which stipulate that

a. the force used is "capable of being and is in fact regulated by the user";

b. that the use of force "is necessary to achieve as quickly as possible the partial or complete submission of the adversary";

c. that the use of force "is no greater in effect on the enemy's personnel or property than needed to achieve his prompt submission" and

d. that such force "is not otherwise prohibited"(23)

As can be seen, these criteria place significant constraints on state actions in war. As such, it is almost the opposite of the 19th-century German precept of Kriegsraison, which asserted that "military necessity could justify any measures", including those that would now be considered violations of international law.(24) It is incumbent upon all states to adhere to the stipulations of this principle.

2. HUMANITY. This principle calls for prohibitions and restraints on "the infliction of suffering, injury or destruction not actually necessary for the accomplishment of legitimate military purposes."(25) By extension, this principle also covers prohibitions against "unnecessary suffering, a requirement of proportionality" in the conduct of warfare in accordance with legal requirements.(26) In addition, this principle also confirms the basic immunity of individual civilians and civilian populations from being objects of attack in war.(27) Again, through this principle, constraints are placed on state action, both in terms of the means employed and the legitimate objects of military targeting.

3. CHIVALRY. In an assertion that seems strangely out-of-place with the horrors of modern war, there is a strain of thought within the principle of Military Necessity which states that armed conflict will be conducted "in accordance with well-recognized formalities and courtesies" among and between contending military forces.(28) By placing restraints and constraints on certain actions related to the use of "poison, dishonorable or treacherous misconduct, misuse of enemy flags, uniforms and flags of truce", international law has sought to make war "less savage and more civilized for the individual combatant."(29)

But these three principles are not the only ones which have relevance for future war and for understanding the role of non-lethal and discriminate weapons and technologies in it. Other pertinent principles are reviewed briefly below.

4. PROPORTIONALITY AND DISCRIMINATION. These two principles play important roles in both just war doctrine and the international law of armed conflict. Proportionality, in the first instance, is a well-recognized legal limitation on weapons and

methods of warfare which "requires that injury or damage to legally protected interests must not be disproportionate to the legitimate military advantages" to be secured by weapons or other military means.(30) Unfortunately, as one scholar writes, with the advent of weapons of mass destruction, the legal prescriptions associated with proportionality are "easily laid down but difficult to interpret and apply in practice."(31) Some of the oversight and disrepair into which the principle has fallen can be accounted for by the impression that "it is too vague and permissive to produce genuine, meaningful limitations on belligerent conduct."(32) This is a false assumption, however, because efforts have been made to establish criteria and standards by which proportionality in warfare can be judged. For example, one authority cites the following "protected values subject to measurement":

a. The nature, degree, extent and duration of individual injuries involved in the prohibition against unnecessary suffering;

b. Excessive incidental injury to protected civilian persons or damage to civilian objects; and

c. Uncontrollable effects against one's own combatants, civilians or property.(33)

Proportionality posits a direct linkage between the means to conduct armed conflict and the military ends sought as a result of their employment. This linkage further posits a calculation between the means used and the ends sought, that is, "a comprehensive calculation of the qualitative and quantitative effects of the war in light of these ends."(34) The dynamics of the calculation also suppose that the planner look beyond the military balance sheet to consider not just costs, casualties and damage, but also the means for "ending the war altogether and thereby avoiding massive military and civilian casualties and widespread destruction."(35)

Related to proportionality is the principle of discrimination, which stipulates that "there must be no direct intentional attacks on non-combatants or non-military targets."(36) This principle too has suffered from the ravages of increasingly destructive weaponry and violation in recent wars and armed conflicts.(37) Unfortunately, there will always be

> significant numbers of clear non-combatants and non-military targets that will inevitably be attacked as part of the process of carrying the war to the enemy.(38)

However, that is no excuse for abandoning attempts to make military technology both less lethal and more discriminate. It is precisely these features which new technological advances in modern weaponry promise to deliver which makes re-consideration

of state obligations under these principles of law of continued and increased importance for the foreseeable future.

5. ECONOMY OF FORCE AND MASS. Another bedrock precept of the law of war is that of Economy of Force. Returning to first principles, we noted above that the means which parties to armed conflicts use are not unlimited -- in fact, they are usually employed "as sparingly as is consistent with success."(39) This judicious, measured use of force implies a degree of limitation and control which are considered necessary conditions to "qualify for the normative test of proportionality" under international law.(40) One must note that the principles of Proportionality and Economy of Force are not identical. Proportionality "enjoins the principled limitation of means [and] economy of force requires prudential limitation of means."(41)

The principle itself is one well-recognized in military science. It states that

> in the use of armed forces as an instrument of national policy, no greater force should be employed than is necessary to achieve the objectives toward which it is directed.(42)

In other formulations, Economy of Force stipulates that the use of military force should be "proportionate to the value of the objectives at stake." Further, that "no more--or no less--effort...[be] devoted to a task that is necessary to achieve the objective."(43)

As a foundation principle, Economy of Force is related to other military principles, including the principle of the Objective, which states that

> each military action must contribute to the ultimate objective of defeating the enemy's armed forces.(44)

In addition, Economy of Force is related to the principle of Mass, which states that

> superior military power be concentrated at the critical times and places to obtain a decisive result.(45)

Its relationship, however, is that of being Mass's reciprocal, in that only the "minimum essential means" need be employed at any point other than that of the main effort. (46) This situation requires that planners accept "prudent risk in selected areas to achieve superiority" at the decision point.(47)

To return, however, to a major line of argument, Economy of Force is related to the principle of Proportionality in warfare and armed conflict. The important point here is that there are

significant moral implications for this relationship. These implications follow from the sentiment that, given the amount of violence and destruction which normally accompany the use of armed force in war,

> it is morally incumbent to use force deliberately and scrupulously and as sparingly as is consistent with the attainment of the national objectives at stake.(48)

The implementation of this principle therefore

> implies the correct selection and use of weapons systems, maximum productivity from available...effort and careful balance in the allocation of tasks.(49)

This logic leads one further down the line toward consideration of how this principle fits within the parameters of the concept of limited war, specifically how

> each application of military power must be tailored to a specific military objective based in turn on specific political objectives.(50)

As mentioned before, we will find that this principle has resonance in a variety of areas germane to the examination on non-lethal and discriminate weapons and technologies.

6. UNNECESSARY SUFFERING. This principle is derived from the formulation discussed above, that the means used by parties to armed conflict are not unlimited, and is also related to the general principles of Proportionality and Humanity. This principle was developed to to prohibit employment of weapons that would cause "unnecessary" and "superfluous" injury.(51)

The principle was first introduced into international law in the St Petersburg Declaration of 1868. It has been further amplified in the 1899 and 1907 Hague Conventions, and in more recent law.(52) While the 1868 Declaration was focused on certain types of projectiles, later law dealt with

> the employment of arms which uselessly aggravates the sufferings of disabled men, or renders their death inevitable ...the employment of such arms would therefore be contrary to the law of humanity.(53)

How and which weapons are determined to cause unnecessary suffering (and are therefore unlawful) is largely determined by state practice and their use in war.(54) In this regard, state

practice consists of "refraining from the use of a given weapons ...believed to have that effect."(55)

The basic rule derived from the principle as it has evolved is that

> it is forbidden to employ weapons, projectiles, and materials and methods of warfare of a nature to cause superfluous injury or unnecessary suffering.(56)

By way of clarification, it is understood that

> weapons are lawful within the meaning of the prohibition against unnecessary suffering, so long as the foreseeable injury and suffering associated with wounds caused by such weapons are not disproportionate to the necessary military use of the weapon in terms of factors such as effectiveness against particular targets and available alternative weapons.(57)

While all weapons used in anger necessarily cause wounds and suffering, the critical question is whether the suffering is "needless or disproportionate to the military advantages secured by the weapon, not the degree of suffering itself."(58)

But it is not just weapons effects which are addressed by this principle. In addition, the rules apply to the "manner of use of a weapons or method of warfare against combatants or enemy military objectives", and covers "infliction of suffering upon individuals for its own sake or mere indulgence in cruelty."(59) This point is particularly relevant in any analysis of the effects of non-lethal and discriminate weapons and technologies.

7. COLLATERAL DAMAGE. Another important principle which has relevance to an analysis of new technologies and weapons systems, especially precision-guided munitions and other discriminate weapons, is concern for avoiding unnecessary collateral damage. According to one line of reasoning, using modern military weapons in armed conflict or war usually yields "two effects": the first -- and preferred -- effect is to injure or destroy "the enemy's military forces, facilities, lines of communication and war industries". The second -- and

> often inescapable and predictable effect...reluctantly accepted...involves the death and destruction of non-combatants and non-military targets, so-called collateral damage.(60)

While the principle recognizes this unfortunate second effect, planners and commanders are enjoined to do everything possible to ensure that

> loss of life and damage to property incidental to attacks [is not] excessive in relation to the concrete and direct military advantages gained.(61)

The law defines a variety of unlawful targets of military action -- using terms such as "protected objects", "civilian objects", non-combatants and the like -- and stipulates that

> all necessary measures must be taken to spare, as far as possible, buildings dedicated to religion, art, science, or charitable purposes, historic monuments, hospitals, and places where the sick and wounded are collected, provided they are not being used at the time for military purposes.(62)

In those circumstances where force must be used, "there must be some reasonable close connection between the destruction of property and the overcoming of the enemy's army."(63) Thus, the law indirectly but clearly places a premium on precision and discrimination in weaponry and tactics to be employed in armed conflict. This requirement makes it all the more incumbent on planners, decision makers and commanders to ensure that military actions conform to the requirements of the law to the degree possible. This was once not as possible as it may be in the future, for technology now enables us to design and use weapons that are non-lethal or discriminately lethal, or weapons with a combination of these features, which make their effects more consistent with the spirit -- if not the letter -- of this legal principle.

8. INDISCRIMINATE WEAPONS. While this element is not a principle *per se*, the intention of the law related to this issue is to place specific and unambiguous restraints on such weapons. The law currently does not prohibit

> the use of weapons whose destructive force cannot be strictly confined to the specific military objective.(64)

Further, the law allows that

> weapons are not unlawful simply because their use may cause incidental casualties to civilians and destruction of civilian objects.(65)

What the law does stipulate is that states or parties to armed conflict cannot use weapons which have indiscriminate effects. Such weapons and methods of warfare are defined as those

> incapable of being controlled, through design or function, and thus they can not, with any degree of certainty, be directed at military objectives.(66)

Again, state precedent and the customary usages of war have helped to determine whether a weapon or mode of warfare can be classified as "indiscriminate" or not. Because this has not always been the case, the law currently lays out several threshold criteria which can be used as guidelines for determining whether or not a weapon falls into this category. These criteria include:

- o Delivery accuracy
- o Probability of inflicting excessive injury
- o Capability to cause uncontrollable effects
- o Capacity to cause unnecessary suffering(67)

Weapons effects must also be considered in light of other principles, specifically those elements in the law which admonish planners and commanders to use only the amount of force necessary to accomplish the mission, yet which also minimizes civilian casualties and collateral damage. Much of this philosophy has been incorporated into US weapons design, for we have "historically stressed the importance of accuracy" in our weapons systems.(68) However, because a weapon may be successfully employed against legitimate military targets does not mean that its effects are otherwise controllable -- they may be quite uncontrollable and thereby cause disproportionate casualties and damage, both to the adversary as well as to one's own personnel and assets. Thus, a critical consideration is whether weapons effects

> escape in time and space from the control of the user as to necessarily create risks to civilian persons or objects excessive in relation to the military advantage anticipated.(69)

The law intends to restrict and prohibit the use of weapons whose "foreseeable effects" would cause this kind of damage.

D. NON-LETHAL AND DISCRIMINATE WEAPONS AND THE LAW OF WAR

As can be discerned from the preceding examination of several major principles embodied in the law of war, many of these strictures have direct application to the design, development and

employment of weapons systems, technologies and modes of warfare. A case in point is the US response to these requirements. The US government takes its obligations under international law seriously and has gone so far as to establish within the Department of Defense a DOD Law of War Program. Enabled through DOD Directive 5100.77 of 5 November 1974 (and subsequent issuances), this program ensures that

> the armed forces of the United States ...comply with the law of war in the conduct of military operations and related activities.(70)

The jurisdiction of the program extends to the acquisition and procurement of weapons systems and related military technologies, to ensure that "their intended use in armed conflict shall be consistent with the obligations assumed by the US government" under international law, particularly the laws of war.(71)

This program nothwithstanding, however, what is unique about this situation is that for the first time in history, the US is on the verge of being able to field a wide range of weapons and technologies which will allow us to comply with the strictures of the law as never before in the past. Not only are these new capabilities less lethal for military and unintentional military targets alike, but in those cases in which weapons have lethal effects, these can be controlled and regulated as never before, and thereby rendered much more discriminate and damage-limiting. This is not to say that unintentional deaths and collateral damage will never occur again -- no such guarantees are offered, feasible or realistic. What can be expected is that these new systems and technologies will allow for a fuller and more complete compliance with both the spirit and the letter of international law, particularly those principles incorporated into the laws of armed conflict.

Hence, there is an urgency to taking advantages of the opportunities which these weapons and technologies promise. In that these technologies and systems also offer increased military advantage, leverage and contingency response options, they make that urgency all the more compelling. Given the kind of international security and threat environment we will be facing in the future, can we afford to let these opportunities slip by?

III. CURRENT AND FUTURE WAR

A. CURRENT TRENDS IN INTERNATIONAL LAW

Work continues on the development and further refinement of the international law of armed conflict. Most recently, the United Nations was involved in overseeing a series of studies and reports on conventional weapons in Lucerne in 1974 and Lugano in 1976.(72) These studies and their recommendations were eventually incorporated into the Convention on Prohibitions or Restrictions

on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (with three Protocols) of October 1980.

Under the general terms of the Convention, states and parties are enjoined to refrain from using conventional weapons whose effects are deemed excessively injurious or indiscriminate. In particular, the Protocols spell out specific prohibitions on three general types of weapons: fragmentation weapons (Protocol I); treacherous weapons (Protocol II); and incendiary weapons (Protocol III).

Regarding particular principles incorporated into the Protocols, it should be noted that Protocol I expressly prohibits

> all weapons whose 'primary' effect is to injure by fragments which cannot be detected in the human body.(73)

As interpreted by the international legal community, Protocol I only covers

> fragmentation weapons 'designed' to injure by undetectable fragments, but not those which contain fragments, and which, on an incidental basis, may contribute to such fragments entering the human body.(74)

Thus, any kind of fragment not detectable by x-ray is unlawful. This would include glass, plastic and other materials which would escape such detection.

Protocol II covers treacherous weapons, generally defined as land mines, booby traps or other similar devices used in military operations. According to expert opinion, land mines are of particular concern because they are "indiscriminate by nature". While they have legitimate military uses in a defensive mode,

> as an offensive weapon, they become indiscriminate, liable to kill civilians and other protected persons, and might therefore be prohibited as weapons used for advancing forces.(75)

Similar prohibitions cover the use of booby traps, especially "perfidious" booby traps, defined as

> explosive devices concealed in innocuous objects like children's toys or in connection with protective emblems.(76)

As in other contexts, the concern over these weapons relates to their inflicting superfluous injury and unnecessary suffering.

The prohibitions in the Protocol are much more explicit than in previous law.

Finally, Protocol III deals with prohibitions on incendiary weapons. These are of concern for two reasons. First, incendiaries, whose primary effects are generated by fire or chemical reactions, are considered indiscriminate -- fire and chemical reactions cannot be specifically targeted or effectively controlled. Secondly, and more importantly, the

> injuries resulting from either direct use of the weapons or from fire caused by them are intensely painful, requiring assistance by medical resources far beyond the means of most countries.(77)

Associated with the Convention is a Resolution on Small Calibre Weapons Systems, whose primary focus is a prohibition on

> all small calibre projectiles which cause injuries beyond those necessary to disable the enemy, whether such excessive injuries are due to the bullet's flattening, expansion, velocity or tumbling.(78)

While not of the same technical stature as a protocol, the resolution appeals to states to exercise caution in developing small calibre systems.

B. NEW OR QUESTIONABLE WEAPONS

Another area of international legal concern is related to ongoing technological developments and "new" weapons systems. Also called "questionable" or "dubious" weapons, there are two basic schools of legal thought related to these systems: (1) the school that alleges that all new weapons are illegal or unlawful until proven otherwise; and (2) the school that contends that the only illegal or unlawful weapons are those specifically identified in and prohibited by international law.

As with much else in this field of inquiry, there are several paths to follow to reach an understanding of the issue. For example, the law of armed conflict distinguishes between lawful and unlawful weapons and employment practices. The law also requires consideration of weapons effects based on the criteria for avoiding unnecessary suffering and for achieving proportionality between the weapons's use and the anticipated military gain. However, at the same time,

> a weapon or method of warfare may not be considered illegal solely because it is new or has not previously been used in warfare.(79)

What seems to have happened in the past is that the introduction of a new weapon or means of warfare has "often resulted in public denunciation of their allegedly cruel effects", and this indignation has sometimes resulted in attempts to get them prohibited.(80) However, the law incorporates a number of criteria and tests which can be used to determine the lawfulness -- hence, the legality -- of a new weapons system or technology. These criteria and tests (identified above) relate to the extent or degree of unnecessary suffering, superfluous injury, proportionality, military necessity, precedent and prohibition. This latter test can also be used as the basis for the analogy test, whereby weapons are judged unlawful by analogy to weapons and methods of warfare previously determined to be lawful or unlawful.(81)

An illustrative case is probably in order at this point. The parties to Protocol I, for example,

> are bound by a general undertaking to verify whether <u>any</u> new weapon and its use will be compatible with the provisions of the 1949 Geneva Conventions and with the Protocol.(82)

Further,

> even non-parties [to the Convention] are obliged to consider whether employment, or even possession, of any new weapon is prohibited by any rule of general international law.(83)

It will be recalled that the Department of Defense's Law of War Program performs this function for the US government's military weapons systems. International compliance, however, is less comprehensive and so controversy over untested weapons in international inventories remains.

The law has been on the move, to say the least. For the sake of clarity, the international legal community has identified a number of new weapons systems and technologies which it considers "questionable" or "dubious". These include:

- Fuel Air Explosives
- Flame Blast Munitions (which combine fuel air explosive effects with "radiation in chemical fireball munitions")
- Laser Weapons and Light Flash Devices (ruled lawful by the DOD Program)
- Directed Energy Weapons

- High Intensity Microwaves
- Infrasound Devices (84)

International legal sentiment opines that

> use of any of these weapons would appear incompatible with the basic principles of ethics of warfare.(85)

However, until a commonly-accepted international judicial prescription is devised to determine what constitutes a lawful or an unlawful weapon, controversy will dog new weapons and technology being introduced into national military inventories.

C. SUMMARY

The United States stands at the threshold of an era which will see the introduction of a new class of weapons and technologies -- those designed primarily to lessen the chance of lethality in their application and those which are patently lethal but designed to be precise and discriminate, thereby minimizing collateral damage. The United States is under obligation to ensure that these weapons and technologies are in compliance with international law, legal precedent and standing norms of of the law of war.

At the same time, the technical capabilities and characteristics of these weapons and technologies promise to allow a fuller and more complete compliance with international statutes and principles of armed conflict. The adoption of these new capabilities will mark not just the beginning of a new technological revolution in warfare, but also a new era in the elaboration and clarification of the laws of war, possibly to the point of establishing new standards of observation and compliance which will influence the future direction and nature of armed conflict well into the twenty-first century.

The question before us then is: Do we have the political will to adopt not only these new systems but also the entailing law, policy and doctrine associated with them?

FOOTNOTES

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6: O'Brien, Conduct, p. 349.

7: Ibid., p. 348.

8: Ibid., p. 234.

9: US, Department of the Air Force, Judge Advocate General Activities, International Law: The Conduct of Armed Conflict and Air Operations, AF Pamphlet #110-31, Washington, DC, 19 November 1976, (hereafter cited as AFP #110-31), p. 1-4.

10: Ibid.

11: DeLupis, Ingrid, The Law of War, Cambridge: The University Press, 1987, pp. 179-180.

12: US, Department of the Army, The Law of Land Warfare, Field Manual #27-10, Washington, DC, 18 July 1956, (hereafter cited as FM #27-10), p. 3.

13: DeLupis, op. cit., p. 177.

14: AFP #110-31, p. 1-5.

15: Ibid.

16: Ibid.

17: Ibid.

18: FM #27-10, p. 4.

19: AFP #110-31, p. 1-11.

20: Ibid., p. 1-11, 12.

21: Ibid., p. 5-6.

22: Ibid., p. 6-1.

23: Ibid., p. 1-6.

24: Ibid.

25: Ibid.

26: Ibid.

27: Ibid.

28: Ibid.

29: Ibid.

30: Ibid., p. 6-1, 2.

31: O'Brien, Conduct, p. 338.

32: Ibid.

33: AFP 110-31, p. 6-2.

34: O'Brien, Conduct, p. 339.

35: Ibid.

36: Ibid., p. 338.

37: Ibid.

38: Ibid., p. 340.

39: Ibid., p. 225; and O'Brien, Guidelines, pp. 66-67.

40: O'Brien, Conduct, pp. 226, 349.

41: Ibid., p. 341.

42: Ibid., p. 225.

43: Ibid., pp. 225, 227.

44: Ibid., p. 225; and O'Brien, Guidelines, p. 66.

45: Ibid.

46: O'Brien, Conduct, p. 226.

47: Ibid.

48: Ibid.

49: Ibid., p. 227.

50: Ibid., p. 28; and O'Brien, Guidelines, pp. 66-67.

51: FM #27-10, pp. 17-18.

52: AFP #110-31, p. 6-2.

53: Ibid.

54: Ibid.; and FM #27-10, p. 17.

55: FM #27-10, p. 18.

56: AFP #110-31, p. 6-2.

57: Ibid.

58: Ibid.

59: Ibid.

60: O'Brien, Conduct, p. 340.

61: FM #27-10, p. 19.

62: Ibid., p. 21.

63: Ibid., pp. 23-24.

64: AFP #110-31, p. 6-3.

65: Ibid.

66: Ibid.

67: Ibid., p. 6-7.

68: Ibid., p. 6-3.

69: Ibid.

70: Ibid., p. 1-8.

71: Ibid., p. 6-7, 8.

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74: Ibid.

75: Ibid.

76: Ibid., p. 187.

77: Ibid., p. 189.

78: Ibid., p. 194.

79: AFP #110-31, p. 6-7.

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81: Ibid.

82: DeLupis, op. cit., p. 179.

83: Ibid. p. 194.

84: Ibid., pp. 194-195.

85: Ibid., p. 195.