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NONLETHAL WEAPONS, NONCOMBATANT IMMUNITY, AND THE PRINCIPLE OF PARTICIPATORY LIABILITY

Michael L. Gross¹

In defiance of international law, nonlethal weapons inflict direct harm upon noncombatants. To permit their use, this paper considers three competing arguments. First, nonlethal weapons inflict no harm; second, nonlethal weapons cause harm but do not violate the principle of noncombatant immunity; and third, some civilians, namely those who providing war sustaining aid. are liable to nonlethal harm under the principle of participatory liability. The first claim has no merit. Nonlethal inflict pain and suffering, albeit transitory. Combatants, however, are not always protected from all forms of direct harm. When subjected to economic sanctions, for example, noncombatants may suffer severe hardship. By analogy, noncombatants may suffer limited harm from nonlethal weapons when intended to prevent greater harms that come conventional military attacks. Finally, noncombatants deserve immunity at all. Those providing war sustaining aid are liable to disabling but nonlethal force.

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I. Introduction

Nonlethal weapons present a unique challenge to just war theory and the law of armed conflict. Consistent with the principle of noncombatant immunity, noncombatants enjoy total protection from direct and intentional attack.² By design, however, nonlethal weapons do not discriminate between combatants and noncombatants. Instead, they target all as one. Consider the following scenario: Soldiers at a small American base near a rural village in Afghanistan discern activity near its perimeter fence. Upon further inspection, they see a large group of men approaching the perimeter. Intermingled in this group are women. None are in uniform and it is impossible to tell who might be a member of the Taliban and who might be a villager. The soldiers cannot see any weapons, but it is a common guerrilla tactic to carry concealed weapons. When the people fail to heed a warning to disperse, troops train a large satellite-like dish on the entire group. The dish is part of an active denial system (ADS) and emits a direct energy beam of 95 GHz that shallowly penetrates the skin to create an intense burning sensation. In response, some members of the group flee while others take cover and respond with rifle fire. The soldiers fire the beam once more and, assuming the noncombatants have fled the battlefield, then open fire on the militants.

How might this attack by U.S. forces square with the International Committee of the Red Cross's Rule 1 of customary international law, that "[a]ttacks must not be directed against civilians"? After all, the ADS took aim at soldiers and civilians alike. Possible answers include: (1) nonlethal weapons cause no harm; (2) the harm that nonlethal weapons cause is insufficient to violate

^{2.} Jean-Marie Henckaerts & Louise Doswald-Beck, 1 Customary International Humanitarian Law: Rules 3–8 (2005) [hereinafter IHL Rules] (describing the formation and implementation of Rule 1 of customary international humanitarian law as defined by the International Committee of the Red Cross).

noncombatant immunity; and (3) some civilians are liable to direct harm.. All three possible answers provide grounds for developing and deploying nonlethal weapons in contemporary warfare.

II. DO NONLETHAL WEAPONS CAUSE HARM?

Clearly, nonlethal weapons do not violate noncombatant immunity if they cause no harm. Assessing whether or not nonlethal weapons cause harm depends upon understanding the inventory of modern nonlethal weaponry. Kinetic nonlethal weapons such as beanbag projectiles or rubber bullets usually cause transient but minor injuries. Each causes tissue damage that usually heals over time, but can still result in serious injury or loss of life.³ Non-kinetic nonlethal weapons utilize chemical, electromagnetic, or acoustical technologies. Chemical calmatives delivered as an aerosol render subjects unconscious by depressing neurological functions.⁴ In practice these weapons would allow troops to take an objective with minimal loss of life. State actors would find this particularly useful when they cannot distinguish between combatants and noncombatants. Although the US endorses the development of calmative weapons, they have only been used with mixed success by the Russians against Chechen insurgents in Moscow in 2002 and remain otherwise largely untested.⁵ Electromagnetic technologies developed by the U.S. utilize energy waves that create the sensation of intense burning without causing tissue damage. 6 Such active denial systems as described above are designed to repel mixed crowds of combatants and noncombatants without causing permanent harm. Acoustical weapons also repel or subdue crowds by causing minimal pain and suffering, but can cause

^{3.} See generally Masahiko Kobayashi & Paul F. Mellen, Rubber Bullet Injury: Case Report with Autopsy Observation and Literature Review, 30 Am. J. Forensic Med. & Pathology 262 (2009) (describing the lethal injuries sustained by an individual hit by rubber bullets); see generally Peter Wahl, Nicolas Schreyer & Bertrand Yersin, Injury Pattern Of The Flash-Ball®, A Less-Lethal Weapon Used for Law Enforcement: Report of Two Cases and Review of the Literature, 31 J. Emergency Med. 325 (2006) (describing the range of non-lethal but still serious injuries resulting from use of the crowd control device Flash-Ball®).

^{4.} Nick Lewer & Neil Davison, Non-Lethal Technologies—An Overview, 1 DISARM. F.37, 39, 44 (2005).

David P. Fidler, The International Legal Implications of "Non-Lethal" Weapons, 21 Mich. J. Int'l L. 51, 73 (1999).

^{6.} Alane Kochems & Andrew Gudgel, *The Viability of Directed-Energy Weapons*, Heritage Found. (Apr. 28, 2006), http://www.heritage.org/research/reports/2006/04/the-viability-of-directed-energy-weapons.

transient tissue damage.⁷ As these weapons are deployed, combatants and noncombatants may suffer direct or collateral harm in attacks. As with kinetic nonlethal weapons, non-kinetic weapons also carry some risk. While ninety-nine percent of all persons exposed to an incapacitating chemical agent or electromagnetic radiation will experience reversible and transient pain, one percent may die or suffer significant injury.⁸

To effectively disable combatants, nonlethal weapons must cause some degree of harm. Were combatants the sole targets, the use of nonlethal weapons would remain uncontroversial. In modern war, however, and particularly in insurgencies, combatants often fight without uniforms. Although Additional Protocol I sanctions insurgents' right to shed uniforms, it makes no provision for disabling the many noncombatants in their midst. 9 Nonlethal weapons provide one answer to this challenge. Rather than distinguish between combatants and noncombatants when states launch an attack, they distinguish afterwards. Nonlethal weapons target combatant and noncombatants as one. After disabling them all, state armies then sort out the former from the latter, detaining combatants and sending noncombatants on their way. Despite the lethality of some nonlethal weapons systems, it is reasonable to suppose (although not yet conclusive) that few civilians will suffer lethal harm when states employ nonlethal rather than lethal arms.

While the truth of this last assertion still remains to be proved, there is no doubt that nonlethal arms target noncombatants with the intent to inflict harm. The harm they suffer is not benign nor is it always fleeting. Further, while one might argue that lethal harm is not the intent of those using nonlethal weapons (thereby rendering any such harm incidental), some measure of harm necessarily attends all nonlethal weapons. By design, kinetic weapons cause blunt trauma, electromagnetic weapons bring searing pain, and calmatives render individuals unconscious. These are not trivial harms. Still, one may ask whether they rise to the level of harm forbidden by the principle of noncombatant immunity.

^{7.} David A. Koplow, Non-Lethal Weapons: The Law and Policy of Revolutionary Technologies for the Military and Law Enforcement 19–20 (2006).

^{8.} See Neil Davison, 'Non-Lethal' Weapons 8–9 (2009).

^{9.} CLAUDE PILLOUD ET AL, INTERNATIONAL COMMITTEE OF THE RED CROSS: COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949, 528–529, 542, 601, 613 (Yves Sandoz et al. eds., 1987) [hereinafter ADDT'L PROTOCOL I COMMENT.].

III. DO NONLETHAL WEAPONS CAUSE SUFFICIENT HARM TO VIOLATE NONCOMBATANT IMMUNITY?

A. Economic Warfare

The principle of noncombatant immunity protects individuals from armed attacks. 10 The working definition of "armed attack" speaks to both the means and the consequences of an attack. The means are usually kinetic—bombs, tanks, missiles and guns—while the consequences must include "territorial intrusions, human casualties or considerable destruction of property."11 The term "human casualties" includes loss of life, physical injury or severe mental suffering. Applying the conditions of armed attack to all forms of non-kinetic warfare, however, is problematic. Consider the tools of economic warfare: sanctions and blockades. Economic measures are not usually considered a part of the nonlethal arsenal but, like some of the nonlethal measures described above, the purpose of sanctions and blockades is to disable enemy capabilities by measures short of destructive armed force. With this aim in mind, economic warfare does not obviously rise to the level of an armed attack, and remains a common and well-regarded tactic that often promises to bring considerable advantages without the ravages of war. Economic warfare takes direct aim at civilians with the intent to secure a military advantage. Its goal is to squeeze and demoralize the civilian population by imposing severe hardship with the firm conviction that a suffering population can compel its government to sue for peace. There is a long and venerable tradition that allows states to impose crippling sanctions on enemies and, with the exception of a norm prohibiting states from causing a severe humanitarian crisis, economic warfare enjoys free rein. But the norm remains amorphous. There are no clear criteria separating hardship from humanitarian crisis. Injury, disease, infant mortality, starvation, and premature death accompany both but rarely count as armed attacks. Nevertheless, and despite the principle of noncombatant immunity, economic sanctions may inflict considerable suffering upon the civilian population¹² that includes

^{10.} See IHL RULES, supra note 1.

YORAM DINSTEIN, WAR, AGGRESSION AND SELF-DEFENCE 193, (4th ed. 2006).

^{12.} RICHARD GARFIELD, THE IMPACT OF ECONOMIC SANCTIONS ON HEALTH AND WELL-BEING 3, available at http://www.essex.ac.uk/ armedcon/story_id/The%20Impact%20of%20Econmoic%20Sanctions%20on%20He alth%20abd%20Well-Being.pdf.; see generally Richard Garfield et al, The Health Impact of Economic Sanctions, 72 Bull. N.Y. Acad. Med. 454 (1995) (outlining the detrimental public health effects of economic sanctions as a tool of international relations); see generally Ulrich Gottstein, Peace Through Sanctions? Lessons from Cuba, Former Yugoslavia and Iraq, 15 Med., Conflict & Survival 271 (1999) (asserting that economic sanctions do not hurt targeted political leaders

increased in fant mortality, economic deprivation, and impaired health. $^{\rm 13}$

Seen through the prism of economic warfare, one may reasonably ask whether nonlethal warfare ought to be regarded any differently. At its worst, nonlethal warfare probably brings far less devastation than economic sanctions and causes harm that is seemingly insufficient to violate noncombatant immunity. However, this conclusion is premature because the case for permissible economic warfare is weak. The legal gaps surrounding economic warfare do not make the moral case for its use. While international law voices few concerns and in general makes ample room for sanctions and siege, moral philosophers are far more critical. Given the horrendous suffering following blockades and sanctions in such varied locales as World War I Germany¹⁴ and Twenty-First Century Iraq, ¹⁵ critics unilaterally condemn sanctions for the profound suffering they bring civilians. As a result, many observers have recently called on states to pursue smart sanctions to curtail trade in weapons and aviation parts, curb money laundering, and block accounts and money transfers in an effort to strike at the foundations of rogue regimes, guerrilla organizations or terrorist groups. 16 Smart sanctions, however, are not without their critics for the harm that they, like ordinary sanctions, bring upon noncombatants can be severe. 17 Therefore, rather than

- as much as intended, while harming the civilian population more than intended).
- 13. Fiona Wright and Sara Robinson, Humanitarian Minimum: Israel's Role in Creating Food and Water Insecurity in the Gaza Strip, Physicians For Hum. Rts.—Israel 30–32 (Dec. 2010), http://www.phr.org.il/uploaded/Humanitarian%20Minimum_eng_webver_H.pdf.
- 14. Alexander B. Downes, Desperate Times, Desperate Measures: The Causes of Civilian Victimization in War, INT'L SEC., Spring 2006, at 152, 185–88, 192.
- See Christopher C. Joyner, United Nations Sanctions After Iraq: Looking Back to See Ahead, 4 Chi. J. Int'l L. 329, 330 (2003).
- See Adeno Addis, Economic Sanctions and the Problem of Evil, 25 Hum. Rts. Q. 573, 617–623 (2003).
- 17. Economic Sanctions: Panacea or Peacebuilding in a Post-Cold War World? 97–117 (David Cortright et al. eds., 1995); Amichai Cohen, Economic Sanctions in IHL: Suggested Principles, 42 ISR. L. Rev. 117, 117–149 (2009); Ali Dadpay, A Review of Iranian Aviation Industry: Victim of Sanctions or Creation of Mismanagement? 14 (2010); Jay Gordon, Economic Sanctions, Just War Doctrine, and the "Fearful Spectacle of the Civilian Dead", Cross Currents (Nov. 1999), http://www.crosscurrents.org/gordon.htm; Joy Gordon, A Peaceful, Silent, Deadly Remedy: The Ethics Of Economic Sanctions, 13 J. Ethics & Int'l Affairs 123 (1999); Joy Gordon, Smart Sanctions Revisited, 25 Ethics & Int'l Affairs 315 (2011); George A. Lopez, In Defense of Smart Sanctions: A Response to Joy Gordon, 26 Ethics & Int'l Affairs 135 (2012; George A. Lopez et al., Economic Sanctions and

shoehorn nonlethal weapons into a dubious legal regime that permits indiscriminate economic attacks on noncombatants, it is preferable, given the protection afforded to noncombatants, to search for a different paradigm. On the face of it, nonlethal warfare does not bring nearly the same scope of harm brought by economic sanctions. Moreover, the harm of nonlethal warfare is therapeutic, delivered to avoid a greater harm. Indeed, it may be better to analyze nonlethal warfare through the paradigm of therapeutic harm rather than economic sanctions.

B. Therapeutic Harm

Therapeutic harm is a medical term for treatment, such as chemotherapy, that is painful but is administered to prevent a more harmful and serious condition. 18 Chemical or electromagnetic weapons designed to incapacitate are developed to disable insurgents who fight among a civilian population and without uniforms.¹⁹ While live fire might harm disproportionate numbers of noncombatants, nonlethal weapons would not. By design, nonlethal weapons target combatants and noncombatants alike, thereby allowing troops to move unhindered, incapacitate everyone in sight, and then sort out civilians from soldiers. The moral and legal difficulties lie in the act of harming noncombatants directly, a gross violation of noncombatant immunity. The solution lies in the intent of the attackers who seek to protect noncombatants from death and injury while they pursue nonuniformed combatants, as in the example above. Attackers utilizing nonlethal weapons, unlike those utilizing economic sanctions do not simply aim to inflict a lesser harm. The justification for nonlethal attacks on noncombatants is utilitarian and therapeutic. Its frank purpose is to cause moderate, transient, and incapacitating pain to deadly collateral casualties that often prevent the noncombatants during war.

Therapeutic harm makes room for direct, nonlethal attacks on noncombatants and offers a permissible exception to the principle of noncombatant immunity. Critics will warn us, and rightly so, of the danger of the slippery slope. To avoid the slippery slope, we can

Human Rights: Part Of The Problem Or Part Of The Solution?, 1 Int'l J. Hum. Rts. 1 (1997); Siamak Namazi, Sanctions and Medical Supply Shortages in Iran 3 (Kendra Heidman et al. eds. 2013); Thomas G. Weiss, Sanctions as a Foreign Policy Tool: Weighing Humanitarian Impulses, 36 J. Peace Research 499 (1999).

- 18. See generally David A. Koplow, Tangled up in Khaki and Blue: Lethal and Non-Lethal Weapons in Recent Confrontations, 36 Geo. J. Int'l L. 703 (2005).
- 19. Michael L. Gross, *Medicalized Weapons and Modern War*, HASTINGS CTR. (2010) http://www.thehastingscenter.org/Publications/HCR/Detail.aspx?id=4302.

borrow from the logic of proportionality. The principle of proportionality prohibits excessive, incidental harm to noncombatants in the course of necessary military operations.²⁰ While international law permits incidental collateral harm, it forbids disproportionate harm.²¹ Similarly, nonlethal warfare makes room for therapeutic harm but looks askance when such harm is excessive. What, we should ask, is excessive? This is one of the most difficult questions of just war theory and humanitarian law. Proportionality is a notoriously elastic principle but several guidelines are notable. First, permissible harm, whether proportionate or therapeutic, must be effective, that is, capable of achieving a legitimate military aim. Harm inflicted must also be necessary, that is, a product of the least harmful and most effective means available to achieve its stated goal. This is easier said than done, and many avenues of warfare must be removed from consideration because they are neither effective nor necessary. Second, proportionality is not synonymous with effectiveness. It is not enough that the benefits of nonlethal warfare simply outweigh its costs. There is a point beyond which nonlethal harm might be excessive despite its cost effectiveness.²²

Excessive but effective nonlethal harm can occur when nonlethal weapons cause substantial injury or loss of life but still save many noncombatants from a more gruesome fate. Ideally, nonlethal weapons should never kill nor ever cause any injury whatsoever. This is the goal of ADS electromagnetic technologies that heat the skin to a sufficiently high temperature to cause a reflexive reaction to flee from pain but insufficient to cause tissue damage. ADS technology exploits the body's natural defense system that is engineered to register pain before tissue damage and, thereby, avoids permanent injury.²³ In the world of nonlethal weaponry, however, such is rarely the case. Rubber bullets can kill or maim victims. By the best accounts, calmative agents and other nonlethal weapons may still incur a 0.5% chance of

^{20.} William J. Fenrick, Applying IHL Targeting Rules to Practical Situations: Proportionality and Military Objectives, 27 WINDSOR Y.B. ACCESS JUST. 271, 277–278 (2009).

^{21.} See generally IHL RULES, supra note 1, at 65–71, 74–76 (detailing how militaries are to select targets so that the impact on non-combatants is as little as possible under the circumstances).

^{22.} Int'l Cmte. Red Cross, The Use of Force in Armed Conflicts: Interplay Between the Conduct of Hostilities and Law Enforcement Paradigms 8 (Gloria Gaggioli ed., 2013), available at https://www.icrc.org/eng/assets/files/publications/icrc-002-4171.pdf.

^{23.} Brad Turner, Cooking Protestors Alive: The Excessive-Force Implications of the Active Denial System, 11 DUKE L. & TECH. REV. 332, 334-335 (2013).

death and a 0.5% chance of significant injury.²⁴ The risk of fatality linked to the use of these weapons certainly gives the impression that their use is excessive.

C. Proportionality

To determine whether nonlethal weapons cause excessive harm, I defer to the intuitive meaning that pervades discussions of proportionality and the prohibition of excessive harm. Just as noncombatants are permissibly killed in the course of necessary military operations, they also suffer in the course of nonlethal operations. In the former case, noncombatant enemy deaths become excessive when they breech some intuitive but never clearly defined limit of death and injury. Thus the instruments of international law can only teach by example. Additional Protocol I to the Geneva Conventions states that "[s]ome cases [of disproportionate harm] will be clear-cut and the decision easy to take. For example, the presence of a soldier on leave obviously cannot justify the destruction of a village."25 By these standards, nonlethal warfare will rarely be excessive. It is difficult to imagine a case where large numbers of enemy noncombatants will suffer injury or loss of life during nonlethal warfare to make it "obviously" unjustified.²⁶

To illustrate these concerns, consider the takeover of a theater in Moscow by Chechen militants in 1992. Faced with tens of militants who threatened to kill hundreds of Muscovites, Russian authorities pumped a calmative into the ventilation system rather than storm the theater. The calmative was effective and soon everyone in the theater lost consciousness. Russian forces then entered the building, shot the forty Chechens dead and released the hostages of whom 130 of the 850 died from the effects of the calmative.²⁷ Later studies revealed that Russian authorities overestimated the amount of calmative needed to subdue the occupants of the theater and further failed to have a sufficient supply of the antidote on hand to revive those who did not regain consciousness.²⁸

D.P. Fidler, The International Legal Implications of "Non-Lethal" Weapons, 21 Mich. J. Int'l. L. 51, 62.

^{25.} See Addt'l Protocol I Comment., supra note 8, at 684.

^{26.} I exclude from this conclusion those cases where nonlethal weapons are used as a force multiplier or force enhancer as may be the case when tear gas is used to drive combatants from tunnels and who are then attacked by artillery or rifle fire.

^{27.} David P. Fidler , The Meaning of Moscow: "Nonlethal" Weapons and International Law in the Early 21st Century, 87 INT'L REV. RED CROSS 525 (2005).

^{28.} Id.; Chemical and Biological Weapons Nonproliferation Program, The Moscow Theater Hostage Crisis: Incapacitants and Chemical Warfare,

To evaluate the use of a nonlethal weapon in the Moscow case, we must ask several questions. First, was the operation effective and necessary? The answer seems to be yes, the militants were successfully disabled. Second, was the operation necessary? Here, too, the answer is yes given that no less harmful means were available. But were the noncombatant deaths permissible and here the answer is no. The reason is not because they were excessive. After all, one may argue that the death of 130 civilians in the course of disabling forty combatants is proportionate to the military advantage the Russians hoped to gain. Certainly in a conventional attack, such a ratio of civilian to militant deaths would not arouse many concerns. The quandary in the Moscow case is different. Here, the noncombatant deaths were not permissible because they were unnecessary. Operational errors prevented the authorities from bringing sufficient quantities of antidote to the scene. This is not unusual. In the course of modern warfare, unnecessary civilian deaths are probably far more prevalent than disproportionate deaths. But the Moscow case also raises a deeper question. When does nonlethal warfare cease to be nonlethal? This question is as difficult to answer as one about proportionality and excessive harm. While it is technologically impossible to eliminate all manner of death and injury, there is surly some upper limit beyond which nonlethal weapons are no longer nonlethal. While 0.5% mortality and morbidity seems reasonable, a 25-30% casualty rate (which is roughly the number of individuals who die when hit by conventional weapons²⁹) does not. The limit of nonlethal harm can only be a matter of emerging consensus that will accrue as non-lethal weapons are developed and used. Unfortunately it may be no better than pointing out that a reasonable person intuitively "knows the limit when he sees it." This is Geoffrey Best's best go at proportionality and probably not far from the true tenor of international law and practice.³⁰

In summary, nonlethal warfare makes room for direct attacks on noncombatants when they are effective, militarily necessary and when they save noncombatants from the far greater harms of kinetic warfare. Nonlethal warfare, by definition, will never inflict excessive harm and only violate noncombatant immunity when it inflicts unnecessary harm, as in the Moscow case, or proves ineffective and noncombatants suffer without cause. Nonlethal warfare is permissible because the harm it inflicts, while aimed intentionally at noncombatants, is nonetheless, incidental. Harm is incidental when

MONTEREY INST. INT'L STUDS.: CTR. FOR NONPROLIF. STUDS. (Nov. 4, 2002), http://cns.miis.edu/pubs/week/02110b.htm.

^{29.} TREVOR N. DUPUY, ATTRITION: FORECASTING BATTLE CAUSALITIES AND EQUIPMENT LOSSES IN MODERN WAR 51 (1990).

^{30.} Geoffrey Best, War and Law Since 1945 280 (1997).

belligerents derive no military benefits when they attack and disable noncombatants. To act otherwise, by targeting noncombatants to pressure their government to act in some way, for example, is to draw noncombatants directly into wars of which they should have no part. This is the underlying logic of noncombatant immunity. But if noncombatants, that is, those who assume no war fighting role, deserve the utmost respect, what of those civilians who take part in war sustaining activities.

IV. Nonlethal weapons and the principle of Participatory Liability

Imagine the following case. Prior to planning an attack on government forces, members of a guerrilla organization's political wing work assiduously to raise money at home and abroad to buy weapons. During the ensuing hostilities, some civilians offer logistical support to guerrillas (e.g. food, transportation, medical care), maintain computers and telecommunications facilities, and even house weapons in homes and barns. After hostilities end, the organization's diplomacy and public relations arm goes to work disseminating gruesome images (some perhaps doctored) of civilian casualties, buttonholing international politicians, and preparing law suits against state soldiers and politicians for violations of international law.³¹

These civilians, formally protected by the principle of noncombatant immunity, provide war sustaining services. They take no active part in military operations but deliver the necessary support that makes it possible for insurgents to fight. Unlike noncombatants caught in the cross fire when non-uniformed militants go on the prowl, civilians who provide war sustaining aid are not innocent.³² They are participating civilians and they pose a threat of varying intensity. As such, they are the bane of many state armies who know that they cannot prevail without disabling the civilians who provide such services. As state armies constantly look for ways to thwart participating civilians, they may find that nonlethal weapons offer an ideal solution.

Ordinarily and by law, noncombatants who take no part in hostilities whatsoever and civilians who offer war sustaining aid enjoy equal protection. However, this is beginning to change. Despite objections by some nations, the U.S. permits attacks on "economic

^{31.} MICHAEL L. GROSS, *The Right to Fight: Who Fights and How, in* The Ethics of Insurgency: A Critical Guide to Just Guerrilla Warfare (forthcoming 2015).

^{32.} Human Rights Watch, Why They Died: Civilian Casualties in Lebanon During the 2006 War 33 (2007) [hereinafter Why They Died] (explains the law of armed conflict's legal treatment of civilian during combat).

objects of the enemy that indirectly but effectively support and enemy's war-fighting capability."33 The administration, in turn, targeted "al Qaeda leaders responsible for propaganda, recruitment, [and] religious affairs."³⁴ In its 2006 war with Lebanon and its recurrent battles with the Palestinians, Israel exhausted its bank of military targets very early in the fighting turning then to what Human Rights Watch called "associated targets."35 Associated targets are those war sustaining facilities of the sort herein described that were affiliated with Hezbollah's and Hamas' political wing. These policies recognize that civilian aid is integral to modern warfare and that it will be impossible to prevail without disabling war sustaining infrastructures and those who operate them. The underlying principle that justifies such attacks is that of participatory liability.³⁶

Participatory liability reflects a sliding scale that links participation with liability to harm. The more one participates and contributes to armed conflict, the greater force an enemy may utilize when necessary to disable a participant.³⁷ Participation reflects both a civilian's function within the organization and the magnitude of the threat the civilian poses. Each aspect of participation is usually observable, marked by a person's occupation and the product or service he or she provides. At one end of the scale are noncombatants who assume no role in any war related activity. They are not responsible for any threat and, therefore, may suffer no direct harm. At the other end are full-fledged *combatants* who conduct armed campaigns against enemy forces and are liable to lethal (but not inhuman) harm when necessary to disable their person and disrupt their activities. In the vast middle ground are participating civilians, analogous to those civilians working for a guerrilla organization's political wing and who provide war sustaining services.

^{33.} U.S. NAVY DEP'T, THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS (NWP 1-14M) ¶ 8.2.5 (2007); YORAM DINSTEIN, THE CONDUCT OF HOSTILITIES UNDER THE LAW OF INTERNATIONAL ARMED CONFLICT 95-96 (2d ed. 2010); Michael N. Schmitt, Deconstructing Direct Participation in Hostilities: The Constitutive Elements, 42 N.Y.U. J. INT'L L. & POL. 697, 718 (2010).

^{34.} George W. Bush, Decision Points 218 (2010).

^{35.} Why They Died, supra note 31, at 62.

^{36.} See Gross, supra note 30.

^{37.} Avril Macdonald, The Challenges to International Humanitarian Law and the Principles of Distinction and Protection from the Increased Participation of Civilians in Hostilities 7–10 (April 2004) (unpublished working paper), available at http://www.asser.nl/upload/wihlwebroot/documents/cms_ihl_id70_1_McDonald%20DPH%20-%20April%202004.doc.

There are two components to participatory liability: liability and force. Liability is a function of participation and the force permissible to disable participating civilians is a function of liability. While state armies in the U.S. and Israel, for example, grasp the significance of liability they often fail to modulate their use of force appropriately. As a result, American and Israeli troops attacked many associated targets with high explosives, and while the Israelis made some attempts to distinguish between physical infrastructures and those who worked there by, for example, targeting empty buildings, causalities remained high. Exact casualties remain difficult to determine and not always because the victims cannot be identified. In the 2008–09 Gaza War between Israel and Hamas for example, the sides agree that approximately 1,300 Palestinians died. Of these, both Israelis and Palestinian authorities agree that roughly 25% of these casualties were militants and 25% non-combatants.³⁸ The controversy centers upon the large middle ground who were affiliated with Hamas in some way, as either law enforcement personnel or those working for its political wing. Israel classifies these as combatants while the Palestinians classify them as non-combatants.³⁹ It is more reasonable to classify most as participating civilians. Providing war sustaining aid, they are legitimate targets but are not liable to lethal harm and therefore immune from destructive attacks. Nonlethal weapons may allow states to preserve the important moral distinction between combatants, non-combatants and participating civilians and disable war sustaining facilities without appreciable injury to which participating civilians are not liable.

To accomplish this end and appreciate its benefits, it is necessary to see multifaceted forms of nonlethal warfare. Consider, for example, five possible nonlethal means to disable a financial institution, telecommunications facility, or media outlet that provides war sustaining aid: calmative agents; arrest and deportation; electromagnetic technologies; kinetic force; and cyber warfare. The first three tactics disable participating civilians directly by either rendering them unconscious or forcibly removing them from their

^{38.} Avi Issacharoff, Rights Group: Most Gazans Killed in War Were Civilians, HAARETZ (Sept. 9, 2009), http://www.haaretz.com/hasen/spages/1113402.html; Yaakov Lappin, IDF Releases Cast Lead Casualty Numbers, JERUSALEM POST (Mar. 26, 2009), http://www.jpost.com/Israel/Article.aspx?id=137286; The Dead in the Course of the Israeli Recent Military Offensive on the Gaza Strip Between 27 December 2008 and 18, January 2009, PALEST. CTR. FOR HUM. RTS. (Mar. 19, 2009), http://www.scribd.com/doc/22883962/The-Dead-in-the-course-of-the-Israeli-Military-offensive-on-the-Gaza-Strip-between-27-Dec-2008-and-18-Jan-2009.

^{39.} Israel Says Gaza Death Toll Lower than Claimed, CNN (Mar. 26, 2009), http://edition.cnn.com/2009/WORLD/meast/03/26/israel.gaza.death.toll/.

offices; the last two disable or destroy infrastructures. Calmative agents are fentanyl-based substances similar to those used by the Russians in 2002. They would be delivered to the facility, perhaps by shells or aerosol, with the result of knocking out the staff. Using calmative agents in this example requires ground troops both to administer antidotes if necessary and to detain the staff. Participating civilians might then be incarcerated until the end of hostilities or deported. Electromagnetic technologies such as ADS, emit very low level of directed energy that causes sufficient transient pain to cause its targets to flee. While such technologies are well developed, deployment has been constantly delayed due to fears that some would perceive these as weapons of torture. Nevertheless, models designed for urban use, such as those described at the beginning of this article, offer a means of preventing civilians from entering facilities or removing them without bodily harm. Here, too, participating civilians might face detention and/or deportation.

Tactics that destroy facilities or disrupt their operations may also be nonlethal. Some of these are very conventional and consist of simply destroying facilities with high explosives. This requires advance warning so participating civilians will evacuate the premises. Although Israel has used this tactic often in its recent wars with Hamas and Hezbollah, the strategy faces two significant drawbacks. First, there is always a substantial chance of bodily injury to noncombatants. Warnings are not always effective—they do not always arrive on time, individuals sometimes fail to timely flee, and those who do might find roads impassable. Caught in the crossfire, many may lose their lives. Second, destroying a physical infrastructure is not always effective. Attempts to silence television stations in Belgrade, Baghdad, Beirut, Libya, and Syria proved fruitless. In other cases, civilian employees can just take their computers and go elsewhere. 40 Clouds have no home.

Claudio Cordone & Avner Gidron, Was the Serbian TV Station Really a 40. Target?, Monde Diplomatique (Jul. Legitimate 2000). http://mondediplo.com/2000/07/03kosovo; Matthias Gebauer. Hezbollah's Al-Manar: Broadcasting from the Bunker, Spiegel (Aug. 10, http://www.spiegel.de/international/spiegel/hezbollah-s-almanar-broadcasting-from-the-bunker-a-430905.html; Robert Attack on Pro-Assad Television Studio Raises Questions on Rules Of War, N.Y. Times (Jun. 27, 2012), http://thelede. blogs. nytimes.com/ 2012/06/27/attack-on-pro-assad-television-studio-raises-questions-onrules-of-war/; Richard Norton-Taylor, TV Station Attack Could Be $\it Illegal, Guardian (Mar. 26, 2003), http://www.theguardian.com/media/2003/mar/26/Iraqandthemedia.iraq2; Missy Ryan & David$ Brunnstrom, Libyan TV Still in Air Despite NATO Bombing, REUTERS (Jul. 30, 2011), http://www.reuters.com/article/2011/07/30/us-libyanato-idUSTRE76T0KE20110730.

This raises the specter of cyber-attack: digital viruses and malware that disable computer networks and erase or steal proprietary information. While not usually considered an element of nonlethal warfare, cyber-attacks are often utilized against facilities that provide war sustaining support. As states become increasingly gain a technological edge over non-state sophisticated and organizations, cyber-attacks will become an option of choice to disable their facilities and disrupt their activities. One must be careful, however, of placing too much stock in cyber warfare as a nonlethal tactic of war. First, many cyber scenarios, though yet unrealized, hold the potential of significant downstream harm and suffering as critical infrastructures crash. 41 Such scenarios describe the dire consequences when dams burst, water supplies are polluted, airplanes crash, trains derail and medical services fail. These scenarios violate noncombatant immunity in many ways. In some cases, noncombatants are the direct targets of attack while in others collateral harm is disproportionate and excessive. Second, and in contrast to catastrophic cyber assaults, one may confine cyber-attacks to attacks on social networks, financial institutions and telecommunications infrastructures. Here, however, noncombatants may suffer more than inconvenience. Depending upon their reliance on social media, ordinary people may suffer severe stress and hardship as their daily lives unravel and their private affairs are laid bare. While these harms are not lethal, they may be sufficiently devastating as to also violate the principle of noncombatant immunity.42

V. Conclusion

The scenarios described here offer only some of a myriad of possibilities. Marching technology will provide many more. Modern warfare poses unique challenges that nonlethal weapons may be well suited to meet. First, lack of uniforms puts noncombatants at risk for severe injury and loss of life as states and insurgents battle. Noncombatants deserve every protection we can afford them and this may demand the use of nonlethal weapons in some cases. Second, and equally important, are those civilians who are not noncombatants but participating civilians and who take an active role in hostilities by providing war sustaining aid to insurgents. These individuals contribute mightily to the war effort and are, therefore, legitimate

^{41.} See Clay Wilson, Cong. Research Serv., RL 32114, Botnets, Cybercrime, and Terrorism: Vulnerabilities and Policy Issues for Congress 27 (2008).

^{42.} See Michael L. Gross, Daphna Canetti & Israel Waismel-Manor, Immune from Cyber-Fire? The Psychological & Physiological Effects of Cyberwar, in BINARY BULLETS: THE ETHICS OF CYBERWARFARE, (Fritz Allhoff et al., eds. forthcoming 2015).

targets of attack. They are not, however, liable to lethal force for they do not provide direct military aid or constitute a direct military threat. Here, nonlethal weapons also protect civilians, not by strengthening their immunity but by taking participatory liability seriously. This safeguards their lives but obstructs their activities accordingly.