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NON-LETHAL WEAPONS: A VIABLE OPTION FOR CROWD CONTROL IN INDIA

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NLWs: Steps India Should Consider:

- *A collective strategic vision, organizational coordination, synergy, and able political leadership will be vital for India's futuristic NLWs deployment.*
- *R&D is vital in order to develop technology that is in national interest.*
- *Standardization and documentation of equipment validity is eminent to make sure they are safe.*
- *Recording and documentation of events are important so that nature of the event and effect can be analyzed and used for research.*
- *The legal framework needs to be developed to determine whether a new system is lawful and to ensure the legality of the use of NLWs at the time of deployment.*

The history of what is euphemistically called non-lethal pacification dates back to more than a century. The idea of using ammunition that administers blunt force instead of penetrating the body first emerged in the late 1800s when the British army started using wooden bullets, which were made of Teak wood,[1] for the purpose of riot control. They were later converted into rubber and plastic bullets. These technologies have certainly evolved and have been continuously enhanced to counter the dynamic security challenges of today. We can say that there was a realization amongst the authorities concerned on the changing conflict scenarios and that the lethal weapons are in reality morally appalling, and therefore more options were needed to be explored. While this thought holds true, the present scenario is also much more dreadful owing to the "*Butterfly Effect*" as termed by renowned mathematician Edward Lorenz in his "*Theory of Chaos*". He stated that**,** instability in one region adversely influences other regions as the world has opened to new possibilities due to globalization. In addition, the emergence of new and sophisticated technologies has brought about greater complexity.

Today many countries are facing complex situations where lives of thousands of innocent civilians are at stake. In recent past, the situation has escalated exponentially around the world due to widespread protest in favor of regime change. Sometimes unwise use of internet, social media, blogs, etc., spread information that encourage imitation and make serious causes fashionable.[2] Attributing to dynamic security environment, it is imminent to opt for sophisticated, flexible and extensively adaptable technologies to avoid human casualties in both asymmetric and conventional combat milieu. The domestic and international circumstances urgently call for the introduction of non-lethal weaponry which has incorporated disorientation, distraction and incapacitating effects; aiding security forces to act more freely and decisively.

There are many aspects in the study of Non-Lethal Weapons (NLWs), however, this paper looks at the aspects of NLWs for crowd control and related issues that are of concern to India. Though many of the perspectives and examples in this paper may portray the US and NATO activities, the analysis is intentionally not confined in its applicability just to their security issues. After tentative analysis of the usage of NLWs by the developed countries in various conflict situations, this paper attempts to put forth arguments for its wider acceptability in developing countries, especially India.

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[1] "A Brief History of Riot Control." *Time World*, August 6, 2010. Accessed January 23, 2013. http://content.time.com/time/world/article/0,8599,2009006,00.html.

[2] "The protests around the world: The march of protest." *The Economist*, June 29, 2013. Accessed June 30, 2013. http://www.economist.com/news/leaders/21580143-wave-anger-sweeping-cities-world-politicians-beware-march-protest.

Definition

The exact definition of NLWs has been long debated as there is no agreement on what specifically constitutes non-lethal. Even though the concept of NLWs seems to be old, its wider acceptability is in primitive stage. Therefore, every analyst perceives it in a different manner and constitutes different lexicon. "Non-lethal" in terms of choice alternatives includes disabling, disruptive, less lethal, less-than-lethal, low collateral damage, low lethality, minimum force, mission kill, non-injurious incapacitation, special operations' technologies, strategic immobility, and soft kill"[3]. Secondly, the emerging technologies have added a new dimension to the definition. It can be used as anti-personal and anti-material. However, there are many debates on its material aspect which claims that though it may not kill but prolonged usage of NLWs has a damaging effect on humans.

The United Nations Institute for Disarmament Research (UNIDIR) states: "Non-lethal weapons are specifically designed to incapacitate people or disable equipment, with minimal collateral damage to buildings and the environment; they should be discriminate and not cause unnecessary suffering; their effect should be temporary and reversible; and they should provide alternatives to, or raise the threshold for, use of lethal force."[4]

A more comprehensive definition given by the US Department of Defense is "Weapons, devices, and munitions that are explicitly designed and primarily employed to incapacitate targeted personnel or materiel immediately, while minimizing fatalities, permanent injury to personnel, and undesired damage to property in the target area or environment. [Nonlethal weapons] are intended to have reversible effects on personnel or materiel".[5]

Thus, a wide agreement on the definition of NLWs is yet to be established and the countries opt for what is apt to their current security scenarios.

[3] R. Thomas, Major Mark. "Non-Lethal Weaponry: A Framework for Future Integration." Maxwell Air Force Base, Alabama, Federation of American Scientists. Accessed January 22, 2013. http://www.fas.org/programs/bio/chemweapons/documents/98-279.pdf.

[4] Bart Koene, Fatiha Id-Boufker. "Kinetic Non-Lethal Weapons "Netherland Military review". Accessed January 22, 2013.

[5] This updated definition appears in DOD Directive 5210.56, US Department of Defence. *Carrying of Firearms and the Use of Force by DoD Personnel Engaged in Security*. Department of Defense, 2011. Accessed January 20, 2013. http://www.dtic.mil/whs/directives/corres/pdf/521056p.pdf.

Motive

The very essence of democracy is the liberty and space offered for legitimate dissent. India has a long history of organized and peaceful protests as they acted as vital instruments during struggle for independence against the British Raj in various forms such as mass rallies, hunger strikes, long marches, etc. Under the right to Freedom of Speech enshrined in India's Constitution, expression through protesting and gathering**,** is a fundamental right in the Constitution of India. **,** The Right to Assembly - Article 19 (1) (b) - **,** states: "All citizens have the right to assemble peacefully and without arms. This right is subject to reasonable restrictions in the interest of the sovereignty and integrity of India and public order."[6] It goes further and explains the methods to hold protests by having dedicated areas and routes for holding such protests. Police and public administration are responsible to manage the protests and ensure peace and security.

However, at times these protests become violent and unruly and may lead to loss of life and public property. These types of situations are considered as "unlawful" under section 141 of the Indian Penal Code[7]. Police follows the Standard Operating Procedures (SOPs) to control unlawful and violent assemblies[8]. The Rapid Action Forces (RAF) under the special units of Central Reserve Police Forces (CRPF) is facilitated for crowd control, riot control and other aspects such as counter militancy/ insurgency operations and dealing with Left Wing Extremism (LWE)[9]. In case of conflict, RAF is instructed to use force only when it is absolutely necessary; "it (force) should be minimum and proportional to the situation and its use should be discontinued as soon as the danger to life and property subsides."[10]

Conversely, crowd control in India is an extremely complex scenario where security forces have to deal with crowds with and without arms. In recent past, the protests have not been confined to peaceful protests in a small constituency, but have risen to the

[6] Government of India. *Fundamental Rights Part III*. Constitution of India, Accessed January 23, 2013. http://lawmin.nic.in/olwing/coi/coi-english/Const.Pock%202Pg.Rom8Fsss(6).pdf.

[7] Indian Law - Supreme Court of India - Judgements - EJournal - Law Updates - Lawyers List - Database. "Criminal Law - Indian Penal Code, 1860 - Section 141 - Unlawful assembly." Accessed January 23, 2013. http://www.indianlawcases.com/Act-Indian.Penal.Code,1860-1575.

[8] SOPs for crowd control, obtained these SOPs from the Delhi Police by filing an information request under the Right to Information Act, 2005 (RTI Act), available at (http://www.humanrightsinitiative.org/programs/ai/rti/india/national/2012/email_alearts/July/20072012.html)

[9] Ministry of Home Affairs. "CRPF." Central Reserve Police Force, Government of India. Accessed January 24, 2013. http://crpf.nic.in/home.htm.

[10] *Standards and Procedure for Crowd Control*. The Commonwealth Human Rights Initiative (CHRI), 2005. Accessed January 29, 2013. http://www.humanrightsinitiative.org/programs/aj/police/papers/standard_procedure_for_crowd_control.pdf.

national level. The national level anti-corruption movement in August 2013[11] brought the government to a standstill with widespread street protests and sit-ins demanding legal reforms and speedy prosecutions against the corrupt. In addition, mingling of hooligans with huge crowds escalated the situation to a more hostile and violent one leading to damage of life and property. The unrest in the capital city in the wake of the rape incident in December 2012 saw people come out in the streets in huge numbers to protest against the government**,** demanding for more stringent law and security for women. Due to the presence of what Finance Minister P. Chidambaram said was "flash mobs,"[12] demonstrations turned violent with the police clashing repeatedly with students and other protesters. Altogether 78 policemen and 65 protesters[13] were injured. Police resorted to *lathi* charge and use of tear gas, which were thrown back at the police by the mobs.

Communal riots like the recent one in Muzaffarnagar in August 2013, which claimed 43 lives and injured 93 people, are another challenge to the security forces[14]. Due to inadequate training and lack of equipment to control huge crowd, police forces struggled for over a month to take control of the situation. It resulted in 405 cases of loot, damage to property, rape and murder[15]. In the year 2012, a total of 560 communal cases were reported across the country with a record death toll of 89, which was a slight dip from 91 deaths in the 580 cases of clashes in 2011[16].

The challenges for security forces are multidimensional as street protests and riots are not the only concerns. India is a country of festivals. Large gatherings of millions of pilgrims at religious places are common. Even smallest of rumors can cause major chaos like the one in Ratangarh temple in the Datia district of Madhya Pradesh in October 2013, where 115[17] people died and thousands were injured in a stampede. The incident was highly criticized world over for Indian security forces' inefficient crowd control

[11] Choudhury, Chandrahas. "India's Anti-Corruption Movement Aims for Parliament." *Bloomberg*, August 8, 2012. Accessed January 23, 2013. http://www.bloomberg.com/news/2012-08-07/india-s-anti-corruption-movement-aims-for-parliament.html.

[12] "Need rules to handle flash mobs: Chidambaram." *Hindustan Times* (New Delhi), December 26, 2012. Accessed January 23, 2013. http://www.hindustantimes.com/StoryPage/Print/981021.aspx.

[13] "Delhi constable injured during India Gate protest dies." *NDTV* (New Delhi), December 25, 2012. Accessed January 23, 2013. http://www.ndtv.com/article/india/delhi-constable-injured-during-india-gate-protest-dies-309478.

[14] "Muzaffarnagar Roits" Videos and blogs available at (http://www.ndtv.com/topic/muzaffarnagar-riots)

[15] "SIT faces uphill task as Muzaffarnagar-riot cases rise to 400." *The Hindu* (Muzaffarnagar), October 17, 2013. Accessed October 21, 2013. http://www.thehindu.com/news/national/sit-faces-uphill-task-as-muzaffarnagarriot-cases-rise-to-400/article5243593.ece.

[16] "Uttar Pradesh tops Communal Riots List in India." *The News Insight*, December 10, 2012. Accessed January 22, 2013. http://www.enewsinsight.com/news-updates/uttar-pradesh-tops-communal-riots-list-in-india/

[17] "Madhya Pradesh stampede highlights Indias crowd control woes." *NewsTimes*, October 20, 2013. Accessed October 22, 2013. http://newstimes.co.in/readnews.aspx?id=123858.

methods and lack of infrastructure[18]. Stone pelting incidents, which frequently happen between security forces and protestors, such as in J&K have increased six folds. Casualties are not restricted to civilians alone; security personnel too are hauled in the struggle. As of September 2013, the State witnessed 368 incidents in which 628 CRPF personnel were injured[19]. According to the 2012 national crime bureau report, around 2000 police officers were injured in riots and protests that year[20].

Smaller and larger strikes, public gatherings, political rallies, sports events, etc., are unavoidable events in countries with modern governance. Moreover, all the incidents cited above are just a glimpse of those incidents highlighted in the country, especially by the media. Security forces have often been accused of dispersing crowds in some of the most disgraceful manner. Global image of the country is at stake as many national institutions such as National Human Rights Council (NHRC), numerous NGOs and international bodies such as International Human Rights Commission (IHRC) and Asian Human Rights Commission[21] have raised concerns, pointing fingers at the unruly and outdated crowd control methods currently used in India. It not only involves loss of human capital, public infrastructure and tourism but has substantial bearing on the economy as well. A nationwide strike against FDI was estimated to have caused losses to the tune of INR 12,500 crore to the Indian economy[22]. Similarly, the energy sector suffered huge losses from the strike at Kudankulam nuclear plant that cost the Nuclear Power Corporation of India more than Rs.3 crore a day. In the manufacturing sector, the workers' strike in Maruti Suzuki- Manesar plant, brought a loss of about half a billion dollar in 2011[23]. Inability of police force**s** to effectively deal with situations like these affects the economy and erodes the trust of investors for making long-term investments in the country.

As mentioned already, the current SOPs do not hold the potential to deal with the changing threats scenario. There is an urgency to explore fresh options as well as enhance the existing system. Modifying the ways of managing unruly crowds has become extremely vital as the government and the security forces cannot underplay the

[18] "Simple crowd control measures could have averted MP stampede: Kiran Bedi." *First Post* (New Delhi), October 14, 2013. Accessed October 22, 2013. http://www.firstpost.com/india/simple-crowd-control-measures-could-have-averted-mp-stampede-kiran-bedi-1171595.html.
The incident was covered by all international media such as Washington Post, New York Times, Asian Times etc.

[19] "Stone-pelting incidents up six-fold in J&K." *Indian Express* (New Delhi), October 14, 2013. Accessed October 22, 2013. http://archive.indianexpress.com/news/stonepelting-incidents-up-sixfold-in-j-k/1182209/.

[20] Government of India. *Police Personnel Killed or Injured on Duty, Annual Report*. National Crime Record Bureau (NCRB), 2012. Accessed January 22, 2013. http://ncrb.nic.in/.

[21] Francis, Bijou. "INDIA: Is it not time to question the role of police in crowd control?" Asian Human Rights Commission. Accessed January 21, 2013. http://www.humanrights.asia/news/ahrc-news/AHRC-STM-248-2012.

[22] "Strike cost nation ₹ 12,500 crore: CII." *NDTVProfit* (New Delhi), September 20, 2012. Accessed January 20, 2013. http://profit.ndtv.com/news/nation/article-strike-cost-nation-rs-12-500-crore-cii-311104.

[23] "1 dead, over 90 injured in clashes at Maruti Suzuki's Manesar plant; stock down 8.2%." *The Economic Times* (Mumbai), July 19, 2012. Accessed January 22, 2013. http://articles.economictimes.indiatimes.com/2012-07-19/news/32730966_1_maruti-suzuki-s-manesar-manesar-plant-mswu.

fact that they are dealing with their own citizens. The fundamental reason for using non-lethal munitions by military and police personnel is to apply minimum obligatory force for crowd control and area security at key facilities. NLWs can play indispensable role in moderating these kinds of circumstances and can help to achieve the end motive in a more humane and bloodless manner. The current circumstances give a sense of urgency for introduction of non-lethal weaponry as they can aid security forces to act more freely and decisively.

Technology Alternatives

There are numerous NLWs which have already been deployed and many others are under development. According to the US Department of Defense, these weapons are broadly categorized as 'counter personnel' and 'counter material'. The counter personnel weapons have non-lethal capabilities used to debilitate individual, to deny personnel access to an area and to clear facilities. Whereas counter material weapons are used on non-personnel and has capabilities which focuses on acquiring non-lethal technologies capable of disabling or neutralizing specific types of equipments and facilities while also denying the ability of vehicles to gain access into/out of an area to individuals[24]. These weapons shall not be used on human being as they have harmful effects on vital organs of human body.

Table below illustrates some of the modern technologies explicitly used in tactical application for crowd control, urban warfare, peacekeeping**,** and facility security around the world. The following table also highlights a cross-section of non-lethal technologies and whether the primary target of the technology is anti-material (AM) or anti-personnel (AP) in nature.

Technology	Description	Target
Acoustic		
Audible Sound	High amplitude for point and area denial; low level annoying sounds to disperse crowds.	AP
Long Range Acoustic Device (LRAD) and Medium Range Acoustic Device (MRAD)	Produces intense sound which can induce ear pain and vomiting, hence victim tries to run away from sound intensity[25]	AP
Infrasound/VLF	Very low frequency, high intensity sound. Disorients and frightens. Interferes with organ functions,	AM/AP

[24] R. Capstick, LTC Paul. "Non-Lethal Weapons and Strategic Policy Implications for 21st Century Peace Operations." U.S. Army War College. Accessed January 25, 2013. http://www.smallwarsjournal.com/documents/capstick.pdf.

[25] Defence Update. "Long Range Acoustic Device - LRAD." Accessed January 28, 2013. http://www.defense-update.com/products/l/LRAD.htm.

	causing nausea and bowel spasms. Disrupts metal and composite materials	
Biological		
Biodeteriorative Microbes	Degrades road and bridge surfaces, turns aviation fuel into jelly, "eats" rubber off vehicle wheels.	AM
Neural Inhibitors	Incapacitates personnel, paralyzing synaptic pathways. Induces reversible crippling effects	AP
Chemicals		
Adhesives	Quick-setting polymer foams, sprays, fluids and powders. Immobilizes targets and requires special solvents to remove	AM/AP
Barriers	Dense, rapidly expanding aqueous bubbles. Isolates and immobilizes to control evacuation or escape. May be used with odors, dyes, etc	AP
Calmatives	Sedatives delivered through the lungs or skin. Calms and induces relaxation or slumber state.	AP
Embrittlements	Microencapsulated liquid hydrogen. Disables targets by degrading or cracking surfaces	AM
Hallucinogens	Narcotics that disorient, confuse and incapacitate	AP
Irritants	Pepper spray, CS and OC gases, etc. Causes temporary but intense and debilitating pain.	AP
Lubricants	Anti-traction liquids and aerosols. Turns dirt into chemical mud and makes surfaces slippery/boggy	AM/AP
Neuroblockers	Tranquilizer darts and anesthetic bullets. Blocks neuromuscular passages causing incapacitation	AP
Taggants	Tracks equipment, material, or personnel	AM/AP
Electromagnetic		
Active Denial System (ADS) or modified V-MADS (Vehicle Mounted Active Denial System)	Emit electromagnetic radiation in the form of radio wave frequency[26]. Stimulates water molecules on the surface of skin activating pain sensors and causing intense pain and heat. This system is a highly effective element for crowd dispersion[27].	AP
Pulsed High Power Microwaves (HPM)	Disrupts and neutralizes electronics. Jams or scrambles C2 systems. Shuts down engines, explodes ammunition Induces confusion, stupor or coma in personnel and animals.	AM/AP
Distributed Sound and Light Array (DSLA)	Includes low- and high-power systems. "Devices called "illuminators" or "dazzlers" combine laser,	AP

[26] Note: of around 85 Giga hertz (GHZ)

[27] Rense. "Radio Frequency, Active Denial and Psych Weapons." Accessed January 30, 2013. http://rense.com/general67/psy.htm.

	non-coherent light, and acoustics to produce a synergistic engagement system"[28]. This device produces a high intensity green light or Red light causing temporary blindness or disorientation[29].	
Electrical		
Electrical weapons	Include stun guns, stun batons, electrified shields, electrified nets, electrified water cannon, "sticky shockers", stun belts, landmines and grenades give intense shock.	AP
TASERS	An electro-muscular incapacitation (EMI) device used in giving a sudden electric shock[30]. In response victim feels loss of voluntary muscular control by electrical stimulation and sudden shock[31].	
Close Quarters Shock Rifle (CQSR)	Is one concept rifle. It is expected to generate a laser beam which will be able to produce an ionized gas or plasma through which an electrical charge can be conducted to the target person or vehicle giving him the intense shock[32].	AP/AM
Piezoelectric incapacitation projectile	In the form of rubber bullet which has copper electrodes on the surface,[33] it can penetrate clothing and instantly stuns the target by giving him/her a sudden shock.[34]	AP
Kinetics		
Entanglement munitions	Nets, meshes, cables, chains, etc. Disables treads, propellers, rotor-blades and axles trapping targets.	AM/AP
Non-Penetrating projectiles .	Crushing, deforming, spalling systems, including stinger grenades; wax, wood, and plastic bullets. Effects vary with shapes, materials, and speed	AM/AP
Water cannons	May be used with or without chemical additives to dissuade crowds from violence. In addition dye and	AP

[28] Non-Lethal Weapons (NLW) Reference Book (U) Joint Non-Lethal Weapons Directorate (JNLWD) -2011 This document contains information exempt from mandatory disclosure under the "Freedom of Information Act.

[29] TechRadar. "US cops and military to get laser guns." Accessed January 30, 2013. http://www.techradar.com/news/world-of-tech/us-cops-and-military-to-get-laser-guns-602983.

[30] "that uses a nitrogen air cartridge propulsion system to launch two probes "tethered to an electrically charged cartridge" transferring almost 1,200V-50,000V for few seconds"

[31] "Facts about stun guns and their use in Canada." *CBC.ca - Canadian News*, March 20, 2009. Accessed January 28, 2013. http://www.cbc.ca/news/canada/facts-about-stun-guns-and-their-use-in-canada-1.810288.

[32] D. Hambling, 2004, "Stun weapons to target crowds", New Scientist, 19 June, p. 24 cited in disarmament paper on lethal weapon Ibid. 13

[33] Fox, Barry. "Invention: Electric bullets." *New Scientist*, June 22, 2005. Accessed January 28, 2013. http://www.newscientist.com/article/dn7557-invention-electric-bullets.html#.UvNzCfuz5T0.

[34] Note: connected to a filling of ceramic piezoelectric material. "When the bullet hits the target, the piezo filling is violently compressed and releases a shock pulse of at least 25,000 volts through the electrodes."

	some irritants can also be deployed in water to enhance the existing technology[35].	
Optics		
Low Energy Lasers	Includes laser rifles and anti-air laser canons. Temporarily blinds personnel. Overloads and disables electro-optical sensors.	AM/AP
Optical Munitions	Unidirectional, isotropic, and pulsing light anti-sensor munitions, including flash-bang grenades	AM/AP
Obscurants	Selectively inhibits air/land/sea observation; affords tailored "windows" with shaped smoke.	AM/AP
Pulsed Chemical Lasers	Projects hot, high-pressure plasma in front of targets producing high-pressure shock wave	AM
Strobe Lights	Pulsed high-intensity light. Disorients/confuses	AP

Legal Aspects of NLW

A fundamental question that emerges when we talk about NLWs is: are NLWs subject to the scrutiny of law as lethal weapons? The answer is probably yes. However, simply "yes" does not hold enough ground for subsequent analysis. Firstly because of the fact that NLWs include weapons such as microwaves, acoustical weapon, etc., which cannot be characterized either as weapons of mass destruction, or as classical conventional weapons. Secondly, it's also evident that NLWs could be used in asymmetric warfare and military combat operations. Thirdly, international legal implications of the development and potential use of NLWs have not been fully explored. A concrete and comprehensive legal structure, especially by a world body like the United Nations, has not been fully formulated.

There has been much of confusion and debates for the definition of what might clearly define "non-lethal" as discussed earlier. Terminologies such as "less lethal weapons" and "minimizing fatalities" misleads the essence of completely "non-lethal." The definition as a whole allows for subjective rather than objective analysis of what might be "non-lethal."

There are several organization working for a clear definition of NLWs. For instance, a significant attempt to come up with an objective definition of "non-lethal" weapons has been made by the Health Effects Advisory Panel (HEAP) established by the US Joint Non-Lethal Weapons Directorate (JNLWD). Unfortunately, the HEAP itself concluded that "no current so-called 'non-lethal' weapon met this definition"[36].

[35] GlobalSecurity.org. "M5 Modular Crowd Control Munition." Accessed January 27, 2013. http://www.globalsecurity.org/military/systems/munitions/m5.htm.

[36] Fidler, David P., "The International Legal Implications of "Non-Lethal" Weapons" (1999). *Faculty Publications.* Vol 21:51 pg 62. Accessed on 29 January 2013 http://www.repository.law.indiana.edu/facpub/699

As of yet, there are also no arms control measures which specifically deal with NLWs. However, the existing Conventional Weapon Convention (CWC), Biological and Chemical Weapon Convention (BWC & CWC) contain some provisions covering a few aspects of development as well as the use of NLWs in certain circumstances.

CWC Protocol (II) restricts the use of booby-traps that might cause injury to humans. Protocol (IV) restricts the use of "Dazzler laser weapons and optical munitions using laser or other optical technology to disorient and temporarily blind opposing military forces or permanent blindness to civilians"[37].

The 1925 Geneva Protocol prohibits the use of chemical weapons under CWC[38]. The manufacture of super acids, superglue and other chemical means which is now being considered as a form of NLWs are becoming incompatible with the goal of CWC[39]. This Convention also restricts the use of any chemicals in tear gas**,** not listed under CWC.

The CWC also regulates the use of RCAs (Riot Control Agents). A RCA is "any chemical not listed in a Schedule, which can produce sensory irritation or disabling physical effects rapidly in humans, which disappear within a short time following termination of exposure"[40].

Hence a legal structure is urgently required so as to avoid trepidation in civilians by its usage. For a country like India**,** where the legal system is complex, lengthy and often unduly affected by politics, legal challenges at national level are even bigger. Many international groups and NGOs have been working towards establishing mandates for NLWs, but the biggest weakness of the human rights movement in India has been its inability to press for a concrete legal structure in a substantial way. Consequently, when ramifications of NLWs amplify, formulation of legal structure will be a highly complicated and persistent process.

Conflict Scenario

The best tactics for crowd control is based on the fact that the police are almost always better-armed and prepared than the rioters. It is important that an accurate analysis of crowd gathering is done by clearly knowing the choke points and open areas to disperse the crowd while denying them access to important facilities and structures. For this,

[37] International Committee of the Red Cross - ICRC. "Customary IHL - Rule 86. Blinding Laser Weapons." Accessed January 31, 2013. http://www.icrc.org/customary-ihl/eng/docs/v1_rul_rule86.

[38] The Harvard Sussex Program. "The CBW Conventions Bulletin." Faculty of Arts & Sciences. Accessed January 31, 2013. http://www.fas.harvard.edu/~hsp/bulletin.html.

[39] Stockholm International Peace Research Institute, Richard Kokoski. "Chapter 11. Non-lethal weapons: a case study of new technology developments." In *SIPRI Yearbook: World Armaments and Disarmament. 1994*. Oxford University Press, 1994.

[40] Ibid. 8 pg 22 also looks for RCAs other legal aspects by UN regulation for humanitarian and peace keeping operations.

proper surveillance with the use of CCTV, drones etc., and fencing using entanglement munitions, sticky foam, super glue, etc. is imperative.

When a crowd-control unit gets ready for action, the first thing it does is to put on its protective gears. But the situation of security forces in India is much worse as the use of protective gears, appropriate uniform or other necessary personal protective equipment is less common.

Ideally, the full outfit is known as hard tact and consists of:

Equipment	Ideal case	India
Helmet	With face shield and unbreakable glass	Two wheeler, which hardly covers the head
Body armor (protects from stone pelting and use of force)	Complete body armor	Open Jackets
Body shield	Bullet proof or hard glass	Traditional shield made of bamboo
Mask (In case of tear gas and pepper spray)	Breathing mask covering face	In rear cases

There are several SOPs laid down by government for crowd control such as[41]:

1. Clear warning shall be laid down
2. Secure important facilities
3. Use of force should be progressive i.e. water cannon followed by tear gas
4. *Lathi* charge and rubber bullets in case the crowd refuses to disperse with clear warning of the intention to carry out a *lathi* charge.
5. Firing in the air for warning
6. Firing shall be aimed below waist and only when extremely necessary

It can be noted here that giving clear warnings is the first step; but it is rarely followed by the security forces. Generally, they directly follow the third or fourth steps -- i.e. using water cannons, tear gas, etc. It is observed that the reason for this is the inefficiency of the system. An effective announcement system is vital as it has psychological effect on the crowd. Noise of the crowd can be controlled by advance systems like Distributed Sound and Light Array (DSLA), speech jammer, etc., to make announcements much effective. In western countries, security forces deploy a formation to control crowds. During riots in G20 summit in Toronto in 2010, the crowd was

[41] *Standards and Procedure for Crowd Control*. The Commonwealth Human Rights Initiative (CHRI), 2005. Accessed January 29, 2013. http://www.humanrightsinitiative.org/programs/aj/police/papers/standard_procedure_for_crowd_control.pdf.

handled discreetly without causing major casualties[42] by various tactics, including police formations, LARD, active denial system, etc.

The table above gives discreet options that can be appropriated to create more alternatives. It is high time that the country revitalized its existing system and included new advance system. Smaller water cannons, which can be mounted on LMVs, can be used to make water cannon accessible in smaller areas. Various dyes and foul smelling water can be used on crowds. Gases such as tear gas, pepper spray and other such options from the table above can be used with the help of multiple launchers such as 35-40 mm multi-launchers. Deployment of rapid fire launchers and fast combustion shells will not let rioters and mobs throw them back at the security personnel. Using parachute mode which might combust over the head of the crowd will cover more areas, avoid direct impact and will enhance effectiveness. In order to take advantage, it is imperative for security forces to be well-equipped with gas masks so that they can enter the smoky areas and make arrests. Addition of semi-automatic riot gun such as FN 303[43] incorporated from design of M16 rifle can provide flexibility and wide range of response capabilities to the security forces.

Rifles such as AK and INSAS, which are regularly used by Indian security forces, can be modified to be used in non-lethal combat. The previous paragraph gives a glimpse of the level of modernization that could be employed to enhance the existing system. Employment of sophisticated weapons with advance technologies will further push up the level of efficacy of crowd control. Technologies like LARD, Active Denial Systems (ADS) etc. have already been used by western countries and are much effective in combat and non-combat operations.

Strategic Implications

Controlling public demonstrations is just one aspect of indispensable utility of NLWs for a country like India. The utility of NLWs in irregular conflicts, peacekeeping**,** and humanitarian operations is more than theoretical. For instance, when in 1972 Sabena Flight 571 was hijacked by a group of two men and two women**,** who were armed with pistols, it was reported that Israeli forces first used stun grenades as non-lethal option before using lethal force in order to avoid human casualties onboard[44]. Similarly, in April 2003, at the Rasheed Military Base in Iraq, it was reported that civilians were looting the quartermaster's building inside the perimeter. A public address system, spotlights, non-lethal weapons**,** and riot batons in conjunction with lethal weapons**,**

[42] The Star. "Toronto police get 'sound cannons' for G20." Accessed January 30, 2013. http://www.thestar.com/news/gta/g20/2010/05/27/toronto_police_get_sound_cannons_for_g20.html

[43] FN Herstal 2013. "Major Product Achievements." Accessed April 27, 2013. http://www.fnherstal.com/index.php?id=655.

[44] The Christian Science Monitor. "Israel releases new videos of Gaza flotilla raid." Accessed May 1, 2013. http://www.csmonitor.com/World/Global-News/2010/0602/Israel-releases-new-videos-of-Gaza-flotilla-raid.

were used and security forces were successfully able to clear approximately a thousand people from the area within 10 minutes[45]. Though the operational usage of NLWs in irregular combat situations like counter terrorism and fighting Naxalism (as the latter use human shields in operations) is highly complicated and debatable, the deployment of NLWs together with lethal force can strategically enhance the capability of the security force. During terrorist attack in Mumbai a lot of collateral damage from the NSG's (National Security Guard) side could have been avoided in the Taj Hotel if it had used NLWs with lethal force as an effective option[46].

According to one report, an internal CRPF letter on the utility of these weapons stated: "In jungle combat it has been repeatedly observed that quite often the troops get suspicious that the Naxals could be hiding in some bushes. But because rifle bullets and grenades carried per person is limited, they cannot be wasted on every instance of suspicion."[47]

The main objectives of deploying NLWs are to avoid collateral damage, human casualties and to enhance the flexibility of security forces. In the 21st century**,** security forces are bound to find themselves in an altercation where some type of non-lethal action is necessary.

NLW: Challenges and Roadblocks

NLWs might not be a new phenomenon but the recent addition of sophisticated technologies have blurred the boundary between non-lethal and lethal, where the former can transform into the latter in case of callous or deliberate use. The debate and controversy with regards to technological, military, political, legal and ethical aspects of "non-lethal" weapons is whether to deploy them or not. The other concern is its responsible usage as weapons like Directed Acoustic, Active Denial System, etc., if over-exposed to human beings, can cause permanent damage such as loss of hearing, over skin heating, etc. Their deregulation with intensity and high radio wave frequency may cause harmful effects[48]. Electric weapons such as Tasers, already deployed in the US, raise concern about their repeated usage which might affect the central nervous system[49] in a person. An Amnesty report noted that "many deaths attributed to Tasers

[45]Appendix. Los Angles Sheriff's Department, Sid Heal. "Nonlethal Options:Failures and Futures." RAND Corporation. Accessed February 18, 2013. http://www.rand.org/pubs/conf_proceedings/CF148/CF148.appf.pdf.

[46] Mail Online. "Police need more powerful weapons to combat 'Mumbai-style terror attacks'." Accessed April 30, 2013. http://www.dailymail.co.uk/news/article-1266001/Police-need-powerful-weapons-combat-Mumbai-style-terror-attacks-says-police-chief.html#ixzz2izpgkWFE.

[47] Singh , Vijaita. "CRPF mulls use of non-lethal weapons." *Indian Express* (New Delhi), September 29, 2013. Accessed September 30, 2013. http://archive.indianexpress.com/news/crpf-mulls-use-of-nonlethal-weapons/1175822/.

[48] Strategy Page. "Murphy's Law: Death Ray Turns Warm And Fuzzy." Accessed April 30, 2013. http://strategypage.com/htmw/htmurph/articles/20121003.aspx.

[49] Ibid

involved multiple or prolonged exposure," and recommended that such usage be avoided[50]. Rubber bullets if fired inaccurately or from close distance may hit sensitive parts such as eyes or ears and can cause substantial damage. There are many reports of injuries incurred due to rubber bullets. Some ill-uses of NLWs due to inadequate training and improper handling of bullets have also been reported[51].

In India, this concern is even more important as unprecedented opportunities of using NLWs present themselves. The development and employment of NLWs also pose unique legal challenge for the international community and international human rights bodies**,** as the laws are ill-defined. As discussed earlier, the legal system in India is highly complicated making disputes much more convoluted. NLWs may take the form of a threat, particularly an implied threat, but a "credible threat of lethal force is a non-lethal option"[52]. Furthermore, niche technologies require huge investments. According to a report, "weapons program, including all joint and service-specific investment of the US DoD, is roughly $140 million[53] annually, which is expected to rise by three times by 2020"[54]. However, the return on this investment can be disproportionate in terms of civilian lives saved and effectual law enforcement. Secondly, indigenization is an important consideration as usage depends on countries' utility and requirement. For a country like India it can be done in a phase-wise manner by enhancing the existing infrastructures, modifying existing equipment and gradual induction of more sophisticated equipment.

After inception of new technologies in this sector, there is skepticism regarding the reliability of the use of these weapons on innocent civilians who come to streets for protests. Concern has also been raised that unscrupulous governments could use non-lethal weaponry against their own people to suppress opposition. Political leaders could resort to using these weapons more frequently as a means of oppressing and controlling people**,** and it could give police an added incentive for abuse of power. In India it is imperative for the leaders to limit human casualties in order to remain in power while pursuing national interest in a manner that draws much less social criticism. Hence an intelligent use of NLWs can act as a vital asset.

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[50] Amnesty international. *Amnesty International Report 2012: The State of the World's Human Rights*. London: Amnesty International, 2012.pp358. Accessed May 1, 2013. https://www.amnesty.org/en/annual-report/2012.

[51] "Bullets to rubber bullets, Kashmir police now move to plastic bullets." *DNA news* (Srinagar), August 22, 2010. Accessed February 18, 2013. http://www.dnaindia.com/india/report-bullets-to-rubber-bullets-kashmir-police-now-move-to-plastic-bullets-1427032.

[52] Los Angles Sheriff's Department, Sid Heal. "Nonlethal Options: Failures and Futures." RAND Corporation. Accessed February 18, 2013. http://www.rand.org/pubs/conf_proceedings/CF148/CF148.appf.pdf.

[53] Ibid. 8 pg 73

[54] Homeland Security Market Research. "Non-Lethal Weapons: Technologies & Global Market – 2012-2020 » Homeland Security Market Research." Accessed February 5, 2013. http://www.homelandsecurityresearch.com/2011/10/non-lethal-weapons-technologies-global-market-2012-2020/.

Conclusion

There have been ample calls for urgent deployment and introduction of NLWs in India. It was only after the Kashmir riots in 2010, when more than 150 personnel were killed, that Prime Minister Manmohan Singh[55] and Director General of Police of Kashmir came forward with statements that NLWs for crowd control will be top priority in the future.[56] The PM formulated a committee to study recent developments and to develop effective NLWs. He emphasized modifying the existing police procedures for crowd control[57] and also to revisit the work of Bureau of Police Research and Development (BPR&D), which was established in 1970 under the Ministry of Home Affairs[58].

The Ministry also commissioned a study at a cost of Rs 40 lakh to select a set of non-lethal weapons that all state police forces could use while handling civilian protests[59]. However, the progress so far has been far from satisfactory as the growth and improvements are questionable. There are numerous reasons for this ranging from level of political will and economic integration in terms of investments**,** to initial clearance and induction into operation, etc., which denigrate and hinder the progress of NLWs. However, cost should not be confused with value. NLWs provide capabilities with unique value that may well offset their monetary cost[60].

Following are some steps India should consider taking in order to integrate NLWs in a sustainable way:

- The policy integration is the first step. A strong policy framework is only possible when there is thought for rational acceptability amongst the policy-makers.
- It's also noteworthy that the present crowd control techniques used in India has more often been criticized for serving no practical purpose; hence NLWs have a potential future. A collective strategic vision, organizational coordination, synergy, and able political leadership will be vital for India's futuristic NLWs deployment. The technology has both pros and cons; therefore, deft handling of the technology is crucial to achieve the desire objective.
- R&D is vital in order to develop technology that is in national interest. It is high time that we revisited and reviewed the work of BPR&D. More institutions need

[55] "Non-lethal force can be lethal in Kashmir." *Dawn.com*, September 8, 2010. Accessed February 9, 2013. http://dawn.com/news/910056/non-lethal-force-can-be-lethal-in-kashmir.

[56] "J-K police to get non-lethal weapons to deal with mob." *Indian Express* (Jammu), December 8, 2011. Accessed February 10, 2013. http://archive.indianexpress.com/news/jk-police-to-get-nonlethal-weapons-to-deal-with-mob/885421.

[57] "Govt commissions study on procedures for crowd control | Business Line." *The Hindu Business Line* (New Delhi), August 7, 2012. Accessed February 10, 2013. http://www.thehindubusinessline.com/news/govt-commissions-study-on-procedures-for-crowd-control/article3737908.ece.

[58] Government of India. "Evolution of BPR&D." Bureau of Police Research and Development (BPR&D). Accessed February 12, 2013. http://bprd.nic.in/index2.asp?slid=306&sublinkid=487&lang=1.

[59] Sharma, Aman. "Stink plan to control mobs: MHA for non-lethal restraint measures." *Mail Online*, July 22, 2012. Accessed February 16, 2013. http://www.dailymail.co.uk/indiahome/indianews/article-2177370/Stink-plan-control-mobs-MHA-non-lethal-restraint-measures.html.

[60] Ibid.8 pg 78

to be developed at state or national level and partnership with institution like DRDO (Defense Research and Development Organization) should be worked out.

- Standardization and documentation of equipment validity is eminent to make sure they are safe.
- Recording and documentation of events are important so that nature of the event and effect can be analyzed and used for research.
- The legal framework needs to be developed to determine whether a new system is lawful and to ensure the legality of the use of NLWs at the time of deployment.
- There is a need for more investment in NLWs. As argued earlier, investment can be disproportionate in terms of civilian lives saved and effectual law enforcement.

Lastly, a degree of deterrence among civilians is exigent to avoid such conflicts; therefore an appropriate awareness of its utility amongst government and law enforcement institutions should be part of national agenda. The type of weapon employed has never been the sole concern for determining the "presence or absence of security, the notion of war without bloodshed — or arms devoid of deadly force — deserves our immediate and sustained attention."[61]

[61]Lewer, Nick. *The Future of Non-Lethal Weapons: Technologies, Operations, Ethics, and Law*, pp. 79. London: Frank Cass, 2002.

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