Non-lethality in reality: a defence technology assessment of its political and military potential
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Chapter 4
Assessing Non-Lethal Weapons Use in Detainee Operations in Iraq: Benign Force or Necessary Evil? *

Since the early 1990s, Western military forces have increasingly been deployed in conflicts worldwide. The nature of most of these conflicts requires the employment of military capabilities other than those developed and fielded for the conduct of conventional regular warfare. A key characteristic of contemporary irregular conflicts, in particular those involving counterinsurgency (CI) operations, is the blurred distinction between civilians and combatants. In these ‘wars amongst the people’ military forces have to operate in the proximity of civilians, as the geographical centre of gravity of the mission is often the urban environment. The use of force should be proportional to these circumstances, in order to minimize civilian casualties and collateral damage. The extent to which the Non-Lethal Weapons (NLWs) are supportive to that objective has been the subject of ongoing debate.

The achievement of mission objectives in CI operations is considered to be hinging on the intervention forces’ ability to gain the support and cooperation of the civil population for the intervention mission objectives. Political leaders and military commanders therefore formulate a mission strategy aimed at winning the population’s hearts and minds. Since 2003, this approach has increasingly been applied in the international mission in Iraq.

One of the outcomes of CI is the capture of insurgents or suspects of having been involved in insurgent activities in the course of a CI mission. In Iraq, between 2003 and 2009, nearly 90,000 Iraqis were...
The hearts and minds strategy that had begun to guide the intervention mission in Iraq, was gradually extended to include and redirect detainee operations as well. Adopting this approach for detainee operations was motivated by a growing belief that the way in which detainees were treated was key to reshaping their political motivation towards a more positive orientation regarding the new Iraqi government and the coalition forces. The positive effect was expected to be propagated across Iraqi society, as the collective network of influence of the formerly detained Iraqis potentially counts millions of Iraqi citizens.

Detainee operations were supported by NLWs as a proportional set of capabilities to maintain control in situations of serious non-compliance by the detainee populations. NLWs represent a dedicated category of weapons that are explicitly designed and primarily employed so as to incapacitate or repel personnel, with a low probability of fatality or permanent injury, or to disable equipment, with minimal undesired damage or impact on the environment. This article focuses on their utility and effectiveness in conjunction with the strategy of winning hearts and minds.

**Rationale and Expectations of NLW Deployment in Support of Detainee Operations**

The 2006 US Army and Marine Corps Joint Counterinsurgency Field Manual FM 3-24, states that excessive use of military force can frequently undermine the policy objectives at the expense of achieving the higher political goals. It stresses the importance of the measured application of force, also in detainee operations. Thus, FM 3-24 underpins the rationale for NLWs in CI operations.

NLWs were already applied in a range of situations in the CIs of international military interventions in Iraq and Afghanistan. The trend of increasing numbers of civilian casualties caused by coalition forces should be reversed by equipping military personnel with an NLW capability. In a previous study an assessment of the military utility of NLW has been made within the context of recurring situations in Afghanistan in which civilians are at risk.

The 1949 Geneva Conventions provide a framework for the treatment of detainees during war, stating that avoidance of detainee casualties has the highest priority. In 2006 a US DoD Directive was issued, reviewing earlier policy documents on the treatment of detainees, to...
ensure compliance with those conventions. All subordinated doctrine and manuals should adhere to the reviewed policy.

A longstanding key principle guiding US military personnel in conducting detainee operations is to keep control of the detention facility. Deliberate disobedience, resistance, or conduct of a mutinous or riotous nature should be dealt with by force. Military guidance prescribed that the commander should exercise effective control of internees by quickly restoring order, while using the least amount of force possible. This minimal force imperative was elaborated as the ‘priorities of force’ concept, an escalation-of-force continuum ranging from verbal persuasion up to the use of deadly force. NLWs were designated as an instrumental part of this continuum, and claimed to facilitate post-incident stabilization by reducing internee alienation and collateral damage. In updated guidance for detainee operations, the priorities of force concept was reviewed and renamed the ‘use of force’ (UOF) continuum, incorporating NLW as an instrument of control.

US forces conducting detainee operations have used NLWs against detainees in numerous situations, in particular in cases of major disturbance. As an extra step in the UOF continuum, NLW use was intended and expected to support the enforcement of control and order over the detainee population without having to resort to lethal force, except in cases of life-threatening situations for guard personnel, as the guidelines prescribed. Despite the casualty avoidance intent of NLWs, in various incidents in Iraqi detention facilities casualties have occurred.

This article addresses the question to what extent the use of NLWs in US internment centres was supportive to the hearts and minds approach in Iraq. It is argued that, other than claims and expectations of NLWs performance extracted from NLW technology and design properties, the performance and effects of NLWs heavily depend on the operational conditions in which they are applied. A Defence Technology Assessment (DTA) framework is applied to several cases in Iraqi detainee centres where NLWs have been used. The article starts with an outline of the analysis approach, after which it will assess the NLWs used within the context of the operational cases.

**Analytical Approach for NLW Assessment in Iraq Detainee Operations**

**Defence Technology Assessment**

Defence TA (DTA) provides an analytical framework specifically designed for a systematic approach to new military concepts within the
operational context, including human and procedural factors, in which a system concept is to be applied. The significance of the operational context has been highlighted by other analysts, such as Rappert. From NLW scenario analysis he concludes that the introduction of non-lethal force into military practices is not merely the addition of new types of force options, but the transformation of force capabilities. The possible unpredictability and novelty of situations should be acknowledged and thought through. He argues that the situational context presented for the deployment of weapons plays a key role in assessing the appropriateness of force.

The NLW analysis framework reflects the central role of context. It aims at framing the essential elements and their interactions that in concert shape the outcome of the operational use of an NLW. The framework consists of three main components, namely the user, the NLW device and technology and the target. They are conceived as complexes as each embodies a variety of factors of influence that in interactive manner shape the process of obtaining a particular non-lethal effect. The user complex, for instance, may include training of personnel and doctrinal guidance, organizational deployment of the non-lethal capability, experience, attitude, and familiarity with the deployment environment.

Every single situation where NLWs are used is defined by a unique context. Besides the fact that the situational context directly affects the outcome, it also influences each of the three components separately.

![FIGURE 1. THE NLW DEFENCE TECHNOLOGY ASSESSMENT MODEL. The central box represents the framework to analyse and explain differences between expectations and the actual outcome of NLW employment.](84)
The present study examines how the operational context in US detention facilities in Iraq is responsible for differences between what is expected from NLW employment and what is the actual outcome resulting from engagements with detainee populations.

**Defining the Research Object: NLW use in Detainee Operations in Iraq**

The largest detention facilities in Iraq operated by US military forces were Abu Ghraib and Camp Bucca. Both camps were basically subdivided into multiple compounds (Figure 2). The surge in mid-2007, when US forces in Iraq were reinforced with an extra 30,000 troops, resulted in a rapid increase of the number of Iraqi detainees, doubling from 13,000 in early 2007 to over 26,000 by October of the same year, the greater majority of them being held in Camp Bucca (Figure 3).

![FIGURE 2. SATELLITE IMAGE OF ABU GHRAIB DETENTION FACILITY, IRAQ (EARLY 2004). Section 1 (Camp Ganci), comprises the 16 fenced compounds where the vast majority of detainees were held. The white dots are the tents, each providing shelter for 20 to 30 detainees. Compounds contained between 12 and 16 tents. The detainee abuse scandal took place in the Tier 1A cell block. (Source: www.globalsecurity.org)](source_url)
The detainee population was guarded by US military personnel, primarily recruited from Military Police forces and supplemented from other units within the armed services, such as National Guards and reserve units.

The situations of NLW use during detainee operations as examined in this article are major disturbances at compound level and beyond. In those situations, guard forces were physically separated from the detainees, as compounds involved in major riots were practically no-go areas. Under these circumstances, guard forces could only use force from outside the fences surrounding the rioting compound. Only a limited set of NLWs was capable of striking rioting detainees inside their compound. These were predominantly kinetic energy projectiles, including baton rounds and sting grenades, providing for considerable stand-off range. Other NLWs, such as the baton, the taser or pepper spray, are essentially close-in and one-on-one NLWs, hence not suitable against an aggressive crowd.

Types of other NLWs that could potentially be deployed in this stand-off setting were acoustic hailing devices, laser dazzlers and CS gas. Given the severity of many major disturbances, and the amount of...
noise accompanying them, acoustic devices would not deliver any significant effect.\textsuperscript{21} The laser dazzlers, although capable of attaining considerable range, are only suited to affect no more than a few individuals at a time, hence delivering insufficient effect. CS gas, while probably effective, is usually intended to clear a space, which is impossible when crowds are kept within a confined space. Furthermore, CS might also do harm to adjacent compounds, risking a spill-over of the disturbances. Another drawback of CS is the possible impact it may have on the guard forces as well.

Theoretically, the Active Denial System (ADS), a novel long-range directed energy (DE) NLW, could have been deployed against rioting detainees. This study will assess its hypothetical deployment in detainee operations.

**Kinetic NLW characteristics**

A variety of kinetic energy projectiles has been employed in the internment centres considered. They range from rounds fired from hand-held guns of various calibres to hand grenades releasing multiple non-lethal pellets. Below some main characteristics of three frequently used kinetic energy weapons will be addressed.

*Baton rounds* (BRs) are plastic blunt impact weapons launched against individuals. BRs are cylindrically shaped, have diameters of between 30 and 40 mm and have a rounded impact face. The purpose of the BR is to induce pain, irritation and minimal injury.\textsuperscript{22} The intended effect on the target individual resembles the punch of a boxer. Ideally, the BR strikes the abdomen, whereas hits on the extremities, in particular the legs, are also effective. Hits in the head or neck pose a high risk of serious and even fatal injury.

The projectile’s velocity and ballistic stability are key factors for aiming accuracy. Launching velocities are around 80 m/s. The delivery system for BRs is usually a hand-held baton gun. The launching device usually includes a mounted sighting system for accurate aiming. Effectiveness at ranges above 50 metres is poor. Kinetic energy drops significantly at longer ranges, at 25 metres to about 75 per cent of the level at a range of 10 metres. At longer engagement ranges the flight trajectory of the round is more curved, reducing aiming accuracy.\textsuperscript{23} Shorter ranges enhance accuracy, but deliver a heavier impact on the target, thereby increasing the potential injury. In the US internment facilities in Iraq the M203 launcher was employed to fire the BR.\textsuperscript{24}
Fin stabilized rubber projectiles are 12 gauge rounds, launched at muzzle velocities between 150 and 200 m/s, with a maximum effective range of 45 metres. The optimal range interval is between 5 and 25 metres. The impact surface is considerably smaller than with the BRs, hence the risk of severe injury with striking vulnerable parts of the body is high. In the internment facilities the FN-303 rifle was employed to fire the rubber round. Some of the 12 gauge (16 mm) rounds were plastic pellet rounds, containing similar pellets as in the stinger hand grenades.

The stinger hand grenade is made of two hard cases of rubber. The cases are filled with many small rubber balls, designed to strike a number of individuals simultaneously. The hand grenade can be thrown up to a distance of 50 meters, where it ejects the rubber pellets randomly after fragmentation. Pellets may strike individual targets effectively within a range of less than 10 metres from the grenade’s fragmentation position, intended to cause minor blunt trauma. Given the randomness of pellet distribution and the limited aiming accuracy of a thrown hand grenade, the hit accuracy is relatively poor. The device is a many on many weapon with no individual aiming capacity, hence the striking point on the target individuals is not controlled.

Kinetic NLW user force

The guard forces deployed in detention facilities in Iraq were tasked to control the detainee population. They were entitled to protect the detainees under all circumstances, in compliance with treaty obligations, including the Geneva Conventions with respect to the treatment of all detainees. This was publicly stated by US President George W. Bush in 2004. It was also formalized in official US policy guidelines to the Department of Defense Detainee Program. This policy guidance was implemented in the Joint Doctrine, providing a continuum of force (COF) guideline for guard forces, including the application of NLWs, in cases where force had to be used. An earlier version of the Joint Doctrine already appeared in 2005, and was reviewed on the basis of the new policy guidance. Doctrinal publications prescribing the principles and processes for Military Police forces when dealing with enemy prisoners of war and civilian internees were already in place well before the military intervention in Iraq.

While the doctrinal foundation was established and updated throughout the timeframe US detention operations in Iraq were ongoing, it was still considered underdeveloped for it insufficiently addressed the
eventual scope of detention operations due to the high number of detainees resulting from the large-scale CI. Another shortfall was the lack of qualified guard personnel, as most of them were drawn from Military Police companies trained in standard law enforcement and not familiar with detainee operations or CI strategies and tactics. Some accounts reflect that guard forces were prepared for military operations such as convoys, rather than for their assignment to conduct detainee operations. In particular during the early days of the CI, in late 2003 and in 2004, manpower was insufficient and undertrained for the type of detainee operations required in Iraq. This problem resurfaced when the surge in mid-2007 produced thousands of additional detainees within a few weeks. Funding for detention operations had been reduced by the US Office of the Secretary of Defense even as the surge of forces approached.

Detainee riots could vary considerably in size, and, in accordance with established doctrine and guidelines, had to be handled with a proportional use of armed force if warnings did not produce the required effect. The basic tenets to be followed entailed that violence could not be tolerated and that the guard forces should keep control over the facility under all circumstances. The use of lethal force was generally prohibitive, unless attacks became life-threatening. In most circumstances, non-lethal force was designated and used as an appropriate capability to engage the rioting detainees, while preventing the risk of unintended casualties. The most employed NLWs by far were kinetic rounds and stinger hand grenades.

In the large scale riots considered in this study the guard forces’ space of manoeuvre was limited to the corridors between the fenced compounds in which the detainees were held, including the guard towers next to the compounds. Smaller scale disturbances in which personnel from guard forces had to deal with detainees in close contact are not considered.

**Kinetic NLW Target Population**

The target group comprised the detainees held in compounds in US detention camps in Iraq. Each compound contained several hundreds of detainees within an area measuring 50 to 100 by 100 metres. Accommodation mostly consisted of tents and lightweight prefab fixed constructions, as the construction of smaller scale collective housing of brick and concrete could not keep pace with the steady flow of new detainees into the facilities.
The prison community consisted of different groups and was a blend of real insurgents and relatively innocent persons.\textsuperscript{44} Incoming detainees were members of insurgent or militia groups fighting the coalition forces, or suspects involved in insurgency operations. A US Military Police commander, deployed to Abu Ghraib and Camp Bucca, commented that there were also ‘coincidental’ detainees, who happened to be in the wrong place at the wrong time when they were arrested. Based on accounts from US veterans who served in these detainee centres, the vast majority of the detainees were innocent or only guilty of minor infractions.\textsuperscript{45}

There were also differences regarding religion and tribal origin among the detainee populations, which could cause tensions between detainees held in the same compound, and could erupt into disturbances.\textsuperscript{46} Given the widely different backgrounds of detainees, as well as the reason for their detention, their attitudes and behaviour, including their motivation to resist their internment varied accordingly.

Although detainees wished to be released from internment as early as possible, this would not prevent them from engaging in disturbances and rioting, in particular when pushed to participate by the most extreme insurgent detainees. Many militant detainees were determined to continue combating US military personnel while detained, thus continuing the insurgency.\textsuperscript{47}

Many members of the target group were highly educated, hence well capable of effectively organizing resistance against the guard forces. A considerable number of them, in particular imams, spoke English, enabling them to directly communicate with guard force personnel. Many detainees were held in the camps for many months or even years, depending, among others, on the charges put against them, on the risk assessment of their release, and on their progress towards re-integration.

The long duration of detentions eventually created structured communities within the wire, including informal leadership and hierarchy. Such structures reinforced the detainee communities’ ability to organise disturbances and encourage non-compliance and opposition against the security forces. Collective non-cooperative actions could be accompanied by the use of violence with improvised weapons against the guard forces.\textsuperscript{48} Revolts were also orchestrated between multiple compounds, by covertly exchanging messages with each other to announce a riot.\textsuperscript{49} Detainees were also very creative in crafting countermeasures to neutralize the effect of NLWs on them, in particular against kinetic NLWs. The combination of creativity, the availability of time and the use of their housing to conceal the preparation of countermeasures,
enabled them to prepare themselves for the next battle. The tools for self-protection were combined with offensive action by throwing rocks and by wielding weapons as tent poles and slingshots to engage the security forces. The repetitive confrontations with NLWs provided for lessons learned that helped detainees to enhance their capability to resist or deny the effect next time. Generally, bad weather conditions would be exploited by detainees to start a riot, particular when poor visibility would prevent guard forces from identifying rioting detainees.

The most serious events concerned collective disturbances by detainee populations in multiple compounds simultaneously, involving several thousands of detainees. Apart from intentional destruction of their housing, disturbances frequently resulted in large-scale active resistance against the security forces monitoring and controlling the camp.

**Kinetic NLW Use-in-Operational-Context**

Hereafter, four operational cases will be considered, two of which took place in Abu Ghraib and two in Camp Bucca, all within the time frame between late 2003 and late 2007.

**Detention Facility Abu Ghraib**

The US forces in Iraq opened the Abu Ghraib detention facility mid-2003, initially as an interim detention camp. In the course of the year the number of detainees grew from 300–400 in the summer months to a tenfold (7,000) in the autumn of 2003. This surge of detainees was the result of the indiscriminate rounding-up of Iraqis, who were most probably innocent in many cases because they were caught in raids, despite little or no evidence of their involvement with the insurgency. There were hardly any releases of detained Iraqis, even though no clear charges were made against many of them.

The image of Abu Ghraib was marked by the detainee abuse made public in early 2004. Apart from the scandal that was brought into the open, Abu Ghraib was one of the detention facilities where abuses of detainees had been reported over an extended period of time.

Commanding officers ordered not to release anyone, because nobody wanted to be accused of having released one of Saddam Hussein’s key henchmen. The facility was undersized, its construction improvisatorial and chronically undermanned to hold and manage such a large population. US contractors had been tasked to build soft facilities in a
short period of time, consisting of fenced compounds holding tents for housing the detainees, in order to keep pace with the continuous influx of new detainees.

Abu Ghraib was located close to Baghdad, and with the insurgency emerging, the capital’s vicinity soon became a source of severe threat to the facility. The site was frequently exposed to mortar attacks, which caused deaths and injuries, both among the detainees and the guard forces. The permanent threat created a general sense of insecurity within the facility affecting US military personnel as well as the detainees. Apart from the bad reputation of Abu Ghraib caused by the media release of images showing the severe abuse of detainees, this was another important reason to close down the facility in 2005, and to transfer the 7,000 detainees to Camp Bucca, situated close to the border with Kuwait, remote from populated areas.

**Abu Ghraib Case 1**

On 24 November 2003, shortly before Thanksgiving, the atmosphere in Abu Ghraib had become very tense. Detainees were angered because of the overcrowding, abuse and poor food. A major riot broke out when one detainee threw a rock into an adjoining compound, from where somebody threw it back. This exchange rapidly escalated into large-scale violence with 1,500 detainees throwing rocks and fighting in several compounds. In no time the remainder of the Abu Ghraib population, 6,500 in total, was also involved.

The guard forces, at that time comprising only 300 troops, managed to calm down the majority of the rioters, using the compound representatives as mediators. However, as a considerable number of rioters went on fighting, the guard forces used baton rounds against them. These turned out to be largely ineffective against detainees dressed for winter conditions, in combination with their tactics to stay out of baton gun range. Hence, non-lethal options capable of suppressing the riot were almost immediately exhausted. This prompted the commander of the Military Police (MP) battalion responsible for the detention facility to order the use of lethal fire against the 700 detainees still rioting. After the smoke had cleared, three detainees lay dead, although another witness account claims nine detainees were killed.

The MP unit in charge of the facility had arrived only a couple of weeks before the event. Their rotation into Abu Ghraib coincided with the Military Intelligence Brigade taking over the tactical control of the facility from the Military Police. This change in regime had deep implications for the approach taken, as the Abu Ghraib detainee popu-
lation was now exploited as an intelligence source, rather than being Iraqis held in custody for security reasons. The new command also imposed a more formal regime upon military personnel, including saluting superiors. This order violated established MP procedures: in detainee centres saluting should be avoided to prevent the opposing elements from identifying and targeting ranking officers. The new regime irritated the guard forces and also made the detainees more nervous. In addition, the guard forces, recruited from US Army Reserve Units, were undermanned, underresourced and improperly trained for detainee operations in the rapidly unfolding insurgency environment in Iraq, which inevitably led to fatigue, loss of morale and stress. Together, these unfavourable conditions rendered the guard forces less suitable and less capable to implement the Escalation of Force (EoF) procedures for the conduct of detainee operations when dealing with major riots.

The detainee target population, in particular those fractions that continued rioting despite the verbal intervention through compound representatives, was obviously very motivated to oppose the guard forces. The very poor circumstances of their living areas, combined with the disregard of the facility authority for their security needs and human rights in general, shaped an atmosphere of growing anger and aggression against the guard forces. With many detainees already held in custody for several months without any charges made against them, a general feeling of high frustration and humiliation developed.

Against this background, the operational context of the riot was dominated by a disturbed relationship between the guard force and the detainee population, and had become one of confrontation and hostility rather than cooperation, with a very low willingness to compromise. This almost inevitably had to lead to an escalation of the disturbance, in which the commander decided to use lethal force to restore order. The outcome of the confrontation, with several detainees killed by the guard forces, may well have further increased alienation, which in turn shaped conditions to breed more hardened insurgents within the wire. The vicinity of Baghdad, from where insurgents could easily launch deadly attacks day and night, put high psychological pressure on the guard forces and intensified the confrontation with the detainees. Under these life-threatening conditions for the guard forces, the doctrinal imperative of proportionality by applying non-lethal force almost seemed at odds with their perception of being in a lethal war zone.
Abu Ghraib Case 2

One other major incident happened on 6 June 2005. That day, a sandstorm raged and obscured vision, and detainees grabbed the opportunity to revolt.64

The riot started in a general compound where 2,000 prisoners were held in four separate areas. As in many situations of major disturbances, the emergence of the riot announced itself, as there was more shouting by the detainees. The revolt itself was orchestrated in the sense that when one of four areas started and was put under control again by the guard forces, another area would start to keep the security forces ‘busy’.

The whole battalion of guard forces was mobilized to cope with the riot. The total force was subdivided into three shifts, in order to cope with the sustained riot that went on for more than a day and prevent exhaustion among the guard personnel. The majority of the battalion deployed was Army National Guard Personnel. Of the 700 personnel only 100 were Military Police. The guard forces predominantly used their shotguns, stinger grenades and the FN-303 to counter the rioters. Some Military Police personnel had received training in the US at the Interservice Nonlethal Individual Weapon Instructor Course (INIWIC). After their deployment to Abu Ghraib these instructors had trained the guard forces on the use of the NLWs on the facility shooting range.

The available kinetic NLWs were all used during the riot, irrespective of the bad visibility. The shotguns had not much accuracy and range, hence rioters could evade them by staying out of the weapon’s 25-metre range. The FN-303 was more accurate and had a longer range. Hundreds of personnel were positioned between and around the containment areas and every person had one or more non-lethal options. Not everyone had an FN-303 or a shotgun, but all were trained in using them.

The sand storm had a significant impact on the operational context during the riot. Operators just fired into the dust, and aimed into the directions where they heard the rioters were standing, and the shouts of pain when there were hits. While this could cause strikes at non-permissible parts of the body, such as the head, no reports of major injuries came out. Obviously, the need for guard forces to get the disturbances under control forced them to use the kinetic rounds inappropriately, in absence of any other method to effectively engage the detainees. Given the duration of the stand-off with all available guard forces mobilized, thousands of rounds were fired. There was continuous replenishment.65 The poor
visibility, however, complicated the guard forces’ ability to quickly realign their formation when the riot switched from one compound to another. A cease fire was no realistic option, as detainees would move towards the fence unhindered and together try to push it over in order to escape.

The riot was a very intense physiological and stressful experience for the guard forces, as the earth was almost shaking, due to the shouting and jumping by the thousands of rioters. It felt like being in a war situation. Rioters were massively throwing stones at the guards, which caused injuries. The availability of rocks was unlimited, as the ground on which the camp was built provided for sufficient material, including the concrete on which the tents and other housing constructions were built.

As long as the disturbances went on, guard forces were unable to provide detainees with their basic needs such as food, water and medical care. Given the hot weather in June, the need for water soon became critical and drained the motivation of detainees to continue their revolt. Guard commanders also tried to get in touch with compound leaders to try to convince them to stop the violence, which proved to be effective.

In the aftermath of the disturbances the atmosphere between the guard forces and the detainee population remained tense for a couple of days due to the exchange of projectiles that inflicted injuries on both sides. As no further incidents emerged, the situation then stabilized. The extensive use of kinetic NLWs in itself had not stopped the disturbance but contributed to conditioning the violence at a certain level, thus preventing further escalation.

The wider situational context of the Abu Ghraib detention facility made its location unfavourable for its purpose. Escape attempts were potentially rewarding, as the facility was situated only a couple of hundred metres from the city of Abu Ghraib, a stronghold of the insurgency. Riots were often started to cover an escape attempt. Disturbances in the Abu Ghraib detention facility could often be linked to particular political events in Baghdad or elsewhere in Iraq, as messages to the detainees to encourage an uprising could be broadcast by the nearby mosques.

**Detention Facility Camp Bucca**

Camp Bucca had been opened as a detention facility in February 2003. After the closure of the Abu Ghraib facility in 2005 it would gradually become the largest US detention facility in Iraq. Major riots in Camp Bucca occurred almost monthly, while there were minor disturbances every week. Two major incidents in which NLWs were used are discussed below.
Camp Bucca Case 1

In the morning of 31 January 2005, a major uprising of detainees developed, involving most of the detainee compounds in the facility. The disturbances began after guard personnel entered one of the compounds to search for contraband, and a Muslim cleric accused them of having damaged several Korans. This enraged detainees, who started to push against the compound’s fence in an obvious attempt to escape. Guard forces responded, but this further escalated the situation as detainees started to hurl all kind of missiles at the guard forces. The exchange ended with four detainees shot dead and another six wounded by two Army guards using their M-16 rifles.71

The guard forces primarily used rubber pellet rounds against the large number of rioters and also some plastic rounds from shotguns. Half of the guard forces were from the Army National Guard 105th Military Police Battalion and had been on duty in Camp Bucca for four months. The other half belonged to the Air Force 732nd Expeditionary Security Squadron, which had arrived several weeks before. The guards were frightened by the chaos and scale of the riots, and by being confronted with barrages of projectiles hurled over the 5 metre tall fences and towards the 10 metre tall guard towers.

In an attempt to control the increasingly volatile situation the facility commander had immediately deployed all available guard forces in the facility. The guards initially tried to curtail the violence, using verbal warnings. When this failed, they used their available NLWs. They tried to get the situation under control for almost an hour, firing kinetic NLWs at almost 3,000 detainees rioting in five different compounds.72 Then, two guards independently used lethal force from different towers, with no order to fire. Rules allowed the use of lethal force only if guard personnel felt endangered. The riot ended soon after the news spread that detainees had been killed by deadly force.

The target group, consisting of thousands of detainees, used make-shift slingshots, hurled rocks and chunks of concrete torn from the floors of their cabins. They tossed sticks and plastic bottles filled with sand, and lit plastic bags with flammable hand sanitizer. As defensive tactics, knowing the limited range of the shotgun, they would withdraw out of range of the NLWs used against them. They also used their sleeping bags as shields against the baton rounds and rubber pellets.73 Rioters used dynamic tactics as well, switching between safe positions out of NLW range and quick rushes forward to hurl their missiles at the guards. They were even able to outrange the guards’ NLWs.
Within the operational context of the riot, in particular defined by the high numbers of rioters spread over five different compounds and their abilities to quickly adapt their tactics, guard forces lacked the capability to quell the disturbances using their NLWs. The intensity of offensive counter actions from the rioters prevented part of the guard forces from using their NLWs, in particular personnel in exposed positions in the towers. This may explain why the lethal fire came from those towers. Given the orchestration level of the uprising, facility commanders believed it was planned beforehand. One purpose of the riots might have been to test the new guard units that had just come in.

*Camp Bucca case 2*

On 18 December 2007 a major riot broke out. This riot has been recorded by one of the guard force personnel in a five-minute video. The following account is solely based on the footage. The images do not reveal what triggered the riot and how the confrontation was stopped.

During the riot that was ongoing in one of the compounds, guard forces fired many baton rounds at the rioting detainees. Situated in the corridor between the compounds, they had to fire through the fence.

Guard personnel also used stinger hand grenades and flash bang grenades against the rioters, thus engaging the rioters from the rear. At one point in time, the video shows that a commander gave new instructions to the guard force unit, as he was obviously not pleased with the unit’s performance.

Rioters used mattresses to protect themselves, while stones were continuously being thrown at the guards. They also kept considerable distance from the fence, in order to prevent guards from using the baton gun effectively. The combined use of direct (baton rounds) and indirect (stinger grenades) NLW fire had some effect as the rioters could not keep up the defence barrier.

Subsequently, rocks were also thrown from another compound next to the first one. This changed the operational context in the sense that the guard forces now had to engage in a two-front battle. At one point, a fire was started by the detainees close to one of the watch towers.

The footage showed that baton rounds as direct fire projectiles were insufficient to bring the riot to an end, but that in combination with hand-thrown grenades as a means of indirect fire some effect was achieved. Piles of baton round cartridges were visible on the scene, indicating that thousands of rounds had been fired. This indicates that
the riot had been ongoing for an extended time span, and was obviously difficult to control with the use of the kinetic NLWs available. Again, the separation of forces and detainees by the fence gave rise to a stalemate in the battle, resulting in a protracted exchange of projectiles.

Especially after 2007, the US approach changed from a rather indiscriminate ‘group wise’ approach towards a more discriminate ‘individual’ approach. This resulted in a more benign treatment of detainees, aimed at re-integration into Iraqi society.75 Before that time, there was an obvious disconnect between the declared politically guided top-down strategy to conduct CI in the open society of Iraq and the ad hoc and bottom-up CI within the closed societies of the detention facilities. Both approaches started to converge by mid-2007, when the new US detainee CI strategy was developed, refocusing detention operations from large-scale ‘warehousing’ of detainee populations to a discriminate, individual approach towards detainees.76

Deploying the Active Denial System (ADS)

The case analysis has demonstrated that a key deficit facing guard forces to quell massive disturbances by rioting detainees was the insufficient range of NLWs to effectively engage rioting detainees. With kinetic energy NLWs ranges limited to a few dozens of metres, detainees could always withdraw to a ‘safe haven’ within their compound, out of reach for kinetic energy NLWs, from where they regrouped and launched hit and run strikes against the guard force.

The ADS is technologically the most advanced NLW-concept currently available. Its technology and design enables the delivery of non-lethal effects over ranges exceeding those of kinetic energy NLWs by an order of magnitude. Hence it is worthwhile to consider the hypothetical use of ADS in the Iraqi detainee operations.

**ADS Characteristics**

The ADS is a millimetre wave (MMW) emitter at a frequency of 95Ghz. The system uses an antenna to direct a focused beam toward a selected human target. The MMW-energy strikes the subject and reaches a skin penetration depth of less than a millimetre. It produces a heat sensation that within seconds becomes intolerable and forces the targeted individual to instinctively move. The sensation immediately ceases when the individual moves out of the beam or when the operator turns off the beam. When the system is operated properly there is
minimal risk of injury because of the shallow penetration depth of energy into the skin at the short wavelength, the safety features designed into the system, and normal human instinctive reactions.\textsuperscript{77} The heating effect experienced by target individuals is caused by the stimulation of pain nerves in the upper skin.\textsuperscript{78} Only if the subject remained in a sustained beam for more than a few seconds, a risk of lasting damage exists, depending on the focus and setting of the beam.

The system incorporates computerised control systems to modulate the beam transmission to achieve a safe and effective non-lethal repel effect. The operational range can vary between 15 and 500 metres. The MMW-beam can be adjusted to target three or four individuals grouped closely together.\textsuperscript{79} The ADS is to be positioned in such a way that an uninterrupted line-of-sight in a considerable sector is ensured. The system's accuracy is advertised to enable discrimination between single target persons who are at least two metres away from each other. Such accuracy levels can generally be attained at moderate engagement ranges and degrades with extended distances, and at longer ranges with visual aids only if target persons do not move. Range to target measurement accuracy is a critical factor for selecting the correct emission power level.\textsuperscript{80}

\textit{Deploying ADS in an Iraq detention facility}

For the guard forces it would be relatively easy to operate the ADS, after having received dedicated training, including employing the MMW-beam against selected individuals within a dynamic crowd.

The system could be positioned in one or more guard towers overseeing multiple compounds, even at fairly remote positions from the compounds. The mobile antenna allows for re-aiming of the beam into the desired direction, but slewing takes some time. With a range of several hundreds of metres, one ADS platform would facilitate the engagement of individuals or small groups of detainees scattered over multiple compounds, denying rioters the safe haven option enjoyed previously. The system's elevated position in the guard tower would also reduce masking effects from obstacles or innocent detainees when aiming at target populations at relatively long range.\textsuperscript{81} Hence, in the context of a major riot, ADS would technically be well suited to deliver an effect against rioters.

The target population, usually rioting detainees, would be deprived from using some of the countermeasures that proved effective against kinetic NLWs. They would be facing an entirely different pain effect,
namely intolerable heat from an invisible beam. Conceivable counter-measures against the effect require the presence of sufficient amounts of water for the wetting of cloths and other protecting cover material such as sleeping bags. Furthermore, shielding against the beam would be possible by applying metal foil or fine grids. These materials would be hard to acquire in a detention context. Apart from the limited technical options for detainees to protect themselves against the heating effect, they might use their large numbers and split up to engage guards, as re-aiming the ADS DE beam and re-calibrating the beam intensity takes too much response time to deliver the desired energy level at the selected coordinates. Detainees would soon learn that dynamic behaviour and spreading would outpace the ADS tactical and technical flexibility. This mechanism would work even better if they switched the riot between multiple compounds.

From the user force perspective, such evading tactics could partly be compensated for by deploying multiple ADS-platforms, provided that all platforms were integrated into a single Command and Control structure, to coordinate facility-wide target acquisition and engagement. In addition, close coordination between ADS operation and guard force units operating with kinetic energy NLWs would create a non-lethal ‘manoeuvre’ capability, thus confronting rioters with more operational complexity and surprise created by the guard forces.

There is also a psychological issue involved in deploying an invisible ‘pain ray’. Detainees might well conceive it as unfair to be engaged by an opponent they cannot counter physically, as their improvised weaponry would be outranged by the ADS. Deprived from their safe haven, they might perceive its effect as torture, which has the potential to trigger growing alienation between the detainees and the guards. Such appreciation could well be amplified in a context with many innocent detainees, as obviously was the case in Abu Ghraib and in Camp Bucca. It is unlikely that, given this wider mental and political context, ADS would be supportive to the hearts and minds strategy in detainee operations.

**Assessment Synthesis and Conclusion**

This article has addressed the question to what extent the deployment and use of NLWs in US detention facilities in Iraq has contributed to the hearts and minds approach in the CI. The deployment of these NLWs in support of the UOF continuum in detainee operations was
intended and claimed to prevent and reduce the need of lethal force application to restore order in cases of violent major disturbances.

In the target population’s context, riots in detention facilities were in many cases a continuation of the ongoing insurgency in the country. Yet, with many detainees actually being innocent and held in custody without having been charged, taking part in disturbances was an expression of frustration and desperation over the many months and years they had already been detained under poor living conditions. Feeling treated unjustly and humiliated, they were susceptible for recruitment by hard-core insurgents, who organized and mobilized large-scale violent resistance against the guard forces.

Under these conditions, the deployment of kinetic energy NLW weapon technology and devices proved insufficiently effective to stop a riot. The user force, while in many cases far outnumbered by the target population, was charged to quell the riots at all circumstances and prevent escalation of violence to levels at which lethal force would have to be used against escapes. The operational context led to a stalemate and protracted battle, in which the user force kept the target population ‘busy’, while the latter would persist in rioting in an attempt to wear down the user force.

Over time, detainees became better at shaping the operational context to their advantage, as they learned how to deny the effect of the kinetic rounds, both technically and tactically. The availability of virtually unlimited preparation time to detainees, combined with creativity in using scarce resources, provided for ever better countermeasures. A similar pattern presented itself during the Troubles in Northern Ireland, where the target population also became increasingly proficient at neutralizing NLW effects delivered by the user force. As detainees in Iraq could choose the time of the riots, they could benefit from weather conditions favourable to them, such as reduced visibility, to further optimize the operational context to their advantage. Under circumstances of severely reduced visibility, guards opted to use kinetic energy NLWs beyond the weapons’ safety limits. Countermeasures by rioters created an operational context that tended to trigger a similar shift in NLW use practices. Protracted disturbances thus gave rise to a blurring of the dividing line between the disciplined application of non-lethal force and inappropriate NLW use, which increased the risk of fatalities.

It was a varying combination of –occasional – escalation to lethal force, verbal persuasion of compound leaders by guard force commanders, and an operational context prohibiting guard personnel from performing basic duties for detainees such as supplying water, food and
medical assistance, that put serious disturbances to an end. In particular during the hot summers in Iraq, drinking water was a critical asset, and a riot could not be sustained for long without.

The wider insurgency context of the detainee operations, and the unpreparedness of US guard forces for these special conditions in the first four to five years, were responsible for the outbreak of many of the disturbances within detention facilities. The guard personnel and detainees found themselves locked to each other in the long term ‘pressure cooker’ environment of a closed detention facility. This pressure cooker operational context was the combined result of hot weather conditions exhausting guard force personnel in heavy military gear, the permanent exposure to external threat by insurgents through armed strikes, and the internal threat from hostile detainees with improvised weapons. In the detainee population context, recruitment practices by hard-core insurgents compounded the pressure.

The pressure cooker context was not permissive for a constructive role of NLW in pursuing a hearts and minds approach in detainee operations. Feelings of injustice and the lack of a perspective of release created an atmosphere of animosity, in which violence was the only decompression valve for the target population. Hence, in the absence of a more benign political context in terms of a positive end state for the individual detainee, the use of NLWs was counterproductive in enforcing compliance. Rather, it hardened the rioters to resist the user force’s efforts to quell disturbances non-lethally ever more strongly and more determined.

Despite their ineffectiveness and in the absence of any alternatives to control order, NLWs at least helped to prevent more casualties than had already been inflicted during major disturbances. Hence they were a necessary evil, rather than a benign force. Deployment of ADS might have helped to reduce escalation risk in riots and might even have been effective in terminating riots, especially when operated in conjunction with the other NLWs. However, it might also have had an adverse role in the longer term, due to its potentially alienating effect, when perceived by the target population as an invisible and untouchable instrument of pain.

One important lesson learned was that, even with a constructive CI hearts and minds strategy to guide detainee operations in place, the skills and discipline of the guard forces are key to the successful conduct of detainee operations. As one officer put it: ‘The key thing to remember is that one undisciplined Soldier can cause a major
disturbance that could result in the serious injury or death of soldiers or detainees and thus destroy CI within the wire.”

From this lesson it can be taken that a more considerate military behaviour during the early years of detainee operations would have allowed for a better utility of NLWs than was the case in the alienated relationship between US guard forces and Iraqi detainees at the time.

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NOTES
2 The pros and cons of NLWs, as well as the complexity surrounding the concept of non-lethal force, has for instance been discussed by Wing Commander V.J. Wallace, ‘Non-Lethal Weapons: R2IPE for Arms Control Measures?’ Defence Studies 1/2 (Summer 2001) pp.83–108.
5 Various definitions exist in national and international NLW policy documents. This article adopts the definition of NLWs stated in: NATO, NATO Policy on Non-Lethal Weapons (Brussels: NATO, 13 Oct. 1999).
8 The four Geneva Conventions of 1949 provide for the legal framework for the just treatment of war victims. Two of these conventions, one on the treatment of prisoners of war and the other on the protection of civilian persons in time of war, specifically apply to the protection of detainees. Geneva Convention Relative to the Treatment of Prisoners of War (12 Aug. 1949); Geneva Convention Relative to the Protection of Civilian Persons in Time of War (12 Aug. 1949).
14 As reported in: Janis Karpinski and Steven Strassner, One Woman’s Army – The Commanding General of Abu Ghraib Tells Her Story (New York: Hyperion 2005), and: ‘US Guards


26 Hussey and Berry (note 24) pp.9–12.


30 Department of Defense (note 9) p.1.


32 US Joint Chiefs of Staff (note 13).

33 US Department of the Army Headquarters (note 10).


35 Ibid. p.50.

36 Allgood (note 27) p.25.

37 Karpinski and Strassner (note 14) pp.164, 173.

38 Benard et al. (note 34) p.66.

39 Hussey and Berry (note 24) pp.9–12.


41 As for instance stated by a US Air Force Security Forces Commander who was deployed in Camp Bucca in 2007, interview 9 Nov. 2009; and: Hussey and Berry (note 24) p.12.

42 Apart from the group wise orchestrated disturbances against the security personnel, smaller scale situations occurred in which NLWs were used to enforce compliance. Examples are the movement of detainees between compounds, with individual detainees refusing to cooperate, and events with fights between detainees within their compound. Military Police guards used the taser, kinetic projectiles and guard dogs in such situations. Stated by a Military Police Captain who was deployed in Camp Bucca in 2003, and a Military
Police Sergeant who was deployed in Abu Ghraib and Camp Bucca in 2004, interviews Oct. 2009.


44 Military Police commander (note 21).


47 Hussey and Berry (note 24) p.10.


49 Detainees from different compounds exchanged information by wrapping note messages around rocks which they would throw to the next compound. In this way they were able to prepare and coordinate a riot. Allgood (note 27) p.52.

50 Berry (note 48) p.2.


53 Hussey and Berry (note 24) pp.9–12.

54 Hedges and Al-Arian (note 45) p.73.

55 Between 2003 and 2006, hundreds of individual cases of detainee abuse have been reported from several detention facilities, including Abu Ghraib and Camp Bucca. Human Rights Watch, No Blood no Foul, 22 July 2006, p.2.

56 Karpinski and Strassner (note 14) p.190.

57 Allgood (note 27); Karpinski and Strassner (note 14).

58 Hedges and Al-Arian (note 45) p.85.

59 Karpinski and Strassner (note 14) p.204. While Karpinski, who was at the time of the riots the commanding general of US detention operations in Iraq, speaks of three Iraqis killed, the death toll was claimed to be nine by an Army Reserve Specialist, who witnessed the riot. Hedges and Al-Arian (note 45) p.85.

60 Karpinski and Strassner (note 14).

61 Ibid.

62 The lack of dedicated training was still existing with units serving in Abu Ghraib two years later, with only five days of detention operations training out of a two-month pre-deployment training programme. Allgood (note 27) p.96.

63 The term ‘detainee alienation effect’ indicates the degree that elements of the Iraqi population were driven to align with insurgents and other malign actors, due to actions by counterinsurgents. It was coined in: James Mason Brooks and Drew Miller (Institute for Defense Analyses) ‘Enhanced Multi-Criteria Decision Support: A Case Study in Iraq’, Paper for the 14th International Command and Control Research and Technology Symposium (ICCRTS) Washington DC, 15-17 June 2009, p.6.

64 The account of the disturbances on this ‘D-day’ were provided by Col. John Hussey, Military Police commander in Abu Ghraib from Dec. 2004 until Nov. 2005, interview 12 Nov. 2009 and conversation 14 Nov. 2011.

65 Hussey (note 52).

66 Hussey (note 51).


68 Allgood (note 27) p.49.

69 Hussey (note 52).

70 Ibid.

71 The account of this case was primarily taken from Bradley Graham, ‘Prisoner Uprising in Iraq Exposes New Risk for US – Non-lethal Weapons Proved Ineffective as Chaos


73 Graham (note 71).


75 Benard et al. (note 34) Chapter 5.

76 The arrival in May 2007 of a new Commander (Major General Douglas Stone) of Task Force 134, an organization directly responsible for detention operations in Iraq, marked the beginning of a change in the strategy towards the so-called ‘CI within the wire’. Brown, Goepner and Clark (note 4) p.41.


81 The potential utility of deploying an ADS in this manner was confirmed by Hussey (note 51).

82 The ADS has been portrayed in the media as a ‘pain ray’ weapon, for its potential to torture people. See for instance: Dangerroom, ‘Pain Ray, Rejected by the Military, Ready to Blast LA Prisoners’, http://www.wired.com/dangerroom/2010/08>.

83 Alienation towards detainees is considered by some detention facility commanders as undesirable and counterproductive for accomplishing detainee compliance. This was one reason for a detention commander not to use the Long Range Acoustic Device to amplify verbal orders and messages to a detainee community. US Military Police commander (note 21).

84 Orbons (note 19) p.475.

85 Hussey (note 46) p.3.