Non-lethality in reality: a defence technology assessment of its political and military potential
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Summary

This book discusses so-called non-lethal weapons (NLWs). Most basically, such weapons seek to minimize violence, especially deadly violence, during armed conflict. Their physical effects are wide-ranging: kinetic, chemical-based, electromagnetic and acoustic. NLWs are tailored either to application against humans, or to anti-materiel/anti-infrastructure use. This study is focused on anti-personnel NLWs only. A widely accepted definition is:

*Non-Lethal Weapons are weapons that are explicitly designed and developed 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.*

Two trends underpin the military employment of NLWs. The first was the growing application of NLWs by police forces since the 1960s, which made available a range of NLW technologies and the practical knowledge and experience with the operation of NLWs. The second was related to military innovations during the Cold War. The emergence of ground-breaking technologies enabled the development and fielding of precision-guided weapons and led to technological superiority, as was demonstrated during the 1991 Gulf War. Reduction of own casualties became an important driver for military innovation. Technology was even viewed by some as the key to non-lethal humane warfare. This school of thought gained more ground when intra-state conflicts started to dominate the international security agenda and prevention of civilian casualties became a political and societal imperative. In the mid-1990s, US military forces in Somalia demonstrated that the application of NLWs supported this requirement. The successes in Somalia paved the way towards the establishment of an NLW policy, that underpinned the military need for NLWs and their further development.

The formal recognition of NLWs didn’t prevent them to become object of critical debate on their significance and future potential. High expectations about their humanizing influence on the course of conflict were disputed by sceptics who argued that in a military setting the effects of NLWs are degraded. Two central questions in this study ensue from the debate:

*To what extent do real world operational circumstances affect NLW mission performance and effect? Given the answer to the previous question, what may we say on the degree at which NLW use meets the expectations that underlie current strategic frameworks?*

The research method applied is the so-called Defence Technology Assessment (DTA). This method of analysis is tailored to the research into the effectiveness of innovative military systems and takes into account the influence of the operational context in which the systems are to be employed. In Chapter 2 the DTA will be further elaborated and dedicated to the analysis of NLWs, and applied in three case studies taken from real world military operations. These cases have been published as journal articles which are included in the Chapters 3, 4 and 5 in this study.

The second chapter addresses the rationale of NLWs, as it resulted from the changing nature of conflicts in which Western military organisations have to perform their mission. The military need for NLWs is related to the blurring distinction between warriors and normal citizens in contemporary
conflicts. The theory of Just War prohibits the use of military violence against civilians and prescribes that unintended collateral damage to civilians should be kept to a minimum and be proportional to the intended military objective. It is claimed that if this distinction cannot be made, from a rational perspective non-lethal violence is morally more acceptable than lethal violence. In this chapter, the rationale of NLWs is placed in the perspective of the tension between the intention and ideal image of NLWs on the one hand and the military-operational reality, with its ‘friction of war’ on the other. The DTA method has subsequently been adjusted and formulated as a contextual framework to analyze the application of NLWs in real world military-operations. Three complexes are central to this framework: the NLW user complex, the NLW weapon-and-technology complex, and the complex representing the human target engaged by the NLW. The three components interact, and in addition they are susceptible to situational and environmental factors of influence, both physical and non-physical, that define the specific situation in which the NLW is fielded. The situational factors and the way the three complexes manifest themselves in a particular deployment scenario together shape the operational context of the NLW application.

Chapter 3 discusses the use of NLWs during the ‘Troubles’, the conflict that raged in Northern Ireland for almost thirty years towards the end of the last century. It resulted from a growing resistance among the Catholic minority population against their political and social subordination to the Protestant majority. Protest demonstrations escalated, and the Northern Irish police was reinforced by British Army units to cope with the violence. In absence of an acceptable political compromise, the British Army continued its deployment for thirty years to control public order. The use of NLWs was seen as necessary to prevent civilian casualties during public disturbances, thus contributing to a strategy of winning the ‘hearts and minds’ of the Catholic population.

A number of concrete situations has been analysed to determine to what extent the principal NLWs used in Northern Ireland, namely tear gas (CS) and plastic bullets (baton rounds), have contributed to the strategy. Using the DTA method it has been found that the use of CS was a failure and alienated the Catholic minority from the British Army. To the Catholics CS lost its credibility of an NLW to prevent casualties and became a symbol of their repression instead. Baton rounds (BRs) were primarily intended to keep aggressive individuals at distance, thus preventing the need of military personnel to use lethal force for self-defence. The analysis has demonstrated that the use of BRs, despite technological improvements, caused many serious and even deadly injuries, due to the dynamical and hostile context in Northern Ireland. In some situations BRs were not operated as instructed, partly intentionally, partly because the specific circumstances compromised correct employment. Similar as with CS, BRs came to be viewed as a symbol of governmental repression, an image that was reinforced by the media and human rights groups.

The case study has demonstrated that tactical level application of NLWs to manage civil uprisings with limited and non-lethal force was frustrated by the politico-strategic context of the disturbances. Technological innovation of NLWs and improved Rules of Engagement appeared to be less relevant for their effect than the relationship between the military user and the target population. While the application of NLWs has contributed to casualty reduction, the protracted use and repressive reputation of CS and BRs has branded them a lasting negative image.

The fourth chapter addresses the case of NLW use by US military personnel in Iraqi detainee camps during operation Iraqi Freedom between 2003 and 2009. During the counterinsurgency US intervention forces detained tens of thousands Iraqi’s for long time. They were housed in tents,
situated in fenced compounds, each holding several hundreds of prisoners. Military guard personnel and detainees were physically separated from each other. The control of order in the camps was supported by BRs. In this case study NLW application in two detention centres has been investigated. In addition, the hypothetical role of an advanced non-lethal radiation weapon, the Active Denial System (ADS), has been assessed.

The prevention and control of major disturbances and uprisings was a key imperative to the military guard forces. This was enforced physically by firing BRs from outside the fenced compounds against non-compliant detainees in the rioting sections. The DTA analysis has pointed out that the physical context strongly complicated the effective use of BRs for its purpose and that detainee countermeasures denied the BRs intended effect. Many detainees were kept in the camps for multiple years without a clear charge, motivating their resistance. Zealots amongst the detainee population were able to massively recruit relatively moderated detainees for their cause or to force them to large scale resistance against the guard forces. In some cases major uprisings were inspired by feeding information about political events and developments elsewhere in Iraq. Disturbances could have a prolonged endurance and be exhaustive to personnel, mainly because BRs were insufficiently effective to help enforce a return to normality.

The US applied in Iraq a ‘hearts and minds’ strategy to gain the support of the population in fighting the insurgency. At a later stage this strategy was also applied in the detainee centres, with a focus on the detainees’ perspective on their release from detention. Although this new approach had a moderating effect on the detainees’ behaviour, the key factor in controlling order was the attitude and experience of the military personnel. The DTA showed that hypothetical introduction of the radiation weapon ADS could have overcome part of the physical limitations confronting the military user of NLWs, but the unknown and invisible heat effect of the ADS might be perceived as a remotely controlled instrument of pain. In turn this could alienate the detainees from military guard forces, which would be at odds with the politico-strategic ‘hearts and minds’ principle.

NLWs were less effective in the context presented in this case study. The tactical objective to maintain order under all circumstances could hardly be enforced by the deployment of NLWs. However, maintaining order without the availability of NLWs would enhance the risk of deadly casualties amongst the detainee population, with potentially serious political consequences.

The third case study (Chapter 5) is situated in Afghanistan. It focuses on the hypothetical use of a non-lethal blinding laser (Laser Optical Warner) by Dutch ISAF military personnel. This ‘prospective’ DTA is aimed at concrete events involving military controlled checkpoints and military convoys in Uruzgan in 2009 and 2010, in which the Laser Optical Warner (LOW) was introduced in a fictitious and reconstructive manner. The analysis assesses which effect the implementation of the LOW would plausibly have had on the course of the events, with an aim to answer the question whether the LOW could have contributed to ISAF’s strategic objective, the core of which is the winning of the ‘hearts and minds’ of the Afghan population.

The suicide attacks and road side bomb threat by the Taliban against ISAF forces puts the latter’s performance at checkpoints and with convoys under pressure. The research findings emphasize the tension between force-protection and safeguarding the local population, leading to wrong judgements of the threat and consequent fatalities amongst innocent civilians. Drawing from the analysis of four concrete situations, the DTA demonstrates that implementation of the LOW to prevent innocent casualties is more promising in prepared settings (checkpoints) in uninhabited spaces compared to convoys facing unexpected confrontations in more complex and crowded
environments. In all situations considered, the utility of the LOW is susceptible to physical factors such as adverse weather conditions and countermeasures against the blinding effect. Technological upgrades towards a smarter LOW may cope with some of these shortcomings. However, aiming at employing the LOW to shape a safe zone shaping a safe zone around a convoy moving through Afghan populated areas appears illusive. The Taliban exploits such uncertainties whenever possible. In a dynamical operational context the dilemma between force protection and protecting the local population remains unresolved.

The case study thus demonstrates that the ISAF leadership’s intent to deploy NLWs such as the LOW to strengthen the ‘hearts and minds’ strategy is jeopardized by the complexity of the operational environment in which ISAF units have to operate. In addition, in rural and tribal Uruzgan the link between the politico-strategic level and local tactical events is relatively weak due to the limited information infrastructure and the low media presence in rural spaces. Therefore tactical gains are difficult to express in strategic terms.

The concluding chapter brings together the results from the three case studies and uses the DTA method to synthesize the findings. While the primary effect of the investigated NLWs resides at the tactical level, their application and impact has also political level implications. In many cases the NLW system-and-technology performs less than intended. This is not only the result of unfavourable physical ambient conditions, but also of countermeasures from the target group. The latter is compounded by protracted and repetitive use of an NLW. Technological innovations are incapable to compensate for effect degradation. In cases where the target group perceives its political situation as inferior and unacceptable, this has a negative and often counterproductive effect on the effect of NLWs. This generates a negative cycle, as it also politicizes the relationship between the target group and the military user of the NLW. In a number of cases this has led the military user to disregard the safety guidelines for the application of the NLW. Such unauthorized use of NLWs may backfire at the political level, as its harmful impact on the target group is reported as repressive and hostile.

Obviously, with regard to the non-lethality incentive, a dialectic is at work between the political and the tactical level, that counteracts the contribution of NLWs to heart and minds strategies. The DTA-based validation of the claims on NLWs shows that the expectations of technological optimists are grossly overrated. Implicit assumptions underlying the expectations are demystified by the crucial role of the operational context of NLW use. Operational friction is decisive over political idealism. Even the careful supporters, who adhere to a predominantly technocratic vision of NLWs, have underestimated the complexity of real world use. The claims and counter-arguments of the sceptics reflect more sense of reality and are largely confirmed by the DTA outcomes.

With regard to the two research questions the study shows that situational circumstances strongly interfere with NLW performance. The initial intent of NLWs is counteracted by the role of the three DTA complexes, their mutual interactions and the operational context. As initial expectations and political intent of NLW use are not met, their deployment fails to support the pursuit of ‘hearts and minds’ strategies and may even produce adverse effects. Yet, it is plausible that the military deployment of NLWs in some conflict situations has helped to prevent innocent civilian casualties. The perspective of NLWs can be improved by better judgements of the situations in which they are deployed. A closer look into the operational context is required to understand how it influences NLW effects. This calls for more extensive collection of data on the course of events with military NLW use. Experimental DTA research into application of multiple NLWs may provide insights about synergy of effects that may justify the additional military-operational complexity.