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LOW-YIELD TACTICAL NUCLEAR WEAPONS AND THE RULE OF DISTINCTION*

SUSAN BREAU†

INTRODUCTION

The purpose of this contribution to this important special edition on nuclear weapons is to assess the argument that the discriminatory use of low-yield tactical nuclear weapons is not against the rule of distinction in international humanitarian law. Both the United States and the United Kingdom made this argument in the *Legality of the Threat or Use of Nuclear Weapons* Advisory Opinion (hereafter *Nuclear Weapons* Advisory Opinion).[1] This issue is very much still on the international agenda, as in May 2011 it was announced that Pakistan had tested a missile able to carry short range low-yield tactical nuclear weapons. Experts argued that this meant that Pakistan intended to use battlefield nuclear weapons in the event of an armed conflict with India.[2]

It tests the statement often made that nuclear weapons cannot distinguish between civilians and combatants in relation to these

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1 International Court of Justice, *Written statement of the Government of the United Kingdom*, 15 September 2012, <http://www.icj-cij.org/docket/files/95/8802.pdf>, 53; International Court of Justice, *Written statement of the Government of the United States of America*, 15 September 2012, 23, <http://www.icj-cij.org/docket/files/95/8700.pdf>.

2 'Pakistan builds low yield nuclear capability', *Dawn.com,* 15 May 2011, <http://dawn.com/news/628869/pakistan-builds-low-yield-nuclear-capability-concern-grows>.

particular types of nuclear weapons. In reality, examination of the rule of distinction and nuclear weapons has to be limited to low-yield tactical weapons as it is evident that the use of weapons equal to or more powerful than Hiroshima and Nagasaki, by their very nature, clearly run afoul of the cardinal rules of international humanitarian law.

One of the difficulties involved in this analysis is the immediate nature of the applicability of the rule of distinction that fails to take into account the future use of the former battle space. It is argued here that any use of nuclear weapons has to take into account the risk to future civilians who might be subjected to the catastrophic environmental and health results of any use of nuclearised weaponry. It must be asserted that the rule of distinction cannot be limited to the immediate effects and that commanders must consider the foreseeable results of their attacks.

Evidently, the law of armed conflict known as international humanitarian law applies equally to the use of nuclear weapons.[3] It is confirmed in the *Nuclear Weapons* Advisory Opinion that it is a cardinal principle that a State must never make civilians an object of attack and must consequently never use weapons that are incapable of distinguishing between civilian and military targets.[4] Judge Weeramantry states in his dissent for the *Nuclear Weapons* Advisory Opinion that 'it is by turning the spotlight on the agonies of the battlefield that modern humanitarian law began'.[5] He states in stark terms the argument that is considered here - that nuclear weapons increase the savagery of battle 'a thousandfold'.[6]

Part I will trace the development of tactical nuclear weapons and the lack of progress of nuclear disarmament with respect to these types of weapons in the Obama administration. Part II will trace the

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3 Ibid.

4 *Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion)*, [1996] ICJ Rep 226 [78].

5 Ibid 429 (Dissenting Opinion of Judge Weeramantry).

6 Ibid 446.

historical development of the rule of distinction up to and including, the International Committee of the Red Cross Customary Humanitarian Law Study[7] and place the rule in the context of the possible use of nuclear weapons. Reference will be made to the robust debate concerning distinction that took place in the dissenting and separate opinions of the Judges in the *Nuclear Weapons* Advisory Opinion. Part III relates the rule of distinction to low yield nuclear weaponry. Part IV examines the difficulty with the temporal element of the rule of distinction by giving as examples two similar debates on long-term impact of use of nuclear technology that have taken place with respect to nuclear testing in Maralinga, South Australia and the use of depleted uranium in weaponry in three recent armed conflicts.

Based on the research and analysis conducted for this article, it is the opinion of this writer that the view that using clean, smaller, low yield tactical weapons does not offend these rules is also an impossibility not only because of the possibility of escalation of the conflict to full scale nuclear warfare but because of the very nature of these weapons. The prevailing scientific opinion is that such a 'clean' weapon is not viable, as it will not penetrate deep enough to avoid a nuclear explosion.[8]

I THE DEVELOPMENT OF TACTICAL NUCLEAR WEAPONS

Although not as widely discussed as strategic nuclear weapons, tactical nuclear weapons have been part of national nuclear arsenals almost as long as strategic nuclear weapons. The United States was the first to invent them in the early 1950's but the Soviet Union soon

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7 Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law Volume I: Rules,* (Cambridge University Press, 2005) – known at the ICRC Customary Humanitarian Law Study.

8 Michael Levi, 'Dreaming of Clean Nukes' (2004) 428 *Nature* 892.

followed suit and there began a tactical nuclear arms race.[9] The purpose of the development from the standpoint of the West was due to the fact that the conventional armies of the Warsaw Pact outnumbered the conventional forces of NATO and these weapons were to be used in Europe by Western forces to compensate for the numerical inferiority.[10] They were evidently never used, as the troops of the Warsaw Pact never invaded Western Europe. At the peak of the Cold War it was reported that there were more than 7000 and, as many as 24 different types, of tactical weapons deployed by the United States throughout the NATO countries in Europe.[11]

After the end of the Cold War in 1991, both the United States and the Soviet Union announced that they would withdraw from deployment and eliminate from their arsenals many of their tactical nuclear weapons.[12] In 1997, President Clinton and President Yeltsin signed a framework agreement that promised measures related to non-strategic nuclear weapons in a potential START III treaty.[13] These measures did not take place and the Bush administration did not discuss these types of weapons during arms control negotiations in 2002. During the Bush administration, officials argued the US should develop and deploy not only low-yield mini-nukes but higher-yield bunker busters. The purpose of these weapons was for use in conflicts with Third World countries or for attacks on terrorist groups.[14] The Strategic Offensive Reductions Treaty signed in June 2002 only encompassed deployed warheads on strategic weapons

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9 Marcel Van Herpen, 'Russia's embrace of tactical nuclear weapons' (Cicero Foundation Great Debate Paper No. 11/04, 2011), 10, <http://www.cicerofoundation.org/lectures/Marcel_H_Van_Herpen_RUSSIA_EMBRACE_OF_TACTICAL_NUCLEAR_WEAPONS.pdf.>.

10 Ibid.

11 Bulletin of the Atomic Scientists, *Open Secret* (15 September 2012), <http://www.thebulletin.org/web-edition/op-eds/open-secret>.

12 Amy Woolf, *Nonstrategic Nuclear Weapons* (19 December 2012), <http://www.fas.org/sgp/crs/nuke/RL32572.pdf>.

13 Ibid.

14 Frank Barnaby and Jack Mendelsohn, 'Low-Yield and Earth-Penetrating Nuclear Weapons aka 'Mini-nukes' and Bunker Busters' (Global Security Institute and Oxford Research Group Report, 2003), <http://gsinstitute.org/policy-briefs-and-reports>.

and not tactical nuclear weapons.[15] Nevertheless, it is reported that since the end of the Cold War, the United States has substantially reduced these tactical nuclear weapons, and at the present time in Europe, there are only 500 of these weapons.[16]

This is not the case with Russia. Although estimates range between 2000 and 5000 (albeit with many in storage), it is the case that the Russians have many more tactical nuclear weapons.[17] The reason for this is that Vladimir Putin, before he became Russian President, was instrumental in developing policy for the use of low-yield nuclear weapons due to the now inferiority in the Russian conventional army position.[18] The Russians were now confronted with an expanding NATO that included many former Warsaw Pact states.[19] As Van Herpen argues:

> Not only would this mean that Russian military strategy had taken a U-turn by putting a new emphasis on tactical nuclear weapons, but by introducing these low-yield weapons on such a massive scale, it would trivialize these weapons and make their use in an early phase of a conventional conflict more probable.[20]

This situation has not changed with a new administration in the United States and it certainly remains an essential part of the defence strategy of President Putin. President Obama in his April 2009 speech in Prague called for reducing the number and role of nuclear weapons.[21] A year later, in April 2010, the Department of Defence

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15 Ibid 3.

16 Francesco Calogero and Giorgio La Malfa, 'Open Secret', *Bulletin of the Atomic Scientists,* 19 March 2012, < http://www.thebulletin.org/open-secret>.

17 Van Herpen, above n 9; 'Future of US, Russian Short-Range Nuclear Weapons Could be on Negotiating Table', *Voice of America,* 3 April 2012, <http://www.voanews.com/content/us-russian-short-range-nuclear-weapons-could-be-on-negotiating-table-146122895/180339.html>.

18 Van Herpen, above n 9, 11.

19 Ibid 10.

20 Ibid 12.

21 Steven Pifer, 'Arms Control Options for Non-Strategic Nuclear Weapons' in Tom Nichols, Douglas Stuart and Jeffrey McCausland, *Tactical Nuclear Weapons and NATO* (Strategic Studies Institute, Department of Defense, Washington, 2012) 414.

released its Nuclear Posture Review Report, which contained a section on non-strategic nuclear weapons. It indicated that the United States keeps 'only a limited number of forward deployed nuclear weapons in Europe, plus a small number stored in the United States'.[22] The report also stated that the Russians 'maintain a much larger force of non-strategic nuclear weapons, a significant number of which are deployed near the territories of several North Atlantic Treaty Organization (NATO) countries'.[23] It argued that these weapons should also be included in any future reduction arrangements. Importantly, the report announced the elimination of nuclear-equipped sea-launched cruise missiles.[24] Yet, once again, the 2010 The United States - Russian Strategic Armed Reduction Treaty (New START) did not impose any limits on non-strategic, or shorter-range nuclear weapons.[25] However, in his speech while signing the treaty, President Obama stated that the treaty would set the stage for further cuts including both strategic and tactical weapons.[26] These negotiations have not yet begun and these weapons remain, to this day, in the arsenal of both powers and worryingly are also being developed by other nuclear powers. India is estimated to have between 60-70 tactical nuclear weapons and Pakistan is estimated to possess 60.[27] Although they deny the fact, it is thought that Israel may also possess these weapons.[28]

The current situation is that tactical nuclear weapons remain very much part of nuclear arsenals of all nuclear powers and these powers have not yet begun to reduce their stockpiles in spite of promises to do so. The arguments made about these weapons in the *Nuclear Weapons* Advisory Opinion in 1996 still have currency today and, as the court did not rule on this issue, a debate must take place about

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22 Secretary of Defense, *Nuclear Posture Review Report* (Department of Defense, Washington, 2010) 27.

23 Ibid.

24 Ibid 28.

25 Woolf, above n 12, 1.

26 Pifer, above n 21, 414.

27 David Baylor, 'Considerations for a US Nuclear Force Structure below a 1,000 – Warhead Limit', (2011) 5 *Strategic Studies Quarterly* 52, 57.

28 Ibid 57; 'Nuclear Weapons: Who has What at a Glance', *Arms Control Association,* November 2013, <http://www.armscontrol.org/factsheets/Nuclearweaponswhohaswhat>.

their possible use, and, whether that use would accord with the rules of international humanitarian law.

II THE RULE OF DISTINCTION

Even though the air campaigns of the Second World War were characterised by carpet bombing of cities, primarily targeting civilians and culminating in the use of nuclear weapons in Japan, the rule of distinction between civilians and combatants dates to the mid-19th century. The Lieber Code released in 1863 governing the conduct of the Union Army in the American Civil War contained this statement:

> Art. 22. Nevertheless, as civilization has advanced during the last centuries, so has likewise steadily advanced, especially in war on land, the distinction between the private individual belonging to a hostile country and the hostile country itself, with its men in arms. The principle has been more and more acknowledged that the unarmed citizen is to be spared in person, property, and honor as much as the exigencies of war will admit.[29]

Five years later, the next statement of the principle of distinction was contained in the St. Petersburg declaration of 1868 which stated that 'the only legitimate object which States should endeavour to accomplish during war is to weaken the military forces of the enemy'.[30] It also importantly stated that 'this object would be exceeded by employment of arms which uselessly aggravates the suffering of disabled men, or render their death inevitable'.[31] The importance of this declaration to international humanitarian law was discussed in *Ryuichi Shimoda et al. v. The State (1963),* an action

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[29] General Orders No. 100, *Instructions for the Government of Armies of the United States in the Field,* prepared by Francis Lieber, promulgated by President Lincoln, 24 April 1863, as cited in Dietrich Schindler and Jiri Toman, *The Laws of Armed Conflicts* (Martinus Nijhoff, 1988), 3-23.

[30] *Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight*, St. Petersburg, (entered into force 11 December 1868).

[31] Ibid.

brought by survivors of the Hiroshima and Nagasaki bombings and resulted in a finding by a Tokyo court that as at the time of the bombings the nuclear attacks were unlawful as they violated the rule of distinction.[32] The court stated:

> International law of war is not formulated simply on the basis of humanitarian feelings. It has as its basis both considerations of military necessity and effectiveness and humanitarian considerations, and is formulated on a balance of these two factors. To illustrate this, an example often cited in the textbooks may be given, of the provisions of the St. Petersburg Declaration of 1868 prohibiting the use of projectiles under 400 grammes which are either explosive or charged with combustible or inflammable substances. The reason for the prohibition is explained as follows: such projectiles are small and just powerful enough to kill or wound only one man, and as an ordinary bullet will do for this purpose, there is no overriding need for using these inhuman weapons. On the other hand, the use of a certain weapon, great as its inhuman result may be, need not be prohibited by international law if it has a great military effect.[33]

The Hague Conventions of 1899 and 1907 'relative to the laws and customs of war' did not specifically mention the rule of distinction but importantly declared that there was a prohibition against 'the attack or bombardment, by whatever means, of towns, villages, dwellings, or buildings which are undefended'.[34] Also, importantly the Regulations attached to the 1899 and 1907 Convention specified:

> Art. 22. The right of belligerents to adopt means of injuring the enemy is not unlimited.
> Art. 23. In addition to the prohibitions provided by special Conventions, it is especially forbidden;
> (a) To employ poison or poisoned weapons; ….
> (e) To employ arms, projectiles, or material calculated to cause unnecessary suffering;[35]

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[32] *Ryuichi Shimoda, et al. v The State*, Tokyo District Court, 7 December 1963, [1964] 8 *Japanese Annual of International Law* 212.

[33] Ibid.

[34] *Hague Convention II Laws and Customs of War on Land*, The Hague, 29 July 1899; *Convention IV Respecting the Laws and Customs of War and its Annex: Regulations Concerning the Laws and Customs of War on Land*, The Hague (1910) UKTS 10.

[35] Ibid.

Further efforts were made prior to World War II to refine these concepts. In 1923, a group of experts drafted what were called the Hague Rules on Aerial Warfare.[36] The critical section related to aerial bombardment and states that 'aerial bombardment to terrorise the civilian population, or to destroy or damage private property is prohibited. Military objectives were defined as objects 'of which the destruction or injury would constitute a distinct military advantage to the belligerent'.[37] At the time of their drafting, the Hague Rules were not immediately accepted by the international community but they are now regarded as 'an authoritative attempt to clarify and formulate rules of law governing the use of aircrafts in war and a convenient starting point for any future steps in this direction'.[38]

As a result of three separate incidents, the Italian invasion of Ethiopia, the German intervention in the Spanish civil war and the Japanese invasion of China, in 1938 the League of Nations unanimously adopted a resolution that recognised three principles of international law applicable to air warfare. It is argued that this resolution was inspired by the Hague Rules.[39] The three principles were that: (1) direct attacks against the civilian population are unlawful; (2) targets for air bombardment must be legitimate, identifiable military objectives; and (3) reasonable care must be taken in attacking military objectives to avoid bombardment of a civilian population in the neighborhood.[40] Notwithstanding this brave declaration, all of the warring parties in the Second World War disregarded these principles.

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[36] Rules concerning the Control of Wireless Telegraphy in Time of War and Air Warfare, drafted by a Commission of Jurists at The Hague, December 1922 – February 1923, never adopted [hereinafter 1923 Hague Rules], reprinted in Adam Roberts and Robert Guelff, *Documents on the Laws of War* (Oxford University Press, 3rd ed, 2000) 139.

[37] Ibid art 24(1).

[38] Lassa Oppenheim, *International Law: A Treatise*, *Vol. II, 7th ed*. (Longmans, Green and Co., 1952) 519, cited in Horace B Robertson Jr., 'The Principle of the Military Objective in the Law of Armed Conflict' (1998) 72 *U.S. Naval War College International Law Studies* 197.

[39] Alexandra Boivin, 'The Legal Regime Applicable to Targeting Military Objectives in the Context of Contemporary Warfare' (2006) 2 *Research Paper Series, University Centre for International Humanitarian Law* 9.

[40] Roberts and Guelff, above n 36, 140.

The development of what was called 'Hague Law' suffered a set-back in the post war negotiations for a comprehensive convention on the law of armed conflict. Boivin argues that nuclear weapons created a 'massive political obstacle to dealing with rules governing the conduct of hostilities at the 1949 Diplomatic Conference'.[41] As the nuclear powers were determined to not allow a ban on nuclear weapons, it has been reported that the Conference 'had to abandon its attempt to deal seriously with the rules on the conduct of hostilities, in particular air raids, as it was difficult to see how this could be done without broaching the issue of nuclear weapons'.[42] Therefore, the Geneva Conventions only contained provisions dealing with protections of specific objects such as hospitals, ambulances and safety zones.[43]

The codification of the principle of distinction did not take place until Additional Protocol I to the Geneva Conventions of 1977, a treaty regrettably not universally ratified. The negotiations for this Convention began in 1974 against the backdrop over the concern about the indiscriminate bombing that had taken place in Vietnam particularly characterised by the use of napalm. Importantly, the parties to the negotiating conference had major issues with respect to the issue of nuclear weapons with the nuclear weapons states particularly aiming to ensure that none of these provisions applied to nuclear weapons. They were not successful in that approach but Kalshoven summarises the understanding that emerged:

> Additional Protocol I does not purport to prohibit the use of nuclear weapons, and neither does it lay down any further restrictions on such use than already result from pre-existent rules and principles of the law of armed conflict (and which were reaffirmed in the Protocol). Without **any** attempt at completeness, the following items may be listed among the 'new law' which on account of its novelty remains inapplicable to the use of nuclear weapons: the 'ecological

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41 Boivin, above n 39, 10.

42 Yves Sandoz, 'Role of the ICRC in the Evolution and Development of International Humanitarian Law' in Jana Hasse, Erwin Müller and Patricia Schneider (eds), *Humanitäres Völkerrecht, Nomos Verlagsgesellschaft*, (Baden-Baden, 2001) 110, 115-116.

43 *Geneva Convention IV Relative to the Protection of Civilian Persons in Time of War*, 12 August 1949, 75 UNTS 287, arts 14, 15, 18, 19, 21-23.

> principle' ... which protects the natural environment from 'widespread, long- term and severe damage'; the sophisticated rules in Article 57 of the Protocol, elaborating the customary principle of proportionality in the protection of the civilian population; and last but not least, the prohibition of reprisals against the civilian population and civilian objects, as now laid down in various paragraphs of Articles 51 to 56 of the Protocol.[44]

This did not include the pre-existing rules that were now codified, particularly the rule of distinction. The main rule is set out in Article 48:

> In order to ensure respect for and protection of the civilian population and civilian objects, the Parties to the conflict shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives.[45]

The official commentary to this article indicates that this article is 'the foundation on which the codification of the laws and customs of war rests'. The primary purpose is the respect and protection of the civilian population and civilian objects. This system was established in The Hague in 1899 and 1907 and in Geneva from 1864 to 1977 and is argued to be 'founded on this rule of customary law'.[46] Therefore, the argument is that this provision is merely a codification of customary international law.

It is article 51 however, that provides true specificity to the rule and thus it resonates in the debate concerning nuclear weapons. Due to its importance the relevant sections are set out in full:

> Art 51. - Protection of the civilian population…

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[44] As cited in the *Written statement of the Government of the United Kingdom*, International Court of Justice, above n 1.

[45] *Protocol I Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts*, 8 August 1977, 1125 UNTS 3.

[46] International Committee of the Red Cross, *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949*, <http://www.icrc.org/ihl.nsf/WebList?ReadForm&id=470&t=com>.

> 2. The civilian population as such, as well as individual civilians, shall not be the object of attack. Acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited.
> …4. Indiscriminate attacks are prohibited. Indiscriminate attacks are:
> (a) those which are not directed at a specific military objective;
> (b) those which employ a method or means of combat which cannot be directed at a specific military objective; or
> (c) those which employ a method or means of combat the effects of which cannot be limited as required by this Protocol; and consequently, in each such case, are of a nature to strike military objectives and civilians or civilian objects without distinction.
> 5. Among others, the following types of attacks are to be considered as indiscriminate:
> (a) an attack by bombardment by any methods or means which treats as a single military objective a number of clearly separated and distinct military objectives located in a city, town, village or other area containing a similar concentration of civilians or civilian objects; and
> (b) an attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.
> 6. Attacks against the civilian population or civilians by way of reprisals are prohibited…[47]

These rules codify the critical elements of the rule of distinction and attacks. Most particularly subsections 2, 4 and 5 and 6 have direct relevance to the use of nuclear weapons. It can be argued that use of most nuclear weapons in armed conflict are the types of attacks that: (a) cannot discriminate between civilian and military objectives because of the nature of the weapon and (b) bombardment which cannot discriminate because of the extent of the effects of nuclear weapons and (c) the use of nuclear weapons could constitute attacks by way of reprisals. The official commentary argues that this is one of the most important articles in the Convention and that it 'explicitly confirms the customary rule that innocent civilians must be kept outside hostilities as far as possible and enjoy general protection against danger arising from hostilities'.[48] Once again

[47] *Protocol I Additional to the Geneva Conventions of 12 August 1949,* above n 45.

[48] *Commentary on the Additional Protocols of 8 June 1977*, above n 46.

there is a view put forward by the commentary that this article is already the codification of custom.[49]

Article 51(2) prohibits acts or threats of violence the primary purpose of which is to spread terror amongst the population. The official commentary on this provision acknowledges that acts of violence related to a state of war almost always give rise to some degree of terror. However, this provision is intended to prohibit acts of violence where the primary purpose is to spread terror among the civilian population without offering significant military advantage.[50] The commentary specifically notes the prohibition against threatening such an act. Threats of nuclear annihilation must surely fall within this category.

The official commentaries regarding 51(4) are also very pertinent this debate. The first comment on this article argues the importance of the provision confirming the unlawful character of 'certain regrettable practices' during World War II and subsequent conflicts where the purpose of the attack was 'to destroy all life in a particular area or to raze a to the ground' without any 'substantial military advantages'.[51] The commentary with respect to 51(4)(b) is relevant as it states this section refers to weapons such as 'long-range missiles which cannot be aimed exactly at the objective'.[52] It gives the example of the V2 rockets at the end of World War II as an example as they often did not strike the intended target.[53] This argument runs perilously close to nuclear weapons.

Again the commentary with respect to 51(4)(c) is also relevant to our discussion here. The commentators indicate that there are some means of warfare of which the effects cannot be limited in any circumstances. An example given is of a 10-ton bomb used to destroy a single building. In that case it is argued that it is inevitable

[49] Ibid.
[50] Ibid.
[51] Ibid.
[52] Ibid.
[53] Ibid.

that the effects will be very extensive and 'will annihilate or damage neighbouring buildings'. Other examples are methods, which by their very nature have an indiscriminate character such as poisoning wells and bacteriological warfare.[54] States made statements that the provision does not mean that there are means of combat of which the use would constitute an indiscriminate attack in all circumstances. The commentary pointed out that the states making these statements were 'concerned with nuclear weapons'. However, it can be argued that it is evident that tactical nuclear weapons can be both destructive, and, have the poisoning the wells type of effect.

Although 51(5)(a) on the prohibition against comprehensive bombardment (known in jargon as carpet bombing), may be relevant to the consideration of the use of nuclear weapons generally, it does not appear relevant to the argument of battlefield nuclear weapons directed against a singular military objective. However, the second part of that provision 51(5)(b) is pertinent as it is the prohibition against attacks, which have excessive effects in relation to the concrete and direct military advantage anticipated. The commentary to this provision clarifies that an attack must be directed against a military objective with means that are not disproportionate to the objective but are suited to destroying only that objective. This is an effort to limit the effects of the attack as 'incidental civilian losses and damages must not be excessive'.[55] One can argue by implication that a conventional attack would be less likely to cause this type of excessive damage.

These provisions seem to resolve many of the issues here but unlike the four Geneva Conventions of 1949 there is not universal acceptance of the Additional Protocols of 1977. Nuclear weapon states such as the United States, India, Pakistan and Israel are notable for their lack of accession or ratification of the treaty and it seems unlikely the United States in particular, will ever agree to all

[54] Ibid.
[55] Ibid.

of the provisions.[56] Given the controversy regarding the ratification of Additional Protocols I and II, the International Committee of the Red Cross directed that their legal department undertake a study of the rules of customary humanitarian law, which would be binding on all states.[57] The study was released in 2005 and proposed a series of 161 customary rules.[58] The first part of the rules discussed the rules respecting the distinction between civilians and combatants. It is very important to view these proposed customary rules on the rules of distinction, as they are most relevant to our discussion.

The first rule in this landmark study states:

> The parties to the conflict must at all times distinguish between civilians and combatants. Attacks may only be directed against combatants. Attacks must not be directed against civilians.[59]

It seems from the discussion of this rule by any number of experts that there is a general acceptance that this rule is customary.[60] In the commentary to the rule the drafters relied on the statement in the *Nuclear Weapons* Advisory Opinion that the principle of distinction was one of the 'cardinal principles' of international humanitarian law and one of the 'intransgressible principles of international customary law'.[61] American humanitarian law expert Michael Schmitt in his discussion of the rules relevant to targeting argues that Rule 1 'unquestionably represents accepted customary law' and he congratulates the writers of the study for the use of the word 'attacks'; rather than operations as the prior word caused confusion.[62]

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[56] For a history of the United States objections see Gary Solis, *The Law of Armed Conflict: International Humanitarian Law in War* (Cambridge University Press, 2010) 121-129.

[57] Henckaerts and Doswald-Beck, above n 7, Introduction.

[58] Ibid.

[59] Ibid ch 1.

[60] Ibid.

[61] Ibid.

[62] Michael Schmitt, 'The law of targeting' in Elizabeth Wilmshurst and Susan Breau, *Perspectives on the ICRC Study on Customary International Humanitarian Law* (Cambridge University Press, 2007) 136-139.

Rule 2 states that 'Acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited'.[63] The commentary to the rule gives examples of the violation of this prohibition, which includes offensive support or strike operations aimed at spreading terror among the civilian population, indiscriminate and widespread shelling and the regular bombardment of cities.[64] The study points to the International Criminal Tribunal for Yugoslavia's Judgment in the *Galić case* in 2003, where the Trial Chamber found the accused guilty of 'acts of violence the primary purpose of which is to spread terror among the civilian population, as set forth in Article 51 of Additional Protocol I, as a violation of the laws or customs of war under Article 3 of the Statute of the Tribunal'.[65]

The rule of distinction is further refined by Rule 7 in the Customary Study, which states:

> The parties to the conflict must at all times distinguish between civilian objects and military objectives. Attacks may only be directed against military objectives. Attacks must not be directed against civilian objects.[66]

Once again this rule is generally accepted even amongst non-party States to Additional Protocol I.[67] Schmitt, with reference to rule 7, states that 'it is a cardinal principle of international humanitarian law according to the ICJ and its characterisation as custom cannot be seriously doubted'.[68] The drafters of the commentary make an important clarification to the rule that would apply equally to the provisions of the Additional Protocol. The commentary indicated that several states have made the statements that Article 52(2) of Additional Protocol I provides that 'attacks shall be limited strictly

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63 Henckaerts and Doswald-Beck, above n 7, ch 1.

64 Ibid.

65 Ibid; *Prosecutor v. Stanislav Galić*, (International Criminal Tribunal for the Former Yugoslavia, Case No. IT-98-29-T, Judgement and Opinion, 5 December 2003) [769].

66 Henckaerts and Doswald-Beck, above n 7, ch 2.

67 Ibid.

68 Schmitt, above n 62, 145.

to military objectives' only prohibits direct attacks against civilian objects and does not deal with the question of incidental damage resulting from attacks directed against military objectives.[69] This is often labelled as 'collateral damage'. The commentary agrees with the statement 'that an attack which affects civilian objects is not unlawful as long as it is directed against a military objective and the incidental damage to civilian objects is not excessive'.[70] This statement also points to the debate concerning proportionality, another cardinal principle of international humanitarian law, but one meriting lengthy discussion on its own with respect to nuclear weapons and will have to be the subject of further analysis.

The customary study also goes further in Rule 11 stating 'Indiscriminate attacks are prohibited'.[71] These are defined in rule 12 as those (a) which are not directed at a specific military objective; (b) which employ a method or means of combat which cannot be directed at a specific military objective; or (c) which employ a method or means of combat the effects of which cannot be limited as required by international humanitarian law.[72] These rules are identical to the important provisions in Article 51(4). Schmitt in his analysis of these two rules states that '[t]here can be no doubt that Rules 11 and 12 reflect the customary textual expressions of that norm'.[73] The commentary to this rule stated that:

> In their pleadings before the International Court of Justice in the *Nuclear Weapons case* and *Nuclear Weapons (WHO) case*, several States invoked the prohibition of indiscriminate attacks in their assessment of whether an attack with nuclear weapons would violate international humanitarian law.[74]

It is particularly parts b and c of this rule, which are of interest in considering the legality of the employment in battle of nuclear weapons. Firstly, the commentary on part b states that '[t]he

69 Henckaerts and Doswald-Beck, above n 7, ch 2.
70 Ibid.
71 Ibid ch 3.
72 Ibid.
73 Schmitt, above n 62, 152.
74 Ibid.

prohibition of weapons which are by nature indiscriminate, which is applicable in both international and non-international armed conflicts, is based on the definition of indiscriminate attacks contained in Rule 12(b)'. Rule 12(c) is based on the logical argument that means or methods of warfare whose effects cannot be limited as required by international humanitarian law should be prohibited. The commentary argues that '[p]ractice in this respect points to weapons whose effects are uncontrollable in time and space and are likely to strike military objectives and civilians or civilian objects without distinction'.[75] The commentary points to a United States Air Force Pamphlet giving the example of biological weapons.[76] It is argued that though 'biological weapons might be directed against military objectives, their very nature means that after being launched their effects escape from the control of the launcher and may strike both combatants and civilians and necessarily create a risk of excessive civilian casualties'. Surely the same applies to nuclear weapons of whatever variety.

Finally, Rule 13 is relevant stating:

> Attacks by bombardment by any method or means which treats as a single military objective a number of clearly separated and distinct military objectives located in a city, town, village or other area containing a similar concentration of civilians or civilian objects are prohibited.

This rule based on the provisions in Additional Protocol I 51(5) (a) in direct response to the type of carpet bombing and blitzkrieg that characterised World War II and Vietnam. One could also argue that the use of nuclear bombs in Hiroshima and Nagasaki violated this rule as is confirmed in the discussion of bombardment of undefended cities in the *Shimoda* decision.[77] Importantly support for this rule is evidenced by a statement of the United States at the Diplomatic Conference leading to the adoption of the Additional

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[75] Ibid.

[76] Ibid.

[77] *Ryuichi Shimoda, et al. v The State*, Tokyo District Court, 7 December 1963, [1964] 8 *Japanese Annual of International Law* 212.

Protocols that the words 'clearly separated' required a distance 'at least sufficiently large to permit the individual military objectives to be attacked separately'.[78]

It can be safely concluded that the rule of distinction is not controversial thus it is indeed a cardinal rule of international law. This is specifically supported in Australia in its military manual. Australia's LOAC Manual (2006) states:

> … LOAC establishes a requirement to distinguish between combatants and civilians, and between military objectives and civilian objects. This requirement imposes obligations on all parties to a conflict to establish and maintain the distinction. An extension of the general rule for the protection given to civilians is that indiscriminate attacks, that is, attacks not directed at military targets but likely to strike at both military and civilian targets without distinction, are forbidden.[79]

The Manual also states that indiscriminate attacks are those, which 'involve use of a weapon that cannot be directed against a specific military objective'. The manual further indicates that acts committed in violation of the provisions are grave breaches of international humanitarian law.[80]

III LOW YIELD BATTLEFIELD NUCLEAR WEAPONS AND THE RULE OF DISTINCTION

The law with respect to the use of nuclear weapons is not nearly as developed as the general rule of distinction. Even though there are treaties on the regulation of nuclear weapons, there is no treaty in existence that outlaws their use. The Convention on Conventional

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78 Henckaerts and Doswald-Beck, above n 7, ch 3.

79 Australia, *Law of Armed Conflict Manual 2006*, as quoted in International Committee of the Red Cross, *Customary Humanitarian Law database: Practice*, <http://www.icrc.org/customary-ihl/eng/docs/home>.

80 Ibid.

Weapons (CWC) specifically excludes nuclear weapons.[81] The major legal consideration of tactical nuclear weapons took place in the *Nuclear Weapons Advisory Opinion.* The argument made by the United Kingdom that is possible to use battlefield nuclear weapons that only target military personnel and equipment and thus, this use would not violate the rule of distinction in international humanitarian law was made strongly in the *Legality of the Threat or Use of Nuclear Weapons* Advisory Opinion (hereafter *Nuclear Weapons* Advisory Opinion).[82] These weapons are known as 'tactical nuclear weapons' or 'low-yield battlefield nuclear weapons'.[83] These 'low-yield' nuclear weapons, were defined before the International Court of Justice from the Joint Chiefs of Staff's manual *Doctrine for Joint Theater Nuclear Operations*: as: very low (less than 1 kiloton); low (1 kiloton to 10 kilotons); medium (over 10 kilotons to 50 kilotons); high (over 50 kilotons to 500 kilotons); and very high (over 500 kilotons).[84] The United Kingdom made the following argument with respect to these types of weapons in their statement to the International Court of Justice in the *Nuclear Weapons* Advisory Opinion.

> The reality…is that nuclear weapons might be used in a wide variety of circumstances with very different results in terms of likely civilian casualties. In some cases, such as the use of a low yield nuclear weapon against warships on the High Seas or troops in sparsely populated areas, it is possible to envisage a nuclear attack which caused comparatively few civilian casualties. It is by no means the case that every use of nuclear weapons against a military objective would inevitably cause very great collateral civilian casualties.[85]

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[81] *United Nations Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be excessively injurious or to have Indiscriminate Effects*, Geneva 10 October 1980, 1342 UKTS 137.

[82] *Written statement of the Government of the United Kingdom*, International Court of Justice, above n 1.

[83] Van Herpen, above n 9, 10.

[84] United States Joint Chiefs of Staff, *Doctrine for Joint Theater Nuclear Operations,* 9 February 1996, glossary 3, <http://www.fas.org/nuke/guide/usa/doctrine/dod/jp3_12_1.pdf>.

[85] *Written statement of the Government of the United Kingdom*, International Court of Justice, above n 1.

The majority of the Court refused to rule on this issue stating:

> The Court would observe that none of the States advocating the legality of the use of nuclear weapons under certain circumstances, including the 'clean' use of smaller, low yield, tactical nuclear weapons, has indicated what, supposing such limited use were feasible, would be the precise circumstances justifying such use; nor whether such limited use would not tend to escalate into the all-out use of high yield nuclear weapons. This being so, the Court does not consider that it has a sufficient basis for a determination on the validity of this view.[86]

This issue is very much still on the international agenda as in May 2011 it was announced that Pakistan had tested a missile able to carry short range low-yield tactical nuclear weapons. Experts argued that this meant that Pakistan intended to use battlefield nuclear weapons in the event of an armed conflict with India.[87]

This was echoed by the written statement of the United States:

> It has been argued that nuclear weapons are unlawful because they cannot be directed at a military objective. This argument ignores the ability of modern delivery system to target specific military objectives with nuclear weapons and the ability of modern weapons designers to tailor the effects of a nuclear weapon to deal with various types of military objectives. Since nuclear weapons can be directed at a military objective, they can be used in a discriminate manner and are not inherently indiscriminate.[88]

Regrettably, the Advisory Opinion seems to accept this view and states:

> 95. …as the Court has already indicated, the principles and rules of

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[86] *Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion)*, above n 4, [94].

[87] 'Pakistan builds low yield nuclear capability', *Dawn.com,* 15 May 2011, <http://dawn.com/news/628869/pakistan-builds-low-yield-nuclear-capability-concern-grows>.

[88] *Written statement of the Government of the United States of America,* International Court of Justice, above n 1.

> law applicable in armed conflict – at the heart of which is the overriding consideration of humanity – make the conduct of armed hostilities subject to a number of strict requirements. Thus, methods and means of warfare, which would preclude any distinction between civilian and military targets, or which would result in unnecessary suffering to combatants, are prohibited. In view of the unique characteristics of nuclear weapons, to which the Court has referred above, the use of such weapons in fact seems scarcely reconcilable with respect for such requirements. Nevertheless, the Court considers that it does not have sufficient elements to enable it to conclude with certainty that the use of nuclear weapons would necessarily be at variance with the principles and rules of law applicable in armed conflict in any circumstance.[89]

'Scarcely reconcilable' is certainly a disappointing statement and does not go far enough in clarifying this important issue. In his dissenting opinion Judge Weeramantry did not have the same difficulty in an unequivocal statement about the rule of distinction and nuclear weapons.

> The principle of discrimination originated in the concern that weapons of war should not be used indiscriminately against military targets and civilians alike. Non-combatants needed the protection of the laws of war. However, the nuclear weapon is such that non-discrimination is built into its very nature. A weapon that can flatten a city and achieve by itself the destruction caused by thousands of individual bombs is not a weapon that discriminates. The radiation it releases over immense areas does not discriminate between combatant and non-combatant, or indeed between combatant and neutral States.[90]

In examining the contentions put to the court by the nuclear powers, the United States and the United Kingdom, reliance was clearly placed on the possibility of using 'clean' low yield nuclear weapons. But surely the court did then, and we certainly do now, have the ability to assess the assertion that even these types of nuclear weapons are incapable of complying with both the treaty provisions in Additional Protocol I and the customary humanitarian law rules?

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89 *Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion)*, above n 4 [95].

90 Ibid 499 (Dissenting Opinion of Judge Weeramantry).

In fact one could argue that the United Kingdom and the United States managed to avoid a blanket statement of prohibition under international humanitarian law by the court because of this argument. Persuading the court that there was a possible use of nuclear weapons that could be imagined prevented an unequivocal statement by the majority. In an excellent analysis of the United States' position, it has been argued that the primary defence of the United States was that they had low yield nuclear weapons 'the effects of which it can control' and argued that it was a plausible scenario that a 'small number of accurate attacks by low-yield weapons against an equally small number of military targets in nonurban areas'.[91] They argue however that this argument at the time was disingenuous as the US arsenal was made up predominately of high-yield nuclear weapons.[92] Nevertheless, it is necessary to address the effects of these tactical nuclear weapons in light of more recent scientific analysis.

It is evident that more reliance was placed on the scientific debate on the nature of nuclear technology in the dissenting opinions than the judgement. Justice Koroma for example, spent a portion of his dissent recounting the tragic evidence of the effects of the bombing of Hiroshima.[93] However, the court did not have before it specific evidence of the possible effects of low-yield tactical weapons even though that evidence exists.

However, it was Judge Weeramantry that considered in detail the scientific evidence. He agreed with a general statement concerning nuclear weapons that '[a] characteristic of the weapons of mass destruction - the ABC weapons - is that their destructive effect cannot be limited in space and time to military objectives. Consequently their use would imply the extinction of unforeseeable

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[91] Charles Moxley, John Burroughs and Jonathan Granoff, 'Nuclear Weapons and Compliance with International Humanitarian Law and the Nuclear Non-Proliferation Treaty' (2010-2011) 34 *Fordham International Law Journal* 595, 646.

[92] Ibid.

[93] *Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion)*, above n 4, 566-568 (Judge Koroma dissent)

and indeterminable masses of the civilian population'.[94] He relies on a statement from the United States Atomic Energy Commission which states that the difference between nuclear weapons and other bombs is:

> [F]irst, the amount of energy released by an atomic bomb is a thousand or more times as great as that produced by the most powerful TNT bombs; *secondly,* the explosion of the bomb is accompanied by highly penetrating and deleterious invisible rays, in addition to intense heat and light; and, *thirdly,* the substances which remain after the explosion are radio-active, emitting radiations capable of producing harmful consequences in living organisms.[95]

He carefully considers the future impact of the use of nuclear weapons including long term environmental damage, the possibility of a nuclear winter, and the long term effects on people of radiation sickness including keloids and cancers, and more immediate effects including anorexia, diarrhoea, cessation of production of new blood cells, haemorrhage, bone marrow damage, damage to the central nervous system, convulsions, vascular damage, and cardio- vascular collapse.[96] He concludes that based on the volume of scientific evidence available that the use of nuclear weapons, by the very nature of the weapon could not be compatible with the rules of international humanitarian law including the rules of distinction.[97]

Scientific debate since the release of this opinion in 1996 and specific response to low yield tactical nuclear weaponry seems to agree with the dissenting judges in the advisory opinion. In an

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94 Ibid (Judge Weeramantry dissent, quoting Géza Herczegh, *Development of International Humanitarian Law,* 93). 'ABC weapons' refer to atomic, biological and chemical weapons.

95 Ibid (Judge Weeramantry dissent, quoting *Effects of Atomic Weapons,* prepared by the United States Atomic Energy Commission in co-operation with the Department of Defense, 1950, cited in Nagendra Singh and Edward McWhinney, *Nuclear Weapons and Contemporary International Law,* (Martinus Nijhoff, 1989) 30).

96 Ibid (Judge Weeramantry dissent, quoting Herbert Abrams, 'Chernobyl and the Short-Term Medical Effects of Nuclear War', in Proceedings of the IPPNW Congress, 12).

97 Ibid 277-279.

interesting article for Science and Global Security, Nelson responds to the argument concerning the safety to civilians of 'low-yield, earth-penetrating, nuclear weapons'.[98] He takes issue with the assertions that because these weapons are designed to explode deep underground that they will produce 'minimal collateral damage' and could be used near heavily populated areas. He argues on the contrary that 'EPW's cannot penetrate deeply enough to contain the nuclear explosion and will necessarily produce an especially intense and deadly radioactive fallout'.[99] The US scientists allegedly argue that these small nuclear weapons are necessary to destroy 'hardened underground command bunkers and storage sites for chemical or biological weapons'.[100]

Importantly there is also discussion of a 'clean' nuclear weapon that will not cause radioactive fallout. Michael Levi wrote a commentary in Nature in 2004 entitled 'Dreaming of Clean Nukes'.[101] He was responding to a report from the Defense Science Board, which had recommended construction of nuclear weapons that could attack underground facilities and effective weapons with reduced fallouts. Once again Levi argues that the scientific assumptions are 'unsound'. The major argument Levi makes is that these bombs would have to have a 5 to 15 fold increase in their suggested power to actually destroy the underground bunker and therefore containment would be impossible.[102] He interestingly suggests that nuclear weapons development should be subject to the same intense competition and scrutiny and, if so, the case in favour of these weapons would be hard to make. If they are not contained, then the radiation would be released into the atmosphere.[103]

Tien argues that an explosion of any nuclear weapon emits 'thermal radiation; producing tens of millions of degrees rather than

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98 Robert W Nelson, 'Low-Yield, Earth Penetrating Nuclear Weapons' (2002) 10 *Science and Global Security* 1.
99 Ibid 1, 18.
100 Ibid.
101 Levi, above n 8.
102 Ibid 892.
103 Ibid 892.

the few thousands in a conventional explosion. Furthermore, the nuclear radiation causes genetic defects and illness even to future generations and can damage the environment, food and marine ecosystem.[104] Tien uses the example of the nuclear weapons tests in the Marshall Islands that took place from 1946 to 1958, which caused extensive radiation sickness, deaths, and birth defects.[105] Even if a nuclear weapon could be targeted at a military target miles away from any civilians, the radioactive fallout and radionuclides are 'indiscriminate, uncontrollable and unpredictable'.[106]

This writer cannot engage in the scientific reasoning but the mere fact that there is a scientific controversy over radioactive fallout is a cause for serious concern. Surely we do not need to insist on proof beyond a reasonable doubt but a mere balance of probabilities that these weapons could produce these types of effects is enough. One has to agree with the assertion that the use of these weapons would potentially be precluded because virtually any military objective these weapons may be targeted at could also be addressed by conventional weapons and thus their use would be prohibited by the rules of necessity and proportionality and the rule against excessive damage in Article 51(5)(b).[107] And with respect to the rule of distinction the likely effects of 'counter-strike and escalation', which could involve civilians.[108]

There is case law that is also of assistance in determining whether these specific smaller nuclear weapons can violate the fundamental rule of distinction. In *The Prosecutor v. Martic,* the International Criminal Tribunal for the Former Yugoslavia considered whether the use of Orkan rockets was indiscriminate.[109] They were described as being equipped with 288 bomblets each of which propelled jagged

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[104] Lipin Tien, 'On the Legality of the Development of Nuclear Weapons' (2011) 6 *National Taiwan University Law Review* 521, 525-526.
[105] Ibid 526-527.
[106] Ibid 549.
[107] Moxley, Burroughs and Granoff, above n 91, 660.
[108] Ibid 661.
[109] *Prosecutor v. Martic*, (International Criminal Tribunal for the Former Yugoslavia, Case No. IT-95-11-1, Trial Judgment, 8 March 1996) 30.

bits of metal and 400 small steel spheres in every direction.[110] The Court held relying on Additional Protocol 51(4)(b) that the attacks using this weapon were indiscriminate. The Court ruled similarly in *The Prosecutor v. Blaskic,* ruling that attacks using a booby-trapped tanker had employed indiscriminate 'means and methods'.[111]

In 2010, the parties to the Non-Proliferation Treaty, including the United States and the United Kingdom, unanimously reaffirmed 'the need for all States at all times to comply with applicable international law, including international humanitarian law'.[112] Therefore, if these weapons as indicated above, do not comply with the primary rules, then they cannot be used and by logical conclusion should not be developed.

IV THE RULE OF DISTINCTION – THE TEMPORAL ELEMENT

One part that is missing from the commentaries to the rule of distinction and in the rules and treaty provisions themselves is a clarification of the temporal element. Surely international humanitarian law has to consider the impact of the use of nuclear weapons on succeeding generations. As Weeramantry stated:

> When incontrovertible scientific evidence speaks of pollution of the environment on a scale that spans hundreds of generations, this Court would fail in its trust if it did not take serious note of the ways in which the distant future is protected by present law.

In his dissent Judge Shahabudden addressed the temporal issue. He states that the radiation effects over time are devastating. He argued

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[110] Ibid.

[111] See *Prosecutor v. Blaskic*, (International Criminal Tribunal for the Former Yugoslavia, Case No. IT-95-14-T, Trial Judgment, 3 March 2000) [787].

[112] *2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, 3–28 May 2010, Final Document,* UN Doc NPT/CONF.2010/50 (Vol I) (2010) pts 1, 19.

that to classify these effects as being merely a by-product was not the point as they could be just as extensive, if not more no than those immediately caused by blast and heat. They would cause 'unspeakable sickness followed by painful death, affect the genetic code, damage the unborn, and can render the earth uninhabitable'.[113]

As up to this point there has not been use of battlefield nuclear weapons, but there are two other examples of the long-term impact of the use of nuclear technology, which can be analysed. Firstly there is the extensive testing of nuclear weapons in the atmosphere and secondly, the continual use of nuclear material-depleted uranium in weaponry in the conflicts in Kosovo, Afghanistan and Iraq. One example may be of larger yield weaponry than what is being contemplated here but the nuclear material is certainly of a lesser grade. Both seems to have caused serious environmental and health consequences.

Testing of nuclear weapons took place most heavily in the 1950s and 1960s. Weeramantry relied on evidence of birth defects caused by nuclear radiation that remained in Pacific Islands from this testing. This included horrific evidence from Mrs. Lijon Eknilang from the Marshall Islands who advised the International Court of Justice of severe genetic abnormalities seen in newborn babies never seem before on that island until the atmospheric testing of nuclear weapons.[114] This was echoed in evidence from Vanuatu.[115] Another potential result from this type of testing is an increase in cancer levels. This is argued in relation to a specific South Australian example of environmental devastation occasioned by the extensive testing of nuclear weapons. The United Kingdom tested nuclear weapons between 1955 and 1963 at the Maralinga site in the Woomera Prohibited Area in South Australia.

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[113] *Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion)*, above n 4, 382 (Judge Shahabudden dissent).

[114] *Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion)*, above n 4, 462 (Judge Weeramantry dissent).

[115] Ibid 463.

The first was Operation Buffalo, a British nuclear weapons testing project in Maralinga part of the Woomera Prohibited zone. It began 27 September 1956. The operation consisted of the testing of four nuclear devices, codenamed *One Tree*, *Marcoo*, *Kite* and *Breakaway* respectively. *One Tree* (12.9 kilotons) and *Breakaway* (10.8 kilotons) were exploded from towers, *Marcoo* (1.4 kilotons) was exploded at ground level, and *Kite* (2.9 kilotons) was released by a bomber from a height of 35,000 feet.[116]

A second series of explosions took place in 1957 in the same location named Operation Antler. These tests were for thermonuclear explosions. There were three tests in September codenamed *Tadje*, *Biak* and *Taranaki*.[117] The McLelland Royal Commission was critical of these tests as personnel had to handle cobalt pellets and thus were later exposed to the active cobalt 60 and an 'unnecessary radiation hazard was created'.[118]

By the 1980s, Australian servicemen and traditional Aboriginal owners of the land were suffering blindness, sores and illnesses such as cancer. Groups including the Atomic Veterans Association and the Pitjantjatjara Council who pressured the government for action and in 1985 it agreed to hold a royal commission to investigate the damage that had been.[119] The whole course of Australian nuclear

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[116] Wayback Machine, *Nuclear Explosions from Great Britain 1945-1998*, (5 February 2003), <http://web.archive.org/web/20080206002959/http://www.seismo.ethz.ch/bsv/nuclear_explosions/great_britain.html>; Nuclear Weapon Archive, *Britain's Nuclear Weapons: British Nuclear Testing,* (23 August 2007), <http://nuclearweaponarchive.org/Uk/UKTesting.html>.

[117] Summary of the tests found at: *Nuclear Explosions from Great Britain 1945-1998,* above n 116; *Britain's Nuclear Weapons: British Nuclear Testing,* above n 116.

[118] Commonwealth, Royal Commission into British Nuclear Tests in Australia ('McClelland Royal Commission'), *Conclusions and Recommendations* (1985), [146], <http://www.ret.gov.au/resources/radioactive_waste/Documents/ROYAL%20COMMISSION%20INTO%20BRITISH%20NUCLEAR%20TESTS%20IN%20AUSTRALIA.pdf,.>.

[119] Friends of the Earth Australia, *Information about the flawed 'clean-up' of the Maralinga nuclear test site in the 1990s,* <http://www.foe.org.au/anti-nuclear/issues/oz/britbombs/clean-up>.

weapons testing came under criticism by the McClelland Royal Commission, which stated that the decision to allow these tests was made without 'the benefit of any scientific knowledge of the hazards involved'.[120] The commission also stated that the measures taken to protect persons against exposure to the harmful effects of radiation 'must be regarded as inadequate'.[121] In 2001, Dr. Roff a researcher from the University of Dundee released the results of her research uncovering documentary evidence that troops involved in Operation Buffalo had been ordered to run, walk and crawl across areas contaminated by the nuclear explosions in the days following the blasts.[122] She stated that 'it puts the lie to the British government's claim that they never used humans for guinea pig-type experiments in nuclear weapons trials in Australia'. [123]

Even in 1985, the Royal Commission determined that the area was still unsafe for the aboriginal people to return stating:

> 180. The following hazards must be dealt with before the Maralinga Range can be considered suitable for unrestricted access by Aborigines:
> (i) plutonium contamination at Taranaki, TM100, TM10l and Wewak;
> (ii) pits at Taranaki and TM10l containing plutonium-contaminated debris; and
> (iii) uranium and beryllium contamination at Kuli.[124]

And last year it was reported that ten years after Prime Minister Howard declared the clean-up of Maralinga to be completed, the Australian government has continued to 'support remediation work' at the former British nuclear weapons test site.[125]

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[120] 'McClelland' Royal Commission*,* above n 118, Conclusions [2].
[121] Ibid [53].
[122] Tony Jones, Interview with Sue Rabbit Roff on Lateline (ABC), 'Evidence uncovered about Maralinga experiment' (Television Interview, 11 May 2001) <http://www.abc.net.au/lateline/stories/s295331.htm>.
[123] Ibid.
[124] Ibid [180].
[125] Philip Dorling, 'Maralinga Sites need more repair work, files show', *The Age,* 12 November 2011, <,http://www.theage.com.au/national/maralinga-sites-need-more-repair-work-files-show-20111111-1nbpp.html#ixzz26hXQ5JId>.

Following similar action by the British government in 1988, the Australian government negotiated compensation for several Australian servicemen suffering from two specific medical conditions related to the exposure to radiation. There were leukaemia and a rare blood disorder multiple myeloma.[126] Furthermore, in 1994 the Australian Government agreed to a large compensation settlement with the Maralinga Aboriginal peoples of 13.5 million dollars in settlement of all claims in relation to the nuclear testing at that site.[127] Sadly the people still cannot return to their lands and it may be generations before the land is safe. The dissenting judgements of Koroma, Shahbudden and Weeramantry in the *Nuclear Weapons* Advisory Opinion, as stated above, discuss many more examples of long-term effects of nuclear testing but in all the discussion it is clear that the lasting impact on both human health and the environment is the lasting radiation caused by these weapons. This, according to the scientific evidence discussed above, would also be a by-product of the use of low-yield nuclear weapons.

Of course it can be argued that these sites were locations of major nuclear explosions and battlefield nuclear weapons will not cause the same kind of physical or environmental destruction. However, our second example illustrates that the debate does not end with the clean-up of former testing sites and extends to even small uses of nuclear products. This is the use of depleted uranium in weaponry. Depleted uranium is nuclear waste. The compound is used in armour piercing munitions (often used against tanks) because of its very high density. It is 1.7 denser than lead, and thus, depleted uranium weapons have increased range and penetrative power. These weapons are called 'kinetic energy penetrators'. The part of the weapons that is made of depleted uranium is a long dart weighing more than four kilograms and is called a penetrator.[128] The material is also used as armour in US M1A1 and M1A2 battle tanks and in small amounts in some tips of landmines and in antipersonnel

[126] Maralinga Class Action, *Afflictions,* <http://www.maralingaclassaction.com.au/web/page/illness>.
[127] Friends of the Earth Australia, above n 119.
[128] International Coalition to Ban Uranium Weapons, *Overview,* <http://www.bandepleteduranium.org/en/overview>.

landmine howitzer shells.[129]

Depleted uranium (DU) was used on a large scale by the US and the UK in the Gulf War in 1991, in Bosnia, Serbia and Kosovo, and again in the war in Iraq by the US and the UK in 2003.[130] It is suspected that the US also used DU in Afghanistan in 2001, although both the US and UK governments have denied using it there.[131] Allegations have been made that the use of this weaponry has caused severe health problems including a sharp increase in the incidence rate of some cancers, such as breast cancer and lymphoma in areas of Iraq following 1991 and 2003. It has also been implicated in a rise of birth defects from areas close to the main Gulf War battlefields.[132] Hulme argues that '[s]ince the United States and the United Kingdom first used depleted uranium weaponry in the 1991 Gulf conflict, a growing body of medical and scientific opinion has raised alarm bells as to the potential health and environmental effects of these weapons'.[133]

A good portion of the report of Prosecutor for the International Criminal Tribunal for Yugoslavia with respect to the intervention by the NATO powers in Kosovo in 1999 concerned the allegation that the bombing campaign had damaged the environment particularly with the use of depleted uranium and the targeting of industrial facilities such as chemical plants and oil installations.[134] The allegation with respect to depleted uranium was that the damage caused would result in future health hazards to the population. Regrettably the determination regarding depleted uranium as a possible future threat to health was not made by the Prosecutor as

[129] Ibid.

[130] Karen Hulme, 'Radiation Warfare: A Review of the Legality of Depleted Uranium Weaponry' (2005) 43 *Canadian Yearbook of International Law* 197, 197.

[131] International Coalition to Ban Uranium Weapons, above n 128.

[132] Hulme, above n 130,197, 212.

[133] Ibid 212.

[134] International Criminal Tribunal for Yugoslavia, Office of the Prosecutor, *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia,* (11 September 2012), <http://www.icty.org/sid/10052>.

the NATO powers would not provide information on the use of the substance. The United Nations Environment program (UNEP) also established a Balkans Task Force to examine the Kosovo campaign. The key conclusion there was that the Kosovo campaign had not caused an environmental catastrophe but notwithstanding that the Task force recommended that the international community should assist with the clean-up efforts as there was urgent humanitarian need.[135] In their recommendations on Depleted Uranium, the task force recommended that NATO confirm how and where DU was used and that the World Health Organisation make 'a thorough review of the effects on health of medium-and long-term exposure to depleted uranium'.[136]

It cannot be concluded then, that the issue of environmental damage has been determined with respect to the bombing campaign in Kosovo. Academics writing in this area have had to rely on media reports that about 12,000 shells filled with depleted uranium were used.[137] Ronzitti, in examining this section of the Prosecutor's report, agreed with the finding that depleted uranium as such was not prohibited by international law and it would be up to the international community to ban such weapons by treaty.[138] However, the report lacked any discussion about the principles of unnecessary suffering and distinction given the concern about the long-term effects of these weapons.[139] The International Committee of the Red Cross released a comment on depleted uranium munitions in which they cited Article 36 of Additional Protocol I. This article provides that any state is required to ensure that any new weapon, means or methods of warfare is not of a nature to cause superfluous injury or

[135] See UNEP, *The Kosovo Conflict: Consequences for the Environment & Human Settlements* (United Nations, 1999), 10, recommendations 72-79.

[136] Ibid 76.

[137] Sergey Egorov, 'The Kosovo crisis and the law of armed conflicts' (2000) 837 *International Review of the Red Cross* 183.

[138] Natalino Ronzitti, 'Is the non liquet of the Final Report by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia acceptable' (2000) 840 *International Review of the Red Cross* 1017.

[139] Eyal Benvenuti, 'The ICTY Prosecutor and the Review of the NATO Bombing Campaign against the Federal Republic of Yugoslavia' (2001) 12 *EJIL* 503, 511-512.

unnecessary suffering which have indiscriminate effects or which cause widespread, long-term and severe damage to the natural environment. The ICRC urged states that study, develop, acquire or adopt munitions containing depleted uranium to carry out 'legal reviews' and to share the information with other states.[140]

In January 2001, the European Parliament called for a ban on the use of depleted uranium (DU) while investigations into a possible link between DU and cancer were carried out. MEPs voted for the resolution by 339 to 202 after an emergency debate in Strasbourg.[141]

However, the use of depleted uranium munitions has continued in both the Afghanistan and Iraq conflicts. The report finally released from the World Health Organisation was not helpful as it concluded that except in exceptional circumstances DU exposure was not a public health concern. But it is alleged that key papers by the US Department of Defence on DU's geno-toxicity were excluded from the report.[142]

Nevertheless, the scientific community continues to debate this issue. Between 2000 and 2003 Dr. Alexandra Miller from the US Armed Forces Radiobiology Institute issued a series of peer reviewed papers that demonstrated that internalised DU oxides (dust emitting from the weapon) could result in cancer emerging – at least in mice as in one study 76 percent of mice implanted with DU pellets developed leukaemia'.[143]

In 2007, Belgium became the first nation to ban depleted uranium and there have been three General Assembly resolutions calling on

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[140] International Committee of the Red Cross, 'Depleted Uranium Munitions' in (2011) 482 *International Review of the Red Cross* 543.

[141] BBC News, 'Europe voted for DU Ban', 17 January 2001, <www.bbc.org>.

[142] International Coalition to Ban Uranium Weapons, above n 128.

[143] See, eg, Alexandra Miller et al., 'Leukemic transformation of hematopoietic cells in mice internally exposed to depleted uranium' (2005) 279 *Molecular and Cellular Biochemistry* 97.

the states involved to provide information on the possible health consequences of the use of such weapons.[144] As of yet the General Assembly has limited itself to statements about the potential harmful effects of the use of armaments and ammunitions containing depleted uranium on human health and the environment.[145] Hulme argues it might be another 20 years before the true long-term effects of using depleted uranium weaponry can be truly assessed.[146] This seems to accord with the delay on the emergence of health effects from nuclear testing. However, one has to agree with Hulme that measures need to be taken in advance of finding out definitively about the effects of using this type of weaponry. She suggests:

> In light of the continuing doubts surrounding the health and environmental effects of depleted uranium, therefore, this author suggests the implementation of a cautionary approach. In effect, since other weaponry are relatively, if not fully, as effective as depleted uranium weaponry, it is suggested that these alternative weapons be used exclusively.[147]

As she reports earlier in the article this seems to be the sensible approach taken by the United Kingdom government who have abandoned the use of depleted uranium.

This second example unlike nuclear testing also engages the rule of distinction. Hulme argues that the issue with respect to distinction is both at the point of use as well as the post-conflict phase due to the weapon's potential to create problems for human health and the environment. In this case, as with tactical nuclear weapons the key provisions involving the rule of distinction are Articles 51(4)(b) and (c) as depleted uranium is a method of combat that cannot be directed at a specific military objective and a method the effects of which cannot be limited. In the case of depleted uranium weaponry

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[144] *Effects of the use of armaments and ammunitions containing depleted uranium,* UN Doc A/RES/62/30 (31 October 2007); UN Doc A/RES/63/54 (12 January 2009); UN Doc A/RES/65/55 (13 January 2011).

[145] *Effects of the use of armaments and ammunitions containing depleted uranium,* UN Doc A/RES/65/55 (13 January 2011), Preamble.

[146] Hulme, above n 130, 294.

[147] Ibid.

which would generally be targeting at a specific military objective, a tank, the main civilian threat is due to the potential side effects on human health.[148] The United Nations Sub-Commission on the Promotion and Protection of Human Rights has gone so far as to state that depleted uranium weapons fall within the prohibition on indiscriminate warfare.[149] As Hulme argues, at first sight, depleted uranium does not fall foul of the principle of distinction but it is 'the potentially devastating toxicological and radiological effects of depleted uranium in the environment that is cause for concern'.[150] One will have to follow with interest the continuation of this debate over the next decades as it will resonate most closely with the use of battlefield nuclear weapons.

V CONCLUSION

It cannot be argued that a total prohibition against the use of nuclear weapons in armed conflict is clearly established in international law. The *Nuclear Weapons* Advisory Opinion in its majority judgment failed to issue an unequivocal statement that these weapons would breach the cardinal principles of international law including the primary principle of the necessity in battle to distinguish between civilians and the military and to only target those persons or objects that participates in the conflict. The opinion however, did suggest that it was hard to see circumstances when these weapons would comply with the rules of international humanitarian law in spite of the efforts of counsel from the United Kingdom and the United States to persuade them otherwise.

There are two real life examples discussed here of the effects of nuclear weaponry, the tests in the atmosphere (with the example

[148] Ibid 269.

[149] *UN Sub-Commission on Prevention of Discrimination and Protection of Minorities, Report of the Sub-Commission on Prevention of Discrimination and Protection of Minorities on its 48th Session*, UN Doc E/CN.4 /Sub.2/i 996/L.1i/Add. 3 (29 August 1996).

[150] Hulme, above n 130, 271.

given of the debate in South Australia) and the use of depleted uranium by the United States in the most recent armed conflicts in Kosovo, Afghanistan and Iraq. Although strongly contested by nuclear powers, it seems likely that both uses of nuclear technology have resulted in long-term detrimental health impacts of persons who have been exposed. Use of tactical weaponry will no doubt result in the same controversies.

However, battlefield nuclear weapons could potentially cause an ever greater crisis, as they will be the first time nuclear weapons have been used since the Second World War. The possibility of escalation of any conflict in which they are used cannot be ignored. The fact that India and Pakistan have both developed these weapons means that there could be an escalation of that conflict risking millions of lives. Furthermore, the Russian reliance on these weapons is a worrying development. These weapons must be included in future nuclear disarmament talks or there is a real risk of a nuclear catastrophe.

Therefore, on any scale, testing the use of battlefield nuclear weapons against the cardinal rule of distinction, the use of these weapons fails the test. One cannot help but agree with Judge Weeramantry that these weapons by their very nature cannot be used in a manner to distinguish between civilian or combatants or between military or civilian objects. The rule of distinction cannot be limited to the use in the present; surely the long-term effects of this weapon must be taken into account. The effects according to extensive scientific inquiry cannot be contained within the bomb-site. New scientific evidence discussed here has considered the use of low-yield tactical nuclear weapons of a type to penetrate deep into bunkers but still the conclusion remains that the effects of even these types of weapons cannot be contained. The radiation will escape and damage the civilian population either directly or by getting into the food chain. This injury might not be immediate but result in increased incidents of cancer. Furthermore, the health effects mean that the fall-out from radiation can damage not only present but future generations as the birth defects from nuclear testing establish without doubt. Even though the majority of the Court in the *Nuclear*

Weapons Advisory Opinion was not prepared to rule that in every circumstances the use of nuclear weapons violated the rule against distinction, it seems that the weight of evidence discussed here points unequivocally that any use of nuclear weapons would violate this cardinal principle of international humanitarian law.