



**Trident Research  
Report No. 1**

Bradford Disarmament  
Research Centre

# **What is Trident For?**

Nuclear Deterrence and the Role  
of British Nuclear Weapons

Dr. Nick Ritchie

*April 2008*

## About this research report

This research report supports the second in a series of briefings on Trident to be published during 2007 and 2008 as part of the Bradford Disarmament Research Centre's programme on *Nuclear-Armed Britain: A Critical Examination of Trident Modernisation, Implications and Accountability*. The second briefing paper is available at [www.brad.ac.uk/acad/bdrc/nuclear/trident/briefing2.html](http://www.brad.ac.uk/acad/bdrc/nuclear/trident/briefing2.html)

The first briefing, entitled *Trident: The Deal Isn't Done – Serious Questions Remain Unanswered*, is available to download at [www.brad.ac.uk/acad/bdrc/nuclear/trident/briefing1.html](http://www.brad.ac.uk/acad/bdrc/nuclear/trident/briefing1.html)

The programme has been generously funded by the Joseph Rowntree Charitable Trust. To find out more please visit [www.brad.ac.uk/acad/bdrc/nuclear/trident/trident.html](http://www.brad.ac.uk/acad/bdrc/nuclear/trident/trident.html).

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## Acknowledgments

The author would like to thank the Joseph Rowntree Charitable Trust, Paul Rogers, Malcolm Dando and Simon Whitby for their support and others who have reviewed this text and provided detailed and valuable comments. The views expressed in this report are those of the author and do not necessarily represent the views of the Department of Peace Studies or the University of Bradford.

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# What is Trident For? Nuclear Deterrence and the Role of Britain's Nuclear Weapons

Nick Ritchie

April 2008

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## Introduction

In March 2008 the Government released its long-awaited *National Security Strategy of the United Kingdom: Security in an Interdependent World*. The report declared that “The Cold War threat has been replaced by a diverse but interconnected set of threats and risks... driven by a diverse and interconnected set of underlying factors, including climate change, competition for energy, poverty and poor governance, demographic changes and globalisation.”<sup>1</sup> The *complexity* of the future security landscape and the *interdependence* of threats to British security are the strategy’s watchwords. In fact the report argues that “the complex interdependence of the threats, risks and drivers of insecurity, in an increasingly interconnected world, is in itself a powerful argument for a single overarching strategy for national security.”<sup>2</sup>

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<sup>1</sup> *The National Security Strategy of the United Kingdom*, Command 7291, Cabinet Office, London, p. 3.

<sup>2</sup> *Ibid.*, p. 24.

In January 2008 Prime Minister Gordon Brown pledged that “in the run-up to the Non-Proliferation Treaty review conference in 2010 we will be at the forefront of the international campaign to accelerate disarmament amongst possessor states, to prevent proliferation to new states, and to ultimately achieve a world that is free from nuclear weapons”. This followed Foreign Secretary Margaret Beckett’s vision of the UK as a “disarmament laboratory” set out in June 2007.<sup>3</sup>

In light of these developments it is vital to ask where the threat to kill tens if not hundreds of thousands of people with British nuclear weapons fits in to the *National Security Strategy’s* view of the world? Where does the steady march to

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<sup>3</sup> Margaret Beckett, “A World Free of Nuclear Weapons?”, Carnegie International Nonproliferation Conference, Keynote Address, June 25, 2007; Gordon Brown, “Speech to Speech at the Chamber of Commence in Delhi”, January 21, 2008.

replace the current Trident nuclear weapon system and effectively retain nuclear weapons well into the 2050s fit into a world free from nuclear weapons? What relevance is an instrument of such wholesale destructiveness to threats defined by complexity and interdependence?

It is equally crucial to recognise that seemingly 'defensive' nuclear deterrent threats cannot be divorced from concrete plans for the actual 'offensive' use of nuclear weapons. If such threats are considered a 'rational' tool of policy then nuclear war itself must also be considered rational.<sup>4</sup> The danger is that the Government assumes its nuclear deterrent threats are credible and that deterrence will not fail. The long-term consequences of nuclear use do not, therefore, need to be thoroughly analysed.<sup>5</sup> This assumption must be acknowledged and we must ask under what circumstances would the use of British nuclear weapons constitute a 'rational' contribution to its security? In short, what is the point of Trident and the Government's plans to replace it?

In 2006 the House of Commons Defence Committee urged the Government to consider just such questions, including "whether the concept of nuclear deterrence remains useful in the current strategic environment and in the context of the existing and emerging threats to the security of the country". It asked the Government "to consider whether those states and non-state actors posing such threats can, in reality, be deterred from instigating acts of aggression by either existing or new approaches to nuclear deterrence" and said "the MoD should explain its understanding of the purpose and continuing relevance of nuclear deterrence now and over the lifetime of any potential Trident successor system".<sup>6</sup>

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<sup>4</sup> William Schwartz and Charles Derber, *The Nuclear Seduction: Why the Arms Race Doesn't Matter – and What Does*, University of California Press, Berkeley, 1989, p. 31.

<sup>5</sup> Scott Sagan, "The Commitment Trap", *International Security*, 24(4), 2000, p. 112.

<sup>6</sup> *The Future of the UK's Strategic Nuclear Deterrent: the Strategic Context*, House of Commons Defence Committee report HC 986, The Stationery Office, London, July 2006, p. 15.

The Government has not addressed these questions. Instead it has asserted in its 2006 White Paper on *The Future of the United Kingdom's Nuclear Deterrent* that the logic of nuclear deterrence still pertains in four broad areas.

- 1) Deterrence against aggression towards British/NATO vital interests or nuclear coercion/blackmail by major powers with large nuclear arsenals.
- 2) Deterrence against coercion or blackmail by regional 'rogue' states armed with nuclear, chemical or biological weapons to enable military intervention in the name of regional and global security.
- 3) Deterrence against state-sponsored acts of nuclear terrorism.
- 4) General deterrence to preserve regional and global security directed towards 'whomever it may concern'.<sup>7</sup>

British nuclear weapons are therefore not only meant to deter possible threats from other nuclear forces, but also the threat from chemical and biological weapons and general threats to British 'vital interests' anywhere in the world. This broad and controversial remit for nuclear weapons extends far beyond extreme threats to the survival of the nation to include the deterrence of threats to the security of the European continent, global economic interests based on the free flow of trade, overseas and foreign investment and key raw materials, the safety and security of British citizens living and working overseas and its Overseas Territories, and general international stability.<sup>8</sup>

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<sup>7</sup> Ministry of Defence (MOD) and Foreign & Commonwealth Office (FCO) *The Future of the United Kingdom's Nuclear Deterrent*, Command 6994, The Stationery Office: London, December 2006, pp. 5, 18, 19; Geoff Hoon, "Intervening in the new Security Environment", speech by the Secretary of State for Defence, Foreign Policy Centre, November 12, 2002; Jeremy Stocker, *The United Kingdom and Nuclear Deterrence*, Adelphi Paper 386, Routledge for IISS, London, 2007, p.33.

<sup>8</sup> Ministry of Defence, *Strategic Defence Review*, Command 3999, 1998, The Stationery Office, London, chapter two, paras 18-20; *Delivering Security in a Changing World*, Command 6041-I, Ministry of Defence, London, 2003, p. 4.

The 2006 White Paper set out the Government's plans to replace the current Trident nuclear weapon system. Britain currently deploys four nuclear-powered ballistic missile submarines and has a stockpile of 50 American designed and built Trident submarine-launched ballistic missiles (SLBMs) and 160 operational nuclear warheads. Britain has at least one submarine at sea at all times with up to than 48 warheads on board. The warheads have a yield 100 kilotons. By comparison, the bomb that destroyed Hiroshima was approximately 14kt. Britain also deploys a so-called 'sub-strategic' warhead that is thought to have a yield of around 10kt. A few missiles on each submarine are probably armed with one of these lower yield warheads. The Government declared that a decision was needed in 2007 because the four submarines are aging and will need to be replaced if Britain is to continue to deploy nuclear weapons. In fact building a new fleet of submarines for the Trident missiles will allow Britain to deploy nuclear weapons well into the 2050s. Decisions on a replacement nuclear warhead and replacement missile will come later. The decision to begin the process of replacing the Trident system and building new submarines was endorsed by Parliament in March 2007.<sup>9</sup>

When pushed a little further about the relevance of British nuclear weapons to national security the Government reverts to a fall-back position that it is impossible to know what the future holds and therefore it would be 'prudent' to keep nuclear weapons just in case, regardless of the political and economic costs.<sup>10</sup> In this uncertain and complex international security environment it seems that the Labour Government and the wider British defence establishment is certain about one thing: having the capability to annihilate potential enemies with nuclear weapons is an essential part of the solution to dealing with future security threats. Questions about exactly *how* British

nuclear weapons can and will contribute to British and international security beyond the mere assertions that they do are deflected by the Government's policy of 'deliberate ambiguity' about the conditions under which Britain might contemplate using nuclear weapons. This ambiguity is based on the argument that further clarity might somehow "simplify the calculations of a potential aggressor" and it prevents a solid assessment of probable nuclear threats and appropriate responses.<sup>11</sup>

The truism that the future is unpredictable cannot be disputed, but does this provide a sound basis for keeping nuclear weapons? Defence analyst Michael Fitzsimmons warns that overemphasising future uncertainty risks "clouding the rational basis for making strategic choices". Whilst accepting that the future will be full of surprises, "uncertainty must be considered within the context of an environment where some significant threats are relatively clear and where known contingencies are important to plan for".<sup>12</sup> We may not know what the future holds, but we can certainly outline robust parameters and undertake a detailed analysis of the relevance of nuclear deterrent threats in the four areas set out by the Government, which is the intent of this briefing paper. To nuclear advocates who ask what if your assessment is wrong, what if we find ourselves in situation wishing we had nuclear weapons, the answer must be to insist they demonstrate how British nuclear weapons can and will contribute to British and international security and why 180 of the world's nations are content to live with future uncertainty without wrapping themselves in a nuclear security blanket.

<sup>9</sup> For a detailed analysis of the nature of the decision taken by Parliament see Nick Ritchie, *Trident: The Deal Isn't Done*, BDRC Briefing Paper, University of Bradford, Bradford, December 2007.

<sup>10</sup> *National Security Strategy*, Cabinet Office, pp. 31, 44.

<sup>11</sup> MOD and FOC, *United Kingdom's Nuclear Deterrent*, p. 18.

<sup>12</sup> Michael Fitzsimmons, "The Problem of Uncertainty in Strategic Planning", *Survival*, 48(4), Winter 2006-07, pp. 131, 134.

# 1. Deterrence

The White Paper set out a case for why the UK should keep its nuclear capability after Trident and why nuclear weapons are still essential to the long-term security of the country. The case hinges on the concept of nuclear deterrence and the idea that nuclear weapons provide a form of 'insurance' or a guarantee of protection against nuclear threats from other countries. If we can threaten to annihilate country X with nuclear weapons then X won't threaten us with nuclear attack in the first place. If we decide to intervene in a conflict against country X with our conventional military forces then X won't use nuclear weapons against us, or even other 'weapons of mass destruction' such as biological or chemical weapons, because we can threaten a nuclear attack in return.

Deterrence in international politics is therefore generally understood as a process in which one state successfully persuades another not to undertake or to halt a particular course of aggressive action. This can be achieved by threatening a devastating response in retaliation for aggression (deterrence by punishment) or by threatening a pre-emptive attack that degrades or eliminates the ability to undertake aggressive actions (deterrence by denial). The threat to punish aggressive actions before or after they take place is designed to change the aggressor's calculation of the costs and benefits of those actions to the extent that the aggressor desists.<sup>13</sup> Nuclear deterrence is generally understood as the threat of nuclear attack to deter aggressive actions

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<sup>13</sup> *The Future of the UK's Strategic Nuclear Deterrent: The White Paper: The Government's Response to the Committee's Ninth Report of 2006-07*, House of Commons Defence Committee report HC 551, The Stationary Office, London, May 22, 2007, p. 5.

and it requires an assured means of delivering and detonating nuclear weapons against an adversary in times of crisis. Nuclear deterrence theory has generally been divided into two camps: deterrence based on massive nuclear retaliation that "appeals to the fear of suffering the unlimited sanction of a general nuclear attack" and deterrence based on limited nuclear retaliation that does not threaten the wholesale destruction of the adversary.<sup>14</sup> A distinction is generally drawn between *deterrence* as a process in which hostile actions are prevented, and *coercion* as a process in which an actor is compelled through fear to undertake a particular action.<sup>15</sup>

Standard deterrence theory also argues that deterrent threats need not be specific since even a modest chance of a pre-emptive or retaliatory nuclear attack can have a significant deterrent effect.<sup>16</sup> Deterrent targets may, for example, include military elements (bases, forces, command assets); civilian infrastructure (power grid, transportation, fuel or water); regime assets (instruments of control, public and private assets); or the state itself (target through conquest, occupation and restructuring).<sup>17</sup>

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<sup>14</sup> Robert Powell, *Nuclear Deterrence Theory: The Search for Credibility*, Cambridge, Cambridge University Press, 1990, pp. 3, 17; Lawrence Freedman, *The Evolution of Nuclear Strategy*, Macmillan Press, Basingstoke, 1989.

<sup>15</sup> Michael Quinlan, "Deterrence and Deterrability", in Ian Kenyon and John Simpson (eds), *Deterrence and the New Global Security Environment*, Routledge, London, 2006; Jeremy Stocker, *The United Kingdom and Nuclear Deterrence*, Adelphi Paper 386, Routledge for IISS, London, 2007, p.44.

<sup>16</sup> Michael Quinlan, "Deterrence and Deterrability", pp. 4-6.

<sup>17</sup> *Non-Nuclear Strategic Deterrence of State and Non-State Adversaries*, DFI International for the Defense Threat Reduction Agency, Washington, D.C., October 2001, p. 18.



There are also competing views about the application of nuclear deterrent threats. Some, such as former US Secretary of Defense Robert McNamara, argue that nuclear weapons are only good to deterring nuclear threats. He stated in 1983 that “nuclear weapons serve no military purpose whatsoever. They are totally useless – except only to deter one’s opponent from using them”.<sup>18</sup> Others, including the British government, argue that nuclear deterrent threats can deter attacks with chemical and biological weapons and to defend a range of ‘vital interests’ set out above.<sup>19</sup> In its 2006 White Paper on Trident replacement the Government stated that one of the reasons for retaining nuclear weapons was that “most industrialised countries have the capability to develop chemical and biological weapons.”<sup>20</sup> In the build up to the 2003 Iraq War defence secretary Geoff Hoon also claimed that Britain was prepared to use nuclear weapons in response to the use of chemical or biological weapons by Iraqi forces.<sup>21</sup> It is crucial to acknowledge that nuclear weapons can cause levels of destruction far beyond chemical and biological weapons, although advances in biotechnology present dangerous new opportunities for highly destructive biological weapons. It is in many ways misleading and unhelpful to link these three types of weapon under the umbrella term of weapons of mass destruction.<sup>22</sup>

<sup>18</sup> Robert McNamara, “The Military Role of Nuclear Weapons: Perceptions and Misperceptions”, *Foreign Affairs*, 62(1), 1983, p. 79.

<sup>19</sup> On competing views see Michael Krepon, *Cooperative Threat Reduction, Missile Defense and the Nuclear Future*, Palgrave Macmillan, New York, 2003, pp. 106-111.

<sup>20</sup> Ministry of Defence (MOD) and Foreign & Commonwealth Office (FCO) *The Future of the United Kingdom’s Nuclear Deterrent*, Command 6994, The Stationery Office: London, December 2006.

<sup>21</sup> Transcript from the *Jonathan Dimbleby Programme*, 24 March 2001 cited in Paul Rogers, *Iraq: Consequences of a War*, Oxford Research Group, October 2002.

<sup>22</sup> George Perkovich, “Deconflating ‘WMD’”, *Weapons of Mass Destruction Commission Report No. 17*, Stockholm, October 2004.

There are a number of problems with the Government’s ‘insurance’ analogy for nuclear deterrence. Insurance is commonly understood to involve a contract or agreement in which one party agrees to indemnify another for loss that occurs under the terms of the contract. Nuclear weapons provide no such guarantee of reimbursement. As the Acronym Institute for Disarmament Diplomacy argued in 2006, “Likenings Trident to an insurance policy taps into people’s fears of the unknown or unexpected and portrays nuclear weapons as if they were passively waiting in the wings ‘just in case’. It ignores the fact that they might themselves have influence on the formation or acceleration of potential threats or hazards.”<sup>23</sup> What investment in nuclear weapons can do, according to the logic of deterrence, is buy down the *probability* of being threatened with nuclear attack by threatened to retaliate in kind. Yet even this seemingly straight forward cause-and-effect equation is problematic because deterrence is not an exact science and success is far from assured for a number of reasons.

First, simply deploying a ‘deterrent’ does not automatically ensure that others will be ‘deterred’ because deterrence is a *process* in which varying degrees of military threats are implicitly or explicitly communicated to an adversary who decides whether or not to be deterred. It is not a quality intrinsic to nuclear weapons as material objects and the Government is misleading when it refers to British nuclear weapons as ‘the deterrent’.<sup>24</sup>

Second, successful deterrence rests fundamentally on the perceived credibility of the deterrent threat both *in the eyes of the deterring state and the deteree*. If nuclear deterrent threats lack credibility

<sup>23</sup> Rebecca Johnson, Nicola Butler and Stephen Pullinger, *Worse Than Irrelevant? British Nuclear Weapons in the 21<sup>st</sup> Century*, Acronym Institute 2006, p. 18.

<sup>24</sup> Stocker, *Nuclear Deterrence*, p. 43.

they will be increasingly ineffective.<sup>25</sup> A 2001 report for the Pentagon's Defence Threat Reduction Agency (DTRA), for example, argues that if nuclear threats are not judged to be credible then "deterrence based on nuclear options is unlikely to significantly affect the risk calculations of WMD-armed adversaries, especially if they are particularly risk-acceptant".<sup>26</sup> Credible threats require the capability and robust plans to deliver a devastating attack; the political will to act given perceived interests at stake; the ability to communicate this capability and will to an aggressor; and an understanding of what will can be expected to deter a particular aggressor; and depends on the legitimacy and proportionality of a retaliatory or pre-emptive nuclear response to aggressive actions.<sup>27</sup> Deterrence is unlikely to work if a state or non-state actor such as a terrorist group is determined to carry out aggressive actions; if it does not consider a deterrent threat to be credible; if it thinks it can survive an attack and is prepared to absorb a retaliatory or pre-emptive strike; is unmoved by the potential devastation that may follow their actions; or thinks it can eliminate the deterrent threat by destroying an opponent's military forces first. In these circumstances Professor Scott Sagan argues that "defence, not deterrence, would be necessary when confronting irrational enemies who either welcome a nuclear apocalypse or are, for whatever reason, oblivious to any level of threatened destruction".<sup>28</sup> The British government says that its 'sub-strategic' Trident warheads are designed to lend extra credibility to threats of nuclear retaliation so that a potential aggressor could not "judge that they could act with impunity towards the UK because they felt that we would be unwilling to deploy the

maximum destructive effect possible with the Trident system".<sup>29</sup>

The credibility of nuclear threats was questioned repeatedly throughout the Cold War and different states, regimes, and leaders may interpret the dynamics of nuclear deterrence and the credibility of nuclear threats quite differently in a given situation leading to misunderstandings and miscalculation. One unnerving solution to the problems of articulating credible nuclear deterrent threats is the 'madman theory' whereby a state leadership deliberately acts so as to appear irrational, crazy, dangerous and liable to escalate a crisis or conflict to nuclear use if provoked, even if the use of nuclear weapon appears wholly disproportionate. Jeremi Suri and Scott Sagan have examined President Nixon's attempt to end the Vietnam War by convincing the Soviet Union and North Vietnamese that he was out of control and prepared to use nuclear weapons.<sup>30</sup>

Third, nuclear deterrence is not a rational, objective and logical theory. During the Cold War the absence of empirical evidence about the functioning of nuclear deterrence and the use of nuclear weapons in conflict allowed 'rational' theories of nuclear deterrence based on probabilistic game theory to dominate nuclear doctrine and criteria for credible nuclear deterrent threats. However, these theories are not value free and technocratic because the criteria for 'credible' nuclear deterrent threats in terms of the quantity and types of nuclear weapons and strategies for using them are based on subjective political judgements.<sup>31</sup> In the United States these 'rational' theories in fact reflected distinct ideas and understandings about nuclear weapons, the Soviet Union,

<sup>25</sup> *Non-Nuclear Strategic Deterrence*, DFI International, p. 15.

<sup>26</sup> *Ibid.*, p. 15.

<sup>27</sup> Quinlan, "Deterrence and Deterrability", pp. 4-6; Wyn Bowen, "Deterrence and Asymmetry: Non-State Actors and Mass Casualty Terrorism", in Ian Kenyon and John Simpson (eds), *Deterrence and the New Global Security Environment*, Routledge, London, 2006, pp. 50-51; Sagan, "Commitment Trap", pp. 97-98.

<sup>28</sup> Sagan, "Commitment Trap", p. 106.

<sup>29</sup> *The Government's Response to the Committee's Ninth Report*, The Stationery Office, p. 7.

<sup>30</sup> Scott Sagan and Jeremi Suri, 'The Madman Nuclear Alert', *International Security*, 27(4), Spring 2003; Jeremi Suri, 'The Nukes of October: Richard Nixon's Secret Plan to Bring Peace to Vietnam', *Wired Magazine*, 16(3), March 2008.

<sup>31</sup> See Michael MccGwire, 'Deterrence: The Problem – Not the Solution', *Journal of Strategic Studies*, 9(4), December 1986.

vulnerability to attack, a tendency to “fantasize about Soviet military power” and haphazard construction of problems affecting nuclear strategy and the solutions required (usually new weapons).<sup>32</sup> Lawrence, for example, argues that the Cold War witnessed a “scientization of nuclear strategy” based on an illusion of precision and exactness.<sup>33</sup> The ‘rationality’ of Cold War deterrence models also obscured the idea that deterrent threats may have the reverse effect of galvanising the deteree to resist the deterrer for issues of national pride and domestic or international status.<sup>34</sup>

In the United States the George W. Bush administration expressed considerable loss of confidence in America’s ability to deter WMD-armed ‘rogue’ states with its Cold War-era nuclear weapons.<sup>35</sup> Its 2001 Nuclear Posture Review (NPR) declared that traditional Cold War-era nuclear deterrent threats were no longer credible for unpredictable ‘rogues’ that might collaborate with terrorist groups to inflict massive damage on the US or its vital interests, particularly after the attacks of 9/11.<sup>36</sup> The solution set out in the NPR

was a set of new capabilities that could be used for pre-emptive attacks, including strategic defences such as extensive ballistic and cruise missile defences as well as space and cyber defences; an Advanced Concepts Initiative to study earth penetrating and low-yield nuclear warhead designs; conventional strategic weapons such as conventionally-armed Trident missiles; and a revitalised nuclear weapons production complex to design and deploy new or modified nuclear warheads as needed.<sup>37</sup> This approach was integrated into defence planning and reinforced in the 2004 National Military Strategy of the United States.<sup>38</sup>

The right to engage in pre-emptive counter-proliferation missions was asserted by the administration in its September 2002 *National Security Strategy* and December 2002 *National Strategy to Combat Weapons of Mass Destruction*.<sup>39</sup> This included options for pre-emptive use of nuclear weapons in response to the threat of nuclear, chemical or biological weapons attack, despite administration denials.<sup>40</sup> The new approach also led to a new rapid reaction

<sup>32</sup> Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon*, 1989, Cornell University Press, Ithaca, pp. 38, 183; Robert Jervis, *The Illogic of American Nuclear Strategy*, Cornell University Press, Ithaca, 1984, p. 54.

<sup>33</sup> Philip Lawrence, “Strategic Beliefs, Mythology and Imagery”, in Little, R. and Smith, S. (eds.), *Belief Systems and International Relations*, Basil Blackwell Inc, Oxford, 1988, p. 143.

<sup>34</sup> *US Coercion in a World of Proliferating and Varied WMD Capabilities: Final Report for the Project on Deterrence and Cooperation in a Multi-tiered Nuclear World*, DFI International/SPARTA, Inc, for the Defence Threat Reduction Agency, Washington, D.C., February 2001, p. 21.

<sup>35</sup> Excerpts available at <http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm>. See *Statement of Douglas J. Feith Under Secretary of Defense for Policy*, Hearing before the Senate Committee on National Security, February 14, 2002, U.S. Government Printing Office, Washington, D.C.

<sup>36</sup> Excerpts available at <http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm>. See *Statement of Douglas J. Feith Under Secretary of Defense for Policy*, Hearing before the Senate Committee on National Security, February 14, 2002, U.S. Government Printing

Office, Washington, D.C.; *Testimony of Deputy Secretary of Defense Paul Wolfowitz*, Hearing before the Senate Committee on Armed Services, 4 October 2001, Government Printing Office, Washington, D.C.

<sup>37</sup> *Report of the Defense Science Board Task Force on Future Strategic Strike Forces*, February 2004, Washington, D.C., Office of the Under Secretary of Defense for Acquisition and Technology, U.S. Department of Defense, 2004, p. 5.11.

<sup>38</sup> *The National Military Strategy of the United States: A Strategy for Today; A Vision for Tomorrow*, U.S. Joint Chiefs of Staff, Washington, D.C., 2004, p. 13.

<sup>39</sup> *The National Security Strategy of the United States of America*, The White House, Washington, D.C., 2002; *National Strategy to Combat Weapons of Mass Destruction*, The White House, Washington, D.C., 2002.

<sup>40</sup> See Philip Bleek, “Bush Administration Reaffirms Negative Security Assurances”, *Arms Control Today*, 32(2), (March 2002); *Joint Doctrine for Nuclear Operations (draft)*, U.S. Joint Chiefs of Staff, 2005, Washington, D.C., pp. III-2, p.13; *New Nuclear Policies, New Weapons, New Dangers*, Arms Control Association, Washington, D.C., 2003. Retrieved from <<http://www.armscontrol.org/factsheets/newnuclearweaponsissuebrief.asp>> on 18 March 2007.

'global strike' mission assigned to U.S. Strategic Command.<sup>41</sup> STRATCOM's mission was now to "provide a global warfighting capability...to deter and defeat those who desire to attack the United States and its allies" with a host of strategic conventional as well as nuclear options.<sup>42</sup> Critics, including former Secretary of Defense William Perry, former Senator Sam Nunn and former STRATCOM commander Eugene Habiger, argued that these developments would expand options for nuclear attacks and take nuclear weapons policy in a radically new and possibly destabilising direction.<sup>43</sup>

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<sup>41</sup> J. D. Crouch, *Special Briefing on the Nuclear Posture Review*, 9 January 2002, U.S. Department of Defense, Washington, D.C., Retrieved from <[http://www.defenselink.mil/transcripts/2002/t01092002\\_t0109npr.html](http://www.defenselink.mil/transcripts/2002/t01092002_t0109npr.html)> on 2 March 2007; *Nuclear Posture Review (Excerpts)*, Globalsecurity.org, Washington, D.C., 2002. Retrieved from <<http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm>> on November 24, 2004, p. 29.

<sup>42</sup> Testimony of Adm. James O. Ellis, USN, Commander in Chief, United States Strategic Command on Command Posture and Strategic Issues, Hearing before the Senate Committee on Armed Services on, 8 April 2003, Government Printing Office, Washington, D.C., p. 9.

<sup>43</sup> Habiger, E. E., Nunn, S. and Perry, W., 'Still Missing: A Nuclear Strategy', *The Washington Post*, 21 May 2002; Jeffrey Knopf, 'Nuclear Tradeoffs: Conflicts Between U.S. National Security and Global Nonproliferation Efforts', in Wirtz, J. J. and Larsen, J. A. (eds.), *Nuclear Transformation: The New U.S. Nuclear Doctrine*, New York: Palgrave Macmillan, 2005, pp. 162-170.

## 2. Deterring Major Nuclear Powers

The Government's first area of deterrence for British nuclear weapons is to deter aggression by major nuclear powers and prevent major wars that may threaten the survival of the nation. No major direct nuclear threat currently exists and, according to the Government, hasn't for a decade since at least 1998.<sup>44</sup> Prime Minister Tony Blair accepted that the prediction "that there is no possibility of nuclear confrontation with any major nuclear power...is probably right"<sup>45</sup> but argued that such a threat might re-emerge over the next 20-50 years.<sup>46</sup>

Only two nuclear-armed major powers, Russia and China, are likely to have the capability and conceivably the intention in the future to threaten Britain and Western Europe with nuclear weapons. The primary focus, however, is deterrence of a future resurgent and aggressive Russia, which still deploys thousands of nuclear weapons.<sup>47</sup> The Government has justified replacement of Trident by pointing to the continued existence of large nuclear arsenals that are being modernised.<sup>48</sup> This reflects an important part of NATO's justification for remaining a nuclear-armed alliance, which states that "The existence of powerful nuclear forces outside the Alliance constitutes a significant factor which the Alliance has to take into account if security and stability in the Euro-Atlantic area are to be maintained" – namely Russia.<sup>49</sup>

<sup>44</sup> *The National Security Strategy of the United Kingdom*, Cm 7291, Cabinet Office, London, p. 12.

<sup>45</sup> Tony Blair, 'Parliamentary Statement on Trident', December 4, 2006, Prime Minister's Office, London.

<sup>46</sup> MOD and FCO, *United Kingdom's Nuclear Deterrent*, p. 19.

<sup>47</sup> *Ibid.*, p. 14

<sup>48</sup> *Ibid.*, p. 14.

<sup>49</sup> "The Alliance's Strategic Concept", NATO Press Release, NATO, Brussels, April 23, 1999.

During the Cold War Britain sought to deter aggressive actions by the Soviet Union by threatening to destroy a handful of Russian cities, in particular Moscow.<sup>50</sup>

If a resurgent, aggressive and nuclear-armed Russian leadership comes to power it *may* threaten Europe and Britain with nuclear weapons. Consequently Britain *may* need a nuclear deterrent threat to deter an attack as it did during the Cold War based on the 'logic' of nuclear deterrence. This rationale for retaining British nuclear weapons is therefore based on the assumptions that: 1) The Soviet Union/Russia was successfully deterred with the threat of nuclear attack, including from British nuclear weapons, during the Cold War and can be deterred with nuclear weapons again if necessary; 2) There is a genuine risk that a resurgent and aggressive Russia or China will threaten Britain or Europe with nuclear weapons over the coming decades.

### Deterring the Soviet Union/Russia and British Nuclear Weapons

The first assumption is plagued by problems. First, the Cold War nuclear confrontation was not a stable, predictable relationship of assured destruction. It was highly dangerous, plagued by uncertainty with very serious risks of a major inadvertent nuclear exchange through accident or miscalculation.<sup>51</sup> Fear of a

<sup>50</sup> Stephen Twigge and Len Scott, *Planning Armageddon*, Harwood Academic Publishers, Singapore, 2000.

<sup>51</sup> Paul Rogers, *Losing Control*, Pluto Press, 2000, pp. 11-38; Shaun Gregory, *The Hidden Cost of Deterrence: Nuclear Weapons Accidents*, Brassey's UK, London, 1990; Scott Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear*

surprise nuclear first strike that could decimate a state's nuclear arsenal led to technological, political and military pressure for ever more numbers and types of nuclear weapons until the Soviet and American nuclear arsenals reached absurd proportions. Constant concerns about the perceived credibility of the threat to use nuclear weapons in the face of aggression, domestic political pressures, competing interpretations of the other side's actions and regular exaggerations of the other's capabilities and intentions led to repeated revisions of nuclear strategy.<sup>52</sup>

American and British nuclear deterrent threats were not defensive and benign but often provocative and at times highly destabilising and self-fulfilling as supposedly defensive actions were mistaken for aggressive intentions.<sup>53</sup> For former Royal Navy Commander Robert Green "the arms build-ups, threatening military deployments, and the confrontational rhetoric that characterised the strategy of deterrence effectively obscured deep-seated mutual fear of war. This reckless behaviour was self-defeating, provoking precisely the response it was designed to prevent."<sup>54</sup>

Second, it was often assumed that the Soviet leadership shared Western understandings of nuclear deterrence. However, as Professor Allen Lynch of the University of Virginia argues, Cold War deterrence principles were developed

largely by American civilians in abstraction "both from the daily world of the military professional and from the specifics of Russian-Soviet political-military culture".<sup>55</sup> They were not objective, rational, universal postulates but "highly problematic", according to James Lebovic, and "based on heroic assumptions about the adversary – its ability to think dispassionately, process information, and make the 'right' decision under the most challenging of conditions".<sup>56</sup> The dangers of assuming a common understanding of nuclear deterrence were highlighted in 1998 by the former head of America's Strategic Command, General Lee Butler: "While we clung to the notion that nuclear war could be reliably deterred, Soviet leaders derived from their historical experience the conviction that such a war might be thrust upon them and if so, must not be lost. Driven by that fear, they took Herculean measures to fight and survive no matter the odds or the costs. Deterrence was a dialogue of the blind with the deaf".<sup>57</sup>

This created an enduring danger of inadvertent nuclear war resulting from a combination of the background hostility of the Cold War, mutual misunderstandings and an unforeseen chain of events.<sup>58</sup> The unstable, high-stakes, dialogue of the blind with the deaf led to a number of potentially catastrophic near-misses that could have led to inadvertent nuclear Armageddon.<sup>59</sup> These include the 1962 Cuban Missile Crisis, the 1983 NATO *Able Archer* exercise in which NATO preparations for a simulated nuclear war

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*Weapons*, Princeton University Press, 1993; Michael Wallace, Brian Crissey and Linn Sennott, 'Accidental Nuclear War: A Risk Assessment', *Journal of Peace Research*, 1986, 23(1), pp. 9-27; Bruce Blair, *The Logic of Accidental Nuclear War*, The Brookings Institution, Washington, D.C., 1993.  
<sup>52</sup> Michael McGwire, 'Is there a future for nuclear weapons', *International Affairs*, 70(2), 1994, p. 228.

<sup>53</sup> James Lebovic, *Deterring International Terrorism and Rogue States*, Routledge, London, 2007, p. 5; Stephen Cimbala, *Nuclear strategizing – Deterrence and reality*, Praeger Publishers, New York, 1988, p. 21; Richard Ned Lebow and Janice Gross Stein, *We all lost the Cold War*, Princeton University Press, 1994, p. 92.

<sup>54</sup> Robert Green, *The Naked Nuclear Emperor*, The Disarmament and Security Centre, Christchurch, New Zealand, 2000, p. 51.

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<sup>55</sup> Allen Lynch, 'The Soviet Union: Nuclear Weapons and their Role in Security Policy', in Karp, R. C., *Security with Nuclear Weapons?*, Oxford University Press, Oxford, 1991, p. 101.

<sup>56</sup> Lebovic, *Deterring International Terrorism and Rogue States*, p. 4.

<sup>57</sup> Lee Butler, "The Risks of Nuclear Deterrence: From Superpowers to Rogue Leaders", speech to the National Press Club, Washington, D.C., February 2, 1998.

<sup>58</sup> Michael McGwire, evidence to the House of Commons Foreign Affairs Committee report on *Weapons of Mass Destruction*, report HC 407, The Stationery Office, London, July 2000, appendix 13.

<sup>59</sup> Lebovic, *Deterring International Terrorism and Rogue States*, p. 4.

were interpreted by Moscow as the real thing and an incident five years *after* the end of the Cold War in 1995 when a Norwegian weather rocket was misinterpreted by Russian early warning systems as an American Trident nuclear missile and Moscow reportedly came within minutes of launching a nuclear counter-attack.<sup>60</sup>

Third, standard nuclear deterrence theory insists that nuclear deterrent threats prevented the Cold War turning hot and will continue to prevent war between the major powers. It is based on the Western image of the Soviet Union as a relentlessly expansionist empire intent on subverting Western capitalism and democracy and imposing its particular authoritarian brand of Marxism-Leninism around the world by force where possible, including the use of nuclear weapons.<sup>61</sup> This is a questionable assertion founded on the underlying assumption that without nuclear deterrent threats the major powers would have “allowed their various crises to escalate if all they had to fear at the end of the escalatory ladder was something like a repetition of World War II”.<sup>62</sup> But a number of important works now argue that the sheer scale of destruction that accompanied World War II through conventional weaponry was sufficient to deter future global war between the major industrialised powers.<sup>63</sup> As Professor John Mueller argues, “few with the experience of World War II behind them would contemplate its repetition with anything other than horror. Even before the [nuclear] bomb had been perfected, world war had become spectacularly costly and destructive, killing some 50 million

worldwide”.<sup>64</sup> Furthermore, the only countries capable of creating another world war were its victors, each of which emerged relatively content with the status quo following the division of Europe as the dust of the World War II settled. Disputes and crises would certainly arise, but neither the USA nor the USSR has grievances so essential as to risk another world war.<sup>65</sup>

This is backed by Lee Butler who argues that “nuclear weapons did not and will not, of themselves, prevent major wars, and their presence unnecessarily prolonged and intensified the Cold War. In today’s environment, the threat of use has been exposed as neither credible nor of any military utility. In Korea, in the Formosa Strait, in Indochina, and in the Persian Gulf, presidents, – Democratic and Republican – have categorically rejected the use of nuclear weapons, even in the face of grave provocation.”<sup>66</sup> In fact Ambassador George Kennan, who in 1946 first articulated the doctrine of long-term military and political containment of the Soviet Union as part of a new Cold War, concluded in 1984 that the Soviet Union had no interest in overrunning Western Europe militarily and that it would not have launched an attack on Europe in the decades after World War II even if nuclear weapons did not exist.<sup>67</sup> The image of a Soviet empire set on world domination was further undermined by America’s 2002 National Security Strategy that described the USSR as “a generally status quo, risk-averse adversary”.<sup>68</sup>

<sup>60</sup> Graham Allison, *Essence of Decision: Explaining the Cuban Missile Crisis*, Little Brown, Boston, 1971; David Hoffman, ‘Cold War Doctrines Refuse to Die’, *Washington Post*, March 15, 1998; Peter Pry, *War Scare: Russia and America and the Nuclear Brink*, Praeger, 1999.

<sup>61</sup> See Michael McCgwire, “The Paradigm that Lost its Way”, *Foreign Affairs*, 77(4), October 2001.

<sup>62</sup> John Mueller, “The Essential Irrelevance of Nuclear Weapons”, *International Security* 13(2), Fall 1988, p. 66.

<sup>63</sup> Michael McCgwire, “Is There a Future for Nuclear Weapons?”, *International Affairs*, 70(2), 1994, p. 218.

<sup>64</sup> Mueller, “Essential Irrelevance”, p. 57.

<sup>65</sup> Mueller, “Essential Irrelevance”, p. 58; see also Michael McCgwire, “The Elimination of Nuclear Weapons” in Baylis, J. and O’Neill, R., *Alternative Nuclear Futures*, Oxford University Press, Oxford, 2004, pp. 144-166.

<sup>66</sup> Lee Butler, “Zero Tolerance”, *Bulletin of the Atomic Scientists*, January/February 2000, p. 72.

<sup>67</sup> George Kennan, “American Policy toward Russia on the Eve of the 1984 Presidential Election”, in *At a Century’s Ending: Reflections 1982-1995*, W.W. Norton & Company, New York, 1996, p. 105. Cited in Green, *The Naked Nuclear Emperor*, p. 38.

<sup>68</sup> *The National Security Strategy*, The White House, 2002, p. 15.

Fourth, British nuclear weapons were largely peripheral to Soviet nuclear strategy. Moscow was primarily concerned with preventing a nuclear attack by America, not by the UK or for that matter France. These much smaller nuclear forces were considered part of the overall Western threat to the Soviet Union and Warsaw Pact that was dominated by American conventional and strategic nuclear weaponry.<sup>69</sup> As Christopher Bluth concluded in his study of Soviet-British relations since the 1970s, "Soviet military and political authors do not pay any great attention to these rationales for the British independent nuclear deterrent".<sup>70</sup> This continues today with a discourse on post-Cold War nuclear weapons dynamics at the major power level that invariably focuses on a tri-polar relationship between Russia, America and China. British and French nuclear capabilities are an afterthought.<sup>71</sup>

### A Future Russian Nuclear Threat?

The second assumption about future Russian/Chinese strategic nuclear threats is also problematic. The logic of the Government's argument is that Russia still has nuclear weapons so an *existential* nuclear threat to the UK and Europe still exists and we must therefore keep nuclear weapons. This logic obscures the fact that the Soviet Union was perceived in the West as an ideologically driven, aggressive, expansionist empire. Today's context, and the future context projecting

forward, is radically different. In fact the overall trend in relations with both countries has been extremely positive since the end of the Cold War and the collapse of the Soviet Union in 1991 and following a resumption of relations with Beijing in the early 1990s after the Tiananmen Square massacre.

Russia foreign minister Sergei Lavrov stated in 2007 that after the Cold War Russia "renounced an ideology of imperial and other 'great plans' in favour of pragmatism and common sense".<sup>72</sup> Robert Levgold, professor of political science at Columbia University, similarly finds that a new Cold War is the least realistic of future possible paths between Russia and the West: "the animus is missing. The relationship has neither a profound ideological underpinning, nor is it menaced by far-reaching aggressive aims on one or both sides".<sup>73</sup> Soviet President Mikhail Gorbachev's insistence that Soviet/Russia prosperity must be based on the principles of cooperative security and Russian President Yeltsin's embrace of capitalism has been steadily institutionalised since the late 1980s.<sup>74</sup> As Sergei Lavrov stated in 2007 "Russia concedes to the generally held belief that democracy and the market must make up the basis of the socio-political system and economic life. There is no doubt that we are at the beginning of this path and are still far away from an ideal situation. But the development vector has been chosen – and chosen irrevocably".<sup>75</sup> Russia is now integrated into the globalised international economy, is in final talks to join the World Trade Organisation and is dependent on European and Western markets. It is now tied into a range of international political and economic agreements and institutions including the 1975 Helsinki Final Act and its

<sup>69</sup> Raymond Garthoff, *Deterrence and the Revolution in Soviet Military Doctrine*, Brookings Institution Press, Washington D.C., 1990; Robin Laird and Susan Clark, 'Soviet Perspectives on British Security Policy', in Laird, R. and Clark, S. (eds), *The USSR and the Western Alliance*, Boston Unwin Hyman, 1990, p. 132.

<sup>70</sup> Christopher Bluth, "The Security Dimension", in Pravda, A. and Duncan, P., "*Soviet-British Relations since the 1970s*", Cambridge University Press, Cambridge, 1990, p. 97

<sup>71</sup> See Brad Roberts, *Nuclear Polarity and Stability*, Institute for Defense Analysis for the Defense Threat Reduction Agency, Alexandria, VA, November 2000, p. 12.

<sup>72</sup> Sergei Lavrov, "Containing Russia: Back to the Future?", *Russia in Global Affairs*, no. 4 Oct-Dec 2007, p. 1.

<sup>73</sup> Robert Levgold, "U.S.-Russian relations: An American perspective", *Russia in Global Affairs*, no. 4 Oct-Dec 2006.

<sup>74</sup> Richard Rhodes, *Arsenals of Folly: The Making of the Nuclear Arms Race*, Knopf, New York, 2007.

<sup>75</sup> Lavrov, "Containing Russia".



Organisation for Security and Cooperation in Europe (OSCE); the G8 which it joined in 1997; and a major Partnership and Cooperation Agreement (PCA) with the EU.

The British government has repeatedly stated that close engagement with Russia is essential and that “where obstacles and disagreements exist, our aim will continue to be to seek to resolve them by means of a transparent, open and honest dialogue”.<sup>76</sup> Nearly ten years ago former Prime Minister Tony Blair’s asserted that “we will all benefit hugely from a thriving Russia making use of its immense natural resources, its huge internal market and its talented and well-educated people. Russia’s past has been as a world power that we felt confronted by. We must work with her to make her future as a world power with whom we co-operate in trust and to mutual benefit”.<sup>77</sup> As an example how just how much has changed since the end of the Cold War, in May 2006 the RAF’s Rugby League team played against the Russian Space Forces in the ‘closed’ city of Krasnoznamensk which hosts a mission control centre for military satellites (the RAF lost).<sup>78</sup> It is also clear that Britain’s policies and actions are not a priority for Russia in Europe where Germany and France that are seen to be at the heart of the EU.<sup>79</sup>

Russia is, and can be expected to remain, broadly satisfied with the current

<sup>76</sup> ‘Written evidence by the Foreign and Commonwealth Office’, *Global Security: Russia*, House of Commons Foreign Affairs Committee report HC 51, The Stationery Office: London, November 2007, Ev. 77; “The Big Freeze”, *The Economist*, July 19, 2007.

<sup>77</sup> Tony Blair, “Doctrine of the International Community”, speech at the Economic Club, Chicago, April 24, 1999.

<sup>78</sup> “Behind the iron curtain: an RAF Rugby League special feature”, *Defence News*, 8 May 2006.

Available at [www.mod.uk/DefenceInternet/DefenceNews/PeopleInDefence/BehindTheIronCurtainAnRafRugbyLeagueSpecialFeature.htm](http://www.mod.uk/DefenceInternet/DefenceNews/PeopleInDefence/BehindTheIronCurtainAnRafRugbyLeagueSpecialFeature.htm).

<sup>79</sup> Rod Thornton, “Current United Kingdom-Russia Security Relations”, in Smith, H (ed), *The Two-Level Game: Russia’s Relations with Great Britain Finland and the European Union*, University of Helsinki: Helsinki, 2006, p. 156.

international political status quo. Russia may not accept all aspects of the dominant Western-led international order, but it is not a revisionist state. The possibility of Moscow attempting to re-order the international system through military force, including the threat or use of nuclear weapons, is extremely remote. It is instead seeking to accommodate the prevailing order to fit its national interests, which includes constraining American unilateralism in variety of contexts in a favour of a ‘multi-polar’ world. Russia’s long-term integration into the global economy and prevailing political order mean that the costs of major power aggression are now enormous in terms of GDP costs to all potential parties, with or without nuclear deterrent threats. The UK Ministry of Defence’s Development, Concepts and Doctrine Centre (DCDC) argued in 2007, for example, that “Major interstate wars will be unlikely, because of the increasing economic interdependence of states in a globalized economy and the need to confront the symptoms of a challenging range of transnational problems, which *will* enhance the requirement for cooperative governance and action”.<sup>80</sup>

At the strategic security level Britain’s relationship with Moscow is subsumed by Russia’s relationship with the EU, OSCE and NATO.<sup>81</sup> Both NATO and Russia have accepted that engagement and partnership is the only sustainable path for lasting security. Denis Alexeev, for example, reports that “the majority of representatives of the Russia ruling elite and society are sure that the only correct choice for Russia is to strengthen its strategic partnership with the West”.<sup>82</sup> In 2005 President Vladimir Putin stated that “the choice made in favour of dialogue and cooperation with NATO was the right

<sup>80</sup> *Global Strategic Trends: 2007-2036*, 3<sup>rd</sup> ed., Development, Concepts and Doctrine Centre, Shrivenham, January 2007, p. 67.

<sup>81</sup> Thornton, “Current United Kingdom-Russia Security Relations”, p. 156.

<sup>82</sup> Denis Alexeev, *Russia and the Security System of Transatlantic Security: Perspectives for the Future*, George C. Marshall Center, Germany, September 2006, p. 11.

one and ha[s] proved fruitful".<sup>83</sup> Russia is party to the 1997 NATO-Russia Founding Act and 2002 NATO-Russia Council that commits both parties to a stable, peaceful and undivided Europe and has participated in NATO exercises and NATO-led joint operations.

In 2002 NATO opened a Military Liaison Mission in Moscow and set out four confidence-building measures to engage Russia based on: enhancing and deepening dialogue on matters related to nuclear forces; exchanging information regarding the readiness status of nuclear forces; exchanging information on safety provisions and safety features of nuclear weapons; and exchanging data on U.S. and Russian sub-strategic nuclear forces.<sup>84</sup> Britain is also directly involved in a range of cooperative nuclear threat reduction tasks in Russia, including dismantling former Soviet nuclear missile submarines.<sup>85</sup>

In 2007 the Alliance stated that "the threat of general war in Europe has virtually disappeared" and the "circumstances in which any use of nuclear weapons might have to be contemplated are extremely remote" and once more stressed the importance of consultation and cooperation with Russia on nuclear weapons.<sup>86</sup> Former US Ambassador James Goodby and former member of the President's Foreign Intelligence Advisory Board and professor of theoretical physics Sidney Drell concur and argue that "as a

practical matter, nuclear deterrence has essentially disappeared from NATO's missions".<sup>87</sup> Dmitri Trenin argues that the same applies in Russia: "from Moscow's perspective, deterring NATO's two other nuclear powers, France and Britain, is practically no longer relevant. Russia's relations with the nations of the European Union are de facto demilitarized".<sup>88</sup>

In America the Bush administration articulated a strong desire to establish "a new strategic framework" with Russia in which the balance of nuclear forces and the condition of mutual assured destruction were no longer central to their relationship. President Bush declared that he wanted to "complete the work of changing our relationship from one based on a nuclear balance of terror to one based on common responsibilities and common interests...We may have areas of difference with Russia, but we are not and must not be strategic adversaries" with Secretary of Defence Donald Rumsfeld insisting that "the idea of an arms race between the United States and Russia today is ludicrous".<sup>89</sup> This was symbolised in the 2002 Strategic Offensive Reductions Treaty to reduce and limit American and Russia strategic nuclear force deployments and the May 2002 "Joint Declaration on a New Strategic Relationship between Russia and the United States" that formally marked the end of "the era in which the United States and Russia saw each other as an enemy or strategic threat".<sup>90</sup> This was reaffirmed in April 2008.<sup>91</sup>

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<sup>83</sup> Alexeev, *Russia and the Security System of Transatlantic Security*, p. 14-16.

<sup>84</sup> *Report on Options for Confidence and Security Building Measures (CSBMs), Verification, Non-Proliferation, Arms Control and Disarmament*, NATO, Brussels, December 2000, pp. 22-25.

<sup>85</sup> Foreign and Commonwealth Office and Department for Business, Enterprise and Regulatory Reform, *Global Threat Reduction, Fifth Annual Report*, February 2008, The Stationery Office: London.

<sup>86</sup> "NATO's Positions Regarding Nuclear Non-Proliferation, Arms Control and Disarmament and Related Issues", NATO, Brussels, July 5, 2007; "NATO Handbook" NATO, Brussels, 2001, p. 53; "Final Communiqué", Ministerial Meeting of the Defence Planning Committee and the Nuclear Planning Group, NATO, Brussels, June 15, 2007.

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<sup>87</sup> James Goodby and Sidney Drell, *What are Nuclear Weapons For?* Arms Control Association, Washington, D.C., April 2005, p. 12.

<sup>88</sup> Dmitri Trenin, *Russia Nuclear Policy in the 21<sup>st</sup> Century Environment*, Proliferation Papers, IFRI Security Studies Department, Autumn 2005, p. 11.

<sup>89</sup> George W. Bush, G. W. *Remarks at the National Defense University*, May 1, 2001, Washington, D.C., The White House; *Testimony by Donald H. Rumsfeld, Secretary of Defense*, Hearing before the Senate Committee on Armed Services, July 25, 2002, Government Printing Office, Washington, D.C.

<sup>90</sup> *Joint Declaration by President George W. Bush and President Vladimir V. Putin on the New Strategic Relationship Between the United States of*

Nevertheless, Russian nationalism and its steady re-emergence as a major power after its post-Cold War decline will inevitably bring it into confrontation with other countries, including those in Europe, the Middle East, Central Asia, and China and the United States. This may include differences over the deployment of missile defences and the future of the US-Russian nuclear arms reductions process, human rights and authoritarian governance, energy supplies and access to energy resources in the Caspian basin, the host of complex military, economic and political disputes in the Middle East and South Caucasus and Western activities in the countries of the Commonwealth of Independent States, particularly Ukraine.<sup>92</sup> There is also a powerful constituency in America that continues to view Russia as a rival power to be contained unless and until it fully aligns with the West. Republican presidential candidate Senator John McCain argued in March 2008 that the dangers posed by a revanchist Russia had to be confronted and that it should be excluded from the G8 because of its weak democratic institutions.<sup>93</sup>

Russia's elite continues to harbour significant suspicions about Western military intentions and seeks to limit and constrain unilateral American and Western actions that are perceived to undermine its understanding of strategic stability.<sup>94</sup> As Dmitri Trenin argues, Moscow "has had to factor in US military interventionism; its unilateral missile defense program; US

troop deployments to former Soviet republics; and above all the reality of overwhelming US military superiority".<sup>95</sup> Despite future tensions, disagreements and political crises, some of which may have military dimensions, it is barely conceivable that British nuclear deterrent threats and consideration of using nuclear weapons against Russia will ever be part of the solution to future confrontations given the absence of ideological enmity. The extent to which Russia brandishes nuclear threats in the future will be a function of its perception of Western, particularly NATO, strategic encirclement that belittles Russian interests. Russian fears of a long-term containment strategy can only be overcome through continued engagement by Britain and the West and the integration of Russia into European security structures.<sup>96</sup>

Russian nuclear forces are steadily being reduced alongside some modernisation, which has raised concerns in Britain.<sup>97</sup> In 2002 Russia and America agreed in the Moscow Treaty to reduce deployed strategic nuclear forces to between 2,200 and 1,700 warheads. Additional warheads will be kept in reserve and non-strategic nuclear weapons are not included. Russia currently has an arsenal of approximately 2,300 non-strategic nuclear forces.<sup>98</sup> Russia's nuclear modernisation programmes are directed at ensuring nuclear parity with America and the capability to overcome American missile defences. Russia is modernising its strategic nuclear forces in part to ensure they don't fall below Moscow Treaty levels, despite the questionable necessity of strategic parity with America. Both President Yeltsin and President Putin tried to negotiate greater reductions in strategic forces to between 1,000 and 1,500 strategic warheads but so far this has not

*America and the Russian Federation*, May 24, 2002, Washington, D.C., The White House.

<sup>91</sup> *U.S.-Russia Strategic Framework Declaration*, April 6, 2008, The White House, Washington, D.C.

<sup>92</sup> Eugene Rumer, *Russian Foreign Policy Beyond Putin*, Adelphi Paper 390, International Institute for Strategic Studies, London 2007; 'Written evidence by the Foreign and Commonwealth Office', *Global Security: Russia*, The Stationery Office, Ev. 78.

<sup>93</sup> "John McCain's Foreign Policy Speech", *New York Times*, March 26, 2008.

<sup>94</sup> Rumer, *Russian Foreign Policy Beyond Putin*; Goldman, S., *Russian Political, Economic, and Security Issues and U.S. Interests*, Washington, D.C.: CRS Report for Congress, Congressional Research Service, 2007; *The National Security Strategy of the United States of America*, The White House, Washington, D.C., 2006, p. 39.

<sup>95</sup> Trenin, *Russia Nuclear Policy*, p. 10.

<sup>96</sup> Lavrov, "Containing Russia"; *Global Security: Russia*, The Stationery Office, p. 5.

<sup>97</sup> *Global Security: Russia*, The Stationery Office, pp. 101-105.

<sup>98</sup> See Robert Norris and Hans Kristensen, "Russian Nuclear Forces, 2007", *Bulletin of the Atomic Scientists*, 63(2), March/April 2007, pp. 61-64.

been possible.<sup>99</sup> It is ironic that it is Britain's primary ally that has resisted reaching a binding agreement with Russia to significantly reduce strategic nuclear forces a 1,000 warheads or even lower. Russia also views American plans to deploy missile defence systems in Central Europe to complement those in the United States and East Asia as destabilising. Moscow's fear, plausible or not, is that an open-ended missile defence programme could provide America with the capability to realistically threaten a decisive nuclear first-strike against Russia's aging strategic nuclear forces and then successfully defend itself against a retaliatory nuclear attack by any surviving Russian nuclear forces.<sup>100</sup>

Nuclear modernisation programmes include:

- The silo-based SS-27 Topol-M single warhead inter-continental ballistic missile (ICBM) that was first deployed in 1997 and a mobile version (SS-27A Topol-M1) first deployed in 2006. It is estimated that 50 Topol-M/M1 missiles will be deployed by 2015. They are replacing older SS-25 (Sickle) missiles first deployed in 1985.
- A new multiple-warhead ICBM, the RS-24, first tested in May 2007 to replace the aging SS-18 (Satan) and SS-19 (Stiletto) missiles first deployed in 1979 and 1980 and developed in response to the American decision in 2002 to withdraw from the 1972 Anti-Ballistic Missile Treaty that placed major limits on the Russian and American missile defence systems.
- The new SS-NX-30 (Bulava) multiple-warhead submarine-launched ballistic missile (SLBM) for deployment aboard a new fleet of up to eight Borey-class ballistic missile

submarines. The missile's development has been plagued with difficulty including a number of failed tests and only one Borey-class submarine has been completed and is expected to undergo sea trials in 2008. These will replace the Delta III-class submarines and their SS-N-18 (Stingray) SLBMs first deployed in 1978.

- Modernisation of its fleet of six Delta IV-class ballistic missile submarines is being upgraded and their SS-N-23 (Skiff) SLBMs.
- Serial production of a modernised Tu-160 Blackjack long-range bomber to replace aging Tu-95 Bear bombers first deployed in 1984.<sup>101</sup>

### **Nuclear confrontation with China?**

The other major power that could possibly threaten UK territory and vital interests with nuclear weapons is China. Yet China's gradual rise and integration into the global economy, the evolution of China's nuclear forces and the geographical location of potential regional security crises involving China suggest that British nuclear weapons have no role to play in its relationship with China or future regional crises in East Asia.

As with Russia, tensions and crises will continue to occur over China's many territorial disputes with its neighbours, most prominently over the status of Taiwan and islands in the South China Sea. China will also continue to face major internal economic, political, demographic and environmental pressures that will affect its regional and international foreign and defence policies. Disputes will continue over China's human rights record; growing

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<sup>99</sup> See Mark Clark, "Seven Worries about START III", *Orbis*, 45(2), Spring 2001.

<sup>100</sup> Rumer, *Russian Foreign Policy Beyond Putin*, p. 69; Kier Lieber and Daryl Press, "The Rise of Nuclear Primacy", *Foreign Affairs*, March-April 2006.

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<sup>101</sup> Norris and Kristensen, "Russian Nuclear Forces, 2007", pp. 61-64; Pavel Podvig, "Russian Strategic Nuclear Forces", available at <<http://russianforces.org/current/>>, accessed March 3, 2008.

conventional military capabilities and their impact on regional stability; trade policies; activities in Africa; and role in the global energy market. More generally there is concern about the impact of China's rise on the current international system and a shift in the centre of gravity of international politics away from the Atlantic and toward the Pacific.

Nevertheless, China's history of the past several decades suggests that Beijing will continue to prioritise economic development and that it will continue to steadily integrate into the global economy and international political system exemplified by its membership of the World Trade Organisation in 2001, and its role in the Association of Southeast Asian Nations Regional Forum (ARF) and the Asia Pacific Economic Cooperation (APEC) forum.<sup>102</sup> As the European Commission's 2006 Communication *EU-China: Close Partners, Growing Responsibilities* states "China is, with the EU, closely bound to the globalisation process and becoming more integrated into the international system".<sup>103</sup> It, like Russia, is relatively content with the international system and repeatedly stresses its peaceful rise and co-existence with the world's major powers. It relies heavily on Western export markets to support its primary objective of economic growth and values economic stability above much else.

Relations between Britain and China have steadily improved since the early 1990s after the 1989 Tiananmen Square massacre. Relations are in the "best shape ever" according to Foreign Secretary Margaret Beckett in 2007.<sup>104</sup> Britain and

<sup>102</sup> *China-U.S. Relations: An Affirmative Agenda, A Responsible Course*, Report of an Independent Task Force, Council on Foreign Relations, Washington, D.C., 2007, p. 4.

<sup>103</sup> *EU-China: Close Partners, Growing Responsibilities*, Communication from the Commission to the Council and the European Parliament, Commission of the European Communities, Brussels, 2006, p. 2.

<sup>104</sup> "Interview: British FM says Britain-China Relations 'in the best shape'", *People's Daily Online*, May 14, 2007. Available at

China now enjoy annual summits, Britain is the largest European investor in China with 6,000 projects worth over \$15 billion and in 2003 the Government established a dedicated China Task Force. Prime Minister Gordon Brown declared in January 2008 that "I see the rise of China and the reality of globalisation not as a threat but as an opportunity" for British companies and greater global prosperity. He announced a new high-level economic and financial dialogue between China and Britain "that is more comprehensive and deeper than any previous dialogue between China and any European country".<sup>105</sup> Bilateral trade is booming, increasing by 111% between 2001 and 2005.<sup>106</sup> Britain remains a supporter of the 'one China' policy with regard to Taiwan and it does not recognise Taiwan as a state or have diplomatic relations with it. Britain has also held two rounds of an annual 'strategic dialogue' with Chinese civilian and military experts, Chinese military officers are being trained in British military staff colleges and in 2004 the Royal Navy held a joint military exercise with the People's Liberation Army Navy, a first in military-to-military exchanges.<sup>107</sup>

Relations between the EU and China have undergone a similar transformation. David Shambaugh writes that "the breadth and depth of Europe-China relations are impressive, and the global importance of the relationship ranks it as an emerging

<[http://english.peopledaily.com.cn/200705/14/eng20070514\\_374365.html](http://english.peopledaily.com.cn/200705/14/eng20070514_374365.html)>.

<sup>105</sup> *Prime Minister hails new partnership with China*, Speech by Prime Minister Gordon Brown at the UK-China Business Summit, Prime Minister's Office, London, January 18, 2008.

<sup>106</sup> *Country Profile: China*, Foreign and Commonwealth Office. Available at <<http://www.fco.gov.uk/servlet/Servlet?pagename=OpenMarket/Xcelerate/ShowPage&c=Page&cid=1007029394365&a=KCountryProfile&aid=1018965313021>> accessed on March 3, 2008.

<sup>107</sup> David Shambaugh, "China and Europe: The Emerging Axis", *Current History*, September 2004, pp. 243-244; "Chinese, British Navies to Hold Maritime Exercises", *People's Daily Online*, June 17, 2004. Available at

<[http://english.peopledaily.com.cn/200406/17/eng20040617\\_146710.html](http://english.peopledaily.com.cn/200406/17/eng20040617_146710.html)>.

axis in world affairs...a comprehensive and multidimensional relationship – even strategic partnership”.<sup>108</sup> Since 1995 the European Commission has published a series of policy papers to guide EU ties with China and engage it in global multilateral institutions. There are currently twenty separate dialogues and working groups on a range of issues and in January 2007 negotiations began on a new EU-China Partnership and Cooperation Agreement (PCA).<sup>109</sup> An annual EU-China summit to expand cooperation has also been held since 1998. A crucial factor in their burgeoning cooperation according to Shambaugh is “the absence of a ‘Taiwan factor’ [that] removes a significant potential irritant in EU-China ties” and the absence of significant military or strategic European interests in East Asia.<sup>110</sup>

America has also initiated a new round of strategic dialogue with China since 2005 that now includes a programme of high-level dialogue, working-level talks, reciprocal ship visits and other exchanges.<sup>111</sup> Former Secretary of State Henry Kissinger also made the important point in 2005 that “Starting with Richard Nixon, seven presidents have affirmed the importance of cooperative relations with China and the U.S. commitment to a one-China policy” albeit with some temporary detours.<sup>112</sup> Nevertheless, an important body of opinion, particularly within the Republican Party, sees China as a rising threat to America's economic well being and geo-political influence with an inevitable confrontation set for the middle of the century.<sup>113</sup> Kissinger warns against this view and states that “It is unwise to

substitute China for the Soviet Union in our thinking and to apply to it the policy of military containment of the Cold War. The Soviet Union was heir to an imperialist tradition, which, between Peter the Great and the end of World War II, projected Russia from the region around Moscow to the center of Europe. The Chinese state in its present dimensions has existed substantially for 2,000 years...the challenge China poses for the medium-term future will, in all likelihood, be political and economic, not military.”<sup>114</sup> In 2007 America and China agreed to open a defence hotline, deepen dialogue on nuclear issues, and increase military exchanges despite concerns in Washington about China's conventional military modernisation.<sup>115</sup>

A major report by a Council on Foreign Relations independent task force in 2007 on US-China relations led by former US Trade Representative Carla Hills and Dennis Blair, former head of the Institute for Defense Analyses, concluded that “China's overall trajectory over the past thirty-five years of engagement with the United States is positive. Growing adherence to international rules, institutions, and norms – particularly in the areas of trade and security – marks China's global integration”.<sup>116</sup> The report also notes Chinese concerns about strategic encirclement that mirror those in Russia: “officials interpret U.S. military deployments to Central Asia and outreach to Mongolia and Vietnam as part of an effort to encircle China. Beijing remains deeply concerned about the implications of U.S. arms sales to Taiwan, and military planners also fear that the United States in a crisis might seek to cut off China's

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<sup>108</sup> Shambaugh, “China and Europe”, p. 243.

<sup>109</sup> David Shambaugh, “China-Europe Relations Get Complicated”, *Brookings Northeast Asia Commentary*, The Brookings Institution, March 4, 2008.

<sup>110</sup> Shambaugh, “China and Europe”, p. 243, p. 246.

<sup>111</sup> Jim Garamone, “Pace Visit Paves Way for Better Relations with China”, *American Force Press*, March 25, 2007.

<sup>112</sup> Henry Kissinger, “China: Containment Won't Work”, *Washington Post*, June 13, 2005.

<sup>113</sup> *China-U.S. Relations*, Council on Foreign Relations, pp. 4-5.

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<sup>114</sup> Kissinger, “China: Containment Won't Work”.

<sup>115</sup> “China, US agree to deepen military dialogue, but concerns remain”, *Space Daily*, November 5, 2007. Available at

<[http://www.spacewar.com/reports/China\\_US\\_agree\\_to\\_deepen\\_military\\_dialogue\\_but\\_concerns\\_remain\\_999.html](http://www.spacewar.com/reports/China_US_agree_to_deepen_military_dialogue_but_concerns_remain_999.html)> accessed March 2, 2008.

*Quadrennial Defense Review Report*, Office of the Secretary of Defense, Department of Defense, Washington, D.C. February 2006, p. 29.

<sup>116</sup> *China-U.S. Relations*, Council on Foreign Relations, p. 7.

access to strategic commodities.”<sup>117</sup> It recommends sustained and systematic official dialogue on military affairs to enhance trust and reduce the potential for miscommunication.<sup>118</sup>

China’s overwhelming military focus is on ensuring Chinese sovereignty, national unity and national development and preparing for contingencies involving Taiwan, including the possibility of American intervention.<sup>119</sup> Western intelligence estimates have long predicted a major expansion of Chinese strategic nuclear forces that has failed to materialise and Beijing has kept its nuclear forces at a deliberately low level. China’s total deployed nuclear force is estimated at 130 warheads with perhaps a further 70 in storage. China’s arsenal is therefore comparable to Britain’s, and in fact in 2004 the Chinese Foreign Ministry declared that it had the smallest arsenal of all the nuclear weapon states.<sup>120</sup>

China currently deploys approximately 80 land-based nuclear ballistic missiles, all of which carry single warheads. Only 20 of these, the DF-5 (CSS-4), are of inter-continental range of 13,000km and were first deployed in 1981. China has been upgrading these missiles since the late 1980s but its modernisation programme has proceeded at a very slow pace. It has also had the technical capability to deploy multiple warheads on its missiles but has chosen not to do so. A new missile currently in development is the DF-31 to replace the aging DF-4 missiles first deployed in 1980. The DF-31 is estimated to have a range of around 7,200km but a longer-range version, the DF-31A, may also be deployed in the next few years with a range of 11,000km. Some suggest

that the DF-31A or modernised DF-5 may be modified to carry multiple warheads.<sup>121</sup>

China has struggled to deploy submarine-launched ballistic missiles. It currently deploys only one ballistic missile submarines a single Xia-class submarine configured to carry 12 single-warhead Julang (JL)-1 SLBMs of 1,700km range that was first deployed in 1981, has rarely gone on deterrent patrol or ventured far from Chinese waters and whose operational status is questionable. China is currently developing a new Jin-class SSBN that will carry between 10 and 12 of the new JL-2 SLBMs that are thought to have a range of 7,200-8,000km. American intelligence predicts that the first submarine may be deployed by 2010 after significant delays.<sup>122</sup> Experts suggest that by 2015 China’s nuclear stockpile may number 220 warheads after it deploys the new generation of ballistic missiles and perhaps three Jin-class SSBNs.

Chinese nuclear doctrine is based on ‘minimum deterrence’ and a declaratory policy of ‘no-first use’ of nuclear weapons in a conflict. China states its nuclear weapons are for self-defence and its arsenal is based on the principle of limited development of nuclear weapons.<sup>123</sup> None of China’s long-range nuclear forces are believed to be on alert, the warheads for its 20 ICBMs are stored at a separate location near the missiles and the few long range ballistic missiles it possesses are generally thought to target the United States and Russia rather than Europe.<sup>124</sup>

<sup>121</sup> Norris and Kristensen “Chinese Nuclear Forces”; Hans Kristensen, ‘Chinese Nuclear Arsenal Increased by a Third Since 2006, Pentagon Report Indicates’, *Strategic Security Blog*, March 6, 2007. Available at <[http://www.fas.org/blog/ssp/2008/03/chinese\\_nuclear\\_arsenal\\_increased.php#more-206](http://www.fas.org/blog/ssp/2008/03/chinese_nuclear_arsenal_increased.php#more-206)>, accessed March 6, 2008.

<sup>122</sup> Norris and Kristensen “Chinese Nuclear Forces”; *Military Power of the People’s Republic of China*, U.S. Department of Defense, p. 4.

<sup>123</sup> *Military Power of the People’s Republic of China*, U.S. Department of Defense, p. 19.

<sup>124</sup> Hans Kristensen, Robert Norris, Matthew McKinzie, *Chinese Nuclear Forces and U.S. Nuclear War Planning*, Federation of American

<sup>117</sup> *Ibid.*, p. 9.

<sup>118</sup> *Ibid.*, p. 67.

<sup>119</sup> *Military Power of the People’s Republic of China*, Annual Report to Congress, U.S. Department of Defense, Washington, D.C., 2008.

<sup>120</sup> Robert Norris and Hans Kristensen, “Chinese Nuclear Forces, 2006”, *Bulletin of the Atomic Scientists*, 62(3), May/June 2006, pp. 60-63.





### 3. Deterring 'Rogue' States

The Government's second area of deterrence focuses on deterring the use of nuclear weapons or other WMD by so-called 'rogue' states. The branding of a particular groups of states as 'rogues' occurred soon after the Cold War when America began to examine how to configure its armed forces to deal with the proliferation of nuclear, biological and chemical weapons and advanced conventional weaponry to the Third World, particularly to despotic regimes. It was argued that this new breed of 'rogue' states would attempt to use WMD to deter America from taking action against them on issues affecting vital American interests.<sup>125</sup> The new crop of 'rogue' states was soon labelled the primary strategic threat to national security after the collapse of the Soviet Union, a view that was reinforced by Iraq's invasion of Kuwait in August 1990 and continued throughout the 1990s.<sup>126</sup> The attacks of

9/11 expanded America's focus on 'rogues' and WMD to include terrorist networks that must be confronted: "We must be prepared to stop rogue states and their terrorist clients before they are able to threaten or use weapons of mass destruction against the United States and our allies and friends", President George W. Bush argued, "...The overlap between states that sponsor terror and those that pursue WMD compels us to action".<sup>127</sup>

Three states in particular have fit 'rogue' criteria: Iran, Iraq and North Korea. America's 2002 *National Security Strategy* defined these 'rogues' as states that: "Brutalize their own people and squander their national resources for the personal gain of the rulers; display no regard for international law, threaten their neighbors, and callously violate international treaties to which they are party; are determined to acquire weapons of mass destruction, along with other advanced military technology, to be used as threats or offensively to achieve the aggressive designs of these regimes; sponsor terrorism around the globe; and reject basic human values and hate the United States and everything for which it stands."<sup>128</sup>

British foreign and defence policy has followed America's post-Cold War focus on 'rogue' states and WMD as a general umbrella for nuclear, chemical and biological weapons that does not readily

<sup>125</sup> May, M. (1992), *testimony of Michael May*, Hearing before the House of Representatives Committee on Armed Services, 8 April 1992, Government Printing Office, Washington, D.C.; Reed, T. (1992), *testimony of Thomas C. Reed*, Hearing before the House of Representatives Committee on Armed Services, 8 April 1992, Government Printing Office, Washington, D.C.

<sup>126</sup> David Callahan, *Between Two Worlds: Realism, Idealism, and American Foreign Policy After the Cold War*, New York, HarperCollins, 1994, pp. 97, 156. See also CIA Director Robert Gates, *Statement of Robert M. Gates, Director, Central Intelligence Agency*, Hearing before the Defense Policy Panel of the House of Representatives Committee on Armed Services on "Potential Threats to American Security in the Post-Cold War Era", December 11, 1991, U.S. Government Printing Office, Washington, D.C.; General John Shalikashvili, "Strategy for the 90's: Building on the Past - Looking to the Future", Remarks at the National Defense University, Fort McNair, February 2, 1994, U.S. Joint Chiefs of Staff, Washington, D.C.; and William Cohen, Annual Report to the President and the Congress,

U.S. Department of Defense, Washington, D.C., 1997.

<sup>127</sup> *National Security Strategy*, The White House, 2002, p. 15.

<sup>128</sup> *Ibid.*, p. 14.

distinguish between them.<sup>129</sup> The 1998 *Strategic Defence Review* highlighted “very dangerous regimes” around the world and “an increasing danger from the proliferation of nuclear, biological and chemical technologies. As Iraq has amply demonstrated, such regimes threaten not only their neighbours but vital economic interests and even international stability”.<sup>130</sup> The 9/11 attacks similarly shifted attention to the potential nexus of ‘rogue’ states, WMD and international terrorism. The 2003 Defence White Paper on *Delivering Security in a Changing World* remarked that “While many of the conclusions reached in the SDR remain valid, the threats posed by international terrorism and the proliferation of weapons of mass destruction are starker, as are the risks to wider security posed by failed or failing states.”<sup>131</sup> By 2003 Britain accepted the view that “International terrorism and the proliferation of WMD represent the most direct threats to our peace and security.”<sup>132</sup> The response was to prepare to “coerce, disrupt or destroy international terrorists or the regimes that harbour them and to counter terrorists’ efforts to acquire chemical, biological, radiological and nuclear weapons”. This required expeditionary forces to intervene against terrorists groups and ‘rogue’ states that could operate alongside with American forces and be rapidly and frequently deployed beyond core regions of Europe, the Middle East and the Mediterranean.<sup>133</sup> The invasion of Iraq in 2003 was part of this ‘rogue state’ doctrine.

It is highly likely that the UK will continue to engage in regional crises with conventional military forces in the name of international peace and stability. This might bring it into conflict with WMD-armed adversaries. For this reason, the Government argues, Britain needs to keep

its nuclear weapons to deter a ‘rogue’ state from using its WMD against Britain or its ‘vital interests’ and to resist ‘nuclear blackmail’ or coercion by a ‘rogue’ state trying to “deter us and the international community from taking the action required to maintain regional and global security”.<sup>134</sup> In fact Blair argued that “the notion of unstable, usually deeply repressive and anti-democratic states, in some cases profoundly inimical to our way of life, having a nuclear capability, is a distinct and novel reason” for Britain to keep its nuclear weapons.<sup>135</sup>

But there are major problems with this rationale: 1) the credibility of British deterrent threats to use nuclear weapons against a regional ‘rogue’ is highly questionable; 2) the risk of escalation to the use of nuclear weapons is real; 3) the effect of using just a handful of British nuclear weapons would be devastating and deeply counter-productive; 4) ‘nuclear blackmail’ or coercion has rarely worked in practice.

### **The Credibility of Regional British Nuclear Deterrent Threats**

Future scenarios involving the use or threat of use of WMD by ‘rogue’ states invariably involve threats to use them in response to Western military intervention rather than a surprise ‘bolt from the blue’ WMD attack. Important lessons have been learnt from American/allied coalition actions in the 1991 Gulf War, 1999 Kosovo conflict, 2002 invasion of Afghanistan and 2003 invasion of Iraq, the most profound of which is not to aggravate the United States and its allies in a key geopolitical region unless you have nuclear weapons. A report by the Institute for Defense Analysis for the Pentagon’s Defense Threat Reduction Agency outlines a post-1999 ‘Kosovo

<sup>129</sup> See Elke Krahnmann, “United Kingdom: Punching Above its Weight”, in Kirchner, E. and Sperling, J. (eds), *Global Security Governance*, Routledge, Abingdon, 2007, pp. 93-112.

<sup>130</sup> *Strategic Defence Review*, MOD, para 10.

<sup>131</sup> *Delivering Security in a Changing World*, MOD, p. 2.

<sup>132</sup> *Ibid.*, p. 4.

<sup>133</sup> *Ibid.*, p. 3.

<sup>134</sup> MOD and FCO, *The Future of the United Kingdom’s Nuclear Deterrent*, p. 6.

<sup>135</sup> Tony Blair, “Parliamentary Statement on Trident”, December 4, 32006, Prime Minister’s Office, London.

syndrome' whereby regional countries "looked with alarm at what they saw as the increasing willingness of the United States to use its military supremacy to impose its liberal-democratic vision and values on the rest of world". This has led to "a new nuclear paradigm in which small and medium powers will try – perhaps with nuclear weapons – to deter the United States from projecting its overwhelming [conventional] military power into their internal or regional conflicts".<sup>136</sup>

The credibility of British nuclear deterrent threats is essential to their effectiveness. Yet there are serious questions about the credibility of the threat to use high-yield nuclear weapons against a 'rogue' state, even if the UK or Western Europe is attacked with WMD. These questions rest on the argument that the use of nuclear weapons in retaliation for the use of 'rogue' WMD or a pre-emptive nuclear strike against WMD capabilities would likely be a disproportionate and indiscriminate response, deeply counter-productive to Western political objectives and would be seen to be so at home and abroad.

This is exacerbated if the regional 'rogue' uses relatively unsophisticated WMD to attack Western intervening forces or homelands that do not cause massive casualties and social breakdown and if the regime has much more to lose than Western interveners. The credibility of the threat to use British nuclear weapons in response to the use of unsophisticated biological and chemical weapons or perhaps a primitive nuclear device is undermined by the disproportionate nature of the response. Two important asymmetries come into play here: First, Britain and America have far more advanced conventional military capabilities than any regional 'rogue', they can increasingly operate in a CBW

<sup>136</sup> Caroline Ziemke, *Strategic Personality and the Effectiveness of Nuclear Deterrence: Deterring Iraq and Iran*, Institute for Defense Analysis for the Defense Threat Reduction Agency, Alexandria, VA, September 2001, p. ES-2.

(chemical and biological weapons) environment and they can inflict major devastation within a relatively short period in response to limited use of WMD, including a primitive nuclear weapon. The stakes in a conflict are also prone to be far greater for the 'rogue' regime if its survival is threatened than for America or Britain, who will almost certainly have far less to lose and whose national survival is very unlikely to be at stake.<sup>137</sup>

As Ivan Oelrich from the Federation of American Scientists argues, the "problem with using the threat of nuclear retaliation to deter CBW attacks on the homeland is not that nuclear weapons are inadequate to the task, but that they are excessive, thus raising the question of proportionality, and hence the credibility, of their use".<sup>138</sup> MOD also accepted in 2001 that "Deterrence policies may not prove effective against small scale use of CW or BW, especially attacks on deployed troops."<sup>139</sup> In the United States a 2001 report for the Pentagon's Defence Threat Reduction Agency (DTRA) concluded that 'rogue' state leaderships are "likely to regard American willingness to carry out implicit or vague threats of nuclear retaliation for WMD use as uncertain at best or incredible at worst" and that the questionable credibility of the commitment to using nuclear weapons undermines the effectiveness of deterrence strategies.<sup>140</sup> The consideration of a nuclear response to CBW use by Saddam Hussein in the 1991 Gulf War, for example, was ruled out from the very beginning according to then-Chairman of the Joint Chiefs of Staff General Colin Powell and National Security Advisor General Brent Scowcroft, despite veiled threats delivered by Secretary of State

<sup>137</sup> Stocker, *Nuclear Deterrence*, p.53.

<sup>138</sup> Ivan Oelrich, *Missions for Nuclear Weapons after the Cold War*, Federation of American Scientists, January 2005, p. 30.

<sup>139</sup> *The Future Strategic Context for Defence*, Ministry of Defence, London, February 2001, para 90.

<sup>140</sup> *US Coercion in a World of Proliferating and Varied WMD Capabilities*, DFI International/SPARTA, Inc, 2001, pp. 22, 31.

James Baker to use them in response to Iraqi use of WMD.<sup>141</sup>

### The Risk of Nuclear Escalation

If Britain remains committed to a doctrine of military intervention abroad alongside the United States then the key post-Cold War strategic deterrence challenge, as Keith Payne argues, will be “the demanding mission of ‘detering the deterrent’ of a desperate challenger – that is, preventing a regional leader of a regime that is losing a conventional war to an American-led coalition from using WMD in a desperate bid to save what seems to be a lost cause”, particularly if the survival of the regime is at stake.<sup>142</sup> The Government insists that British nuclear weapons can perform this deterrent function.

But if a ‘rogue’ state possesses more advanced WMD including nuclear weapons that can reach Britain, Western Europe or the United States then the wisdom of pursuing a strategy of regional intervention using conventional forces with or without insertion of ground troops would be open to serious question. In particular it would be dangerous to assume that British nuclear deterrent threats could keep a conflict at the level of conventional weaponry with a ‘rogue’ state in possession of more capable WMD and the means to deliver them. If the survival of the ‘rogue’ regime is threatened then the asymmetry of the stakes involved becomes deeply destabilising in a nuclear environment. Given such asymmetrical stakes it is unlikely (and certainly cannot be in any way assured) that nuclear deterrent threats would prevent the use of WMD by a

regime facing imminent termination by Western conventional forces. In her study of the ‘strategic personality’ of Iraq and Iran Caroline Ziemke argues that in the heat of a crisis Tehran might perceive a threat to the survival of the Islamic Republic as “provoking what it believes is a last-resort, ‘defensive’ nuclear response”.<sup>143</sup> Professor Paul Rogers also recounts the *Global 95 Wargame* at the US Naval War College in July 1995 in which Iraq uses chemical and biological weapons and America responds with a devastating nuclear strike on Baghdad.<sup>144</sup>

This can easily be exacerbated by the difficulties of understanding the behaviour of ‘rogue’ regimes and problems of mutual incomprehension of motives, values and perceptions of ‘rational’ behaviour that were a factor in the Cold War’s near misses.<sup>145</sup> Successful nuclear deterrence requires an understanding of the adversary. Yet, as Stocker argues, in today’s complex nuclear world “profound differences exist in countries’ leaderships, decision-making structures and process, tolerance of risk and costs, perceptions, values and interests...it is quite possible to behave rationally within one’s own parameters, yet act in ways that to others re incomprehensible or, importantly, unpredictable”.<sup>146</sup> He goes on to argue that “we simply cannot assume that others will behave in exactly the way we would, were we in their position. In particular, Western secular and pragmatic norms are not universal”.<sup>147</sup>

British government officials have long acknowledged this difficulty: in 1993 Defence Secretary Malcolm Rifkind stated that “[I]n the absence of an established

<sup>141</sup> Colin Powell, *My American Journey*, New York, Ballantine Books, 1995, pp. 486 and 472; George Bush and Brent Scowcroft, *A World Transformed*, 1998 p. 463; James Baker, *The Politics of Diplomacy*, New York, Putnam Adult, 1995, p. 359

<sup>142</sup> Keith Payne, “Post-Cold War Requirements for U.S. Nuclear Deterrence Policy”, *Comparative Strategy*, vol. 17, July-September 1998, p. 242.

<sup>143</sup> Caroline Ziemke, *Strategic Personality and the Effectiveness of Nuclear Deterrence: deterring Iraq and Iran*, Institute for Defense Analysis for the Defense Threat Reduction Agency, Alexandria, VA, September 2001, p. ES-4.

<sup>144</sup> Paul Rogers, *Losing Control*, Pluto Press, 2000, p. 117.

<sup>145</sup> Stocker, *Nuclear Deterrence*, p. 59; Hoon, “Intervening in the New Security Environment”, 2002.

<sup>146</sup> Stocker, *Nuclear Deterrence*, p.59.

<sup>147</sup> *Ibid.*, p. 59.

deterrent relationship...[w]ould the threat be understood in the deterrent way in which it was intended; and might it have some unpredictable and perhaps counter-productive consequences? Categorical answers to these questions might be hard to come by, and in their absence the utility of the deterrent threat as a basis for policy and action would necessarily be in doubt...it is difficult to see deterrence operating securely against proliferators ['rogue' states]".<sup>148</sup> Defence Secretary Geoff Hoon commented in 2002 that "Now we also have additional actors to consider, people who may be far removed in attitudes, values and preconceptions from the cautious and conservative members of the old Soviet Politburo. We can no longer be so confident what will, and what will not, influence their calculations and behaviour".<sup>149</sup>

Limited military objectives may be achievable, such as ousting Iraqi forces from Kuwait. At the extreme lies a situation such as the conventional military conflict between India and Pakistan in 2000 over the Kargil region of disputed Kashmir that many observers judge to have teetered dangerously on the edge of nuclear escalation.<sup>150</sup> Major pre-emptive or retaliatory military intervention would, however, generally be judged too dangerous regardless of whether Britain had nuclear weapons or not. As MOD's Development, Concepts and Doctrine Centre warns: "An increase in the number of nuclear-armed states *will* affect the ability of the world's leading military powers to undertake intervention operations. Operations that threaten the personal or regime security of autocratic leaderships in nuclear-armed states *will*

entail particular risk."<sup>151</sup> In fact Western possession of nuclear weapons cannot provide any guarantee of a safe umbrella for major conventional military actions that avoids escalation to the use of WMD.<sup>152</sup> The Government's insistence that possession of nuclear weapons will "ensure no aggressor can escalate a crisis beyond UK control" must be treated with scepticism.<sup>153</sup>

The manner in which the United States has dealt with North Korea's nuclear weapons programme and belligerent rhetoric is a case in point. The consequences of a conventional conflict beginning with airstrikes that could rapidly escalate to the use of a handful of primitive North Korean nuclear devices would be devastating. When North Korea ejected UN weapons inspectors who were inspecting its suspected nuclear weapons plant at Yongbyon in 1993 the United States threatened airstrikes. It was estimated at the time that American and South Korean military forces might suffer 300,000-500,000 casualties within the first 90 days of fighting, in addition to hundreds of thousands of civilian casualties; that North Korea could fire between 500 and 600 Scud missiles at targets throughout South Korea and hit Japan with up to 100 longer-range missiles armed with conventional or chemical warheads, and perhaps a few with nuclear warheads; and that a war would cost America more than \$100 billion (in 1994) and the destruction and interruption of business would cost a trillion dollars to the countries involved and their immediate neighbours.<sup>154</sup> Over a decade later after a series of agreements and confrontations the United States and North Korea appear

<sup>148</sup> Sir Malcolm Rifkind, "UK Defence Strategy: A continuing Role for Nuclear Weapons", speech at King's College London, November 16, 2003. Cited in Green, *The Naked Nuclear Emperor*, p. 45.

<sup>149</sup> Hoon, "Intervening in the New Security Environment", 2002.

<sup>150</sup> BBC News, "Pakistan 'Prepared Nuclear Strike'", May 16, 2002. Available at <[http://news.bbc.co.uk/1/hi/world/south\\_asia/1989886.stm](http://news.bbc.co.uk/1/hi/world/south_asia/1989886.stm)>, accessed March 22, 2008.

<sup>151</sup> *Global Strategic Trends*, Development, Concepts and Doctrine Centre, p. 74.

<sup>152</sup> See Rogers, *Losing Control*, p. 117.

<sup>153</sup> MOD and FCO, *United Kingdom's Nuclear Deterrent*, pp. 5, 18.

<sup>154</sup> Phillip Saunders, *Military Options for dealing with North Korea's Nuclear Program*, Center for Non-Proliferation Studies, Monterey Institute of International Studies, available at [www.cns.miis.edu/research/korea/dprkmil.htm](http://www.cns.miis.edu/research/korea/dprkmil.htm); Gen. Gary Luck, testimony before the Senate Armed Services Committee, January 26, 1995.

to be on a path towards resolution of their differences through the Six-Party Talks process initiated in 2003 involving China, South Korea, North Korea, Japan, Russia and America. In the meantime America has lived with North Korea having a handful of nuclear weapons, some of which may have been mated with long-range ballistic missiles for over a decade.

During the Cold War McGeorge Bundy, national security advisor to Presidents Kennedy and Johnson, stated in a *Foreign Affairs* article in 1969 that "in the real world of real political leaders...a decision that would bring even one hydrogen bob on one city of one's own country would be recognized in advance as a catastrophic blunder; ten bombs on ten cities would be a disaster beyond history; and a hundred bombs on a hundred cities are unthinkable".<sup>155</sup> The same logic holds today in the context of 'rogue' states and the detonation of a single 'rogue' nuclear bomb in British or allied city must be recognised in advance as a terrible political calamity.

### Using Nuclear Weapons in a Regional Conflict

The legitimacy of actually using nuclear weapons in a conflict is also undermined by their disproportionately devastating effect. Western governments and armed forces regularly stress their desire to avoid civilian casualties through a combination of precision guided weaponry and detailed battlefield intelligence. It is recognised that indiscriminate killing of civilians in warfare can be counter-productive to war aims and political support in Western capitals and can undermine the case for military intervention that is routinely framed as defending civilised international values and global peace and security. As Prime Minister Tony Blair declared to British forces involved in the bombing of Yugoslavia in 1999: "I believe you are

fighting a just war and a just cause... I believe we are fighting for the values of civilisation here".<sup>156</sup>

The ability and intent to discriminate between combatants and non-combatants is an important plank of the Western 'Just War' tradition that is often invoked to justify intervention.<sup>157</sup> There is considerable unwillingness on the part of Western governments to contemplate inflicting massive and indiscriminate loss of life upon a 'rogue' nation's population for the actions of its leadership in the name of defending the 'liberal peace' and international order given that the national survival of the Western intervening powers is unlikely to be under threat.

In 1998 former head of Strategic Command General Lee Butler asked "could we really hold an entire society to account for the decisions of a single leader or 'rogue' regime?"<sup>158</sup> In 2001 Secretary of Defense Donald Rumsfeld gave the Bush administration's answer. He presented a hypothetical situation in which Saddam Hussein invaded Kuwait, as he did in 1991, but then launched a ballistic missile with a weapon of mass destruction to demonstrate to the world that he had such capabilities: "Think of the argument in the White House. Let's say that Saddam Hussein had done what I described, and he then invaded Kuwait. And someone would go to the president of some country with a nuclear capability and say, "Gee, Mr. President, you should use your nuclear weapons against Saddam Hussein." What would you be doing, in effect? You'd be using a nuclear weapon against a country where the people are repressed, where the people are treated brutally, where the people are, in large measure, hostages to a powerful dictator that has been repressing

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<sup>155</sup> McGeorge Bundy, "To Cap the Volcano," *Foreign Affairs* 48(1), 1969.

<sup>156</sup> Cited in transcript of *BBC World Service* debate, "Can There Ever be a Just War for Human Rights?," October 13, 2000.

<sup>157</sup> Mona Fixdal and Dan Smith, "Humanitarian Intervention and Just War", *International Studies Review*, 42(2), 1998.

<sup>158</sup> Lee Butler, "A Voice of Reason", *Bulletin of the Atomic Scientists*, May/June 1998, p. 60.

them for decades. That is not a happy prospect.”<sup>159</sup>

Given these concerns any consideration of the use of nuclear weapons in a regional conflict now depends not on how much damage they can do but how little.<sup>160</sup> Yet the use of even relatively low-yield or limited use of British nuclear weapons in a regional conflict with a ‘rogue’ state would be devastating, indiscriminate and counter-productive. The use of even one or two ‘sub-strategic’ 10kt warheads would in all probability kill and severely injure tens of thousands of people. Use of one or two 100kt standard Trident warheads can be expected to kill hundreds of thousands. The two bombs dropped on Hiroshima and Nagasaki were 14kt and 20kt respectively and between them killed around 200,000 people. Douglas Holdstock and Liz Waterston state that the ‘lethal area’ for a 100kt warhead, defined as the area within which the number of survivors is equal to the number of blast fatalities, if circular has a radius of 2.4km. “The heat flash from a 100kt airburst would cause lethal burns out of doors over about 75km<sup>2</sup>. Flash blindness would occur over many kilometres”. Radiation doses would affect many more people over a much wider area. They go on to state that “a single nuclear explosion over a medium-sized city would overwhelm the health services of even a developed country, and an attack with multiple weapons would disrupt the whole country’s economic and social structure”. This would interrupt the availability of food and potable water, provision of basic health and social services and lead to many more deaths through the indirect effects of a nuclear attack.<sup>161</sup> A report by

Scottish CND states that a single 100kt Trident nuclear warhead would kill 98 per cent of people within 1.6km of ground zero and injure 2 per cent, kill 55 percent within 1.6-2.9km and injure 40 per cent, and kill 8 per cent within 2.9-5.3km and injure 45 per cent. It estimates that if a single Trident warhead was detonated over Moscow, for example, it would cause around 200,000 fatalities.<sup>162</sup>

Quite apart from the destruction wrought by the initial blast, heat flash and radiation, the incendiary effects of a single 100kt nuclear blast would also be devastating. In Hiroshima, a tremendous fire storm developed within 20 minutes after detonation. A fire storm burns in upon itself ferociously with gale force winds blowing in towards the centre of the fire.<sup>163</sup> For large warheads (those above 100kt), the thermal effects of the explosion extend much further than the blast effects. William Bell and Cham Dallas observe that “casualties resulting from fires, and burns in a nuclear attack would be of major impact for civil defense and emergency health care... The entire US has specialized facilities to treat roughly 1,500 burn victims, which is far less than the burn casualties produced by one single small nuclear explosion...most of these beds are already occupied.”<sup>164</sup>

New research also suggests that the use of 100 Hiroshima-sized nuclear weapons in a regional conflict would devastate the earth’s ozone layer. It finds “losses in excess of 20% globally, 25–45% at mid-latitudes, and 50–70% at northern high latitudes persisting for 5 years, with substantial losses continuing for 5 additional years” from the heating of the

<sup>159</sup> Donald Rumsfeld, *CNN Interview with Secretary Rumsfeld, June 1, 2001*, United States Department of Defense, Washington, D.C. Retrieved March 3, 2007 from <[http://www.defenselink.mil/transcripts/2001/t06042001\\_t0601cnn.html](http://www.defenselink.mil/transcripts/2001/t06042001_t0601cnn.html)>.

<sup>160</sup> Jeremy Stocker, *The United Kingdom and Nuclear Deterrence*, Adelphi Paper 386, Routledge for IISS, London, 2007, p.51.

<sup>161</sup> Douglas Holdstock and Liz Waterston, “Nuclear Weapons, a Continuing Threat to Health”, *The Lancet*, 355(9214), April 29, 2000, pp. 1544-1547.

<sup>162</sup> John Ainslie, *Trident: Britain’s Weapons of Mass Destruction*, Scottish CND, 1999.

<sup>163</sup> *FM 8-9: NATO Handbook on the Medical Aspects of NBC Defensive Operations AMedP-6*, Department of the U.S. Army, Navy and Air Force, February 1996, chapter 3, ‘Effects of Nuclear Explosions’.

<sup>164</sup> William Bell and Cham Dallas, ‘Vulnerability of populations and the urban health care systems to nuclear weapon attack – examples from four American cities’, *International Journal of Health Geographics*, 6(5), 2007.

stratosphere by smoke plumes released by nuclear-induced firestorms. This presents an "unprecedented hazard to the biosphere worldwide".<sup>165</sup>

If Britain did choose to cross the nuclear threshold alone or with America it would not do so for the use of just one or two nuclear weapons for limited military objectives given the power that can now be unleashed with conventional forces. War plans involving the use of nuclear weapons in regional conflicts generally involve the use of tens, if not hundreds, of weapons to destroy a country's WMD, military and governing infrastructure.<sup>166</sup> Two examples highlight planning for multiple use of nuclear weapons for limited military objectives: In the build up to the 1991 Gulf War Secretary of Defense Dick Cheney reportedly asked Chairman of the Joint Chiefs of Staff General Colin Powell to "explore hypothetical nuclear-strike options against Iraqi units. Powell responded, 'We're not going to let that genie loose.' Cheney agreed, but he was curious to know what would be required. 'The results unnerved me,' recalls Powell. 'To do serious damage to just one armored division dispersed in the desert would require a considerable number of small tactical nuclear weapons. I showed this analysis to Cheney and then had it destroyed.'<sup>167</sup> Richard Rhodes reports that in 1961 Defense Secretary Robert McNamara visited U.S. Strategic Air Command for a briefing about nuclear war planning. He asked if the current nuclear targeting system had been applied to a target known to have been destroyed by a nuclear weapon, Hiroshima. The answer was yes and that the current nuclear targeting system would designate three nuclear warheads of 80kt each despite the fact that

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<sup>165</sup> Michael Mills *et al*, "Massive Global Ozone loss Predicted Following Regional Nuclear Conflict", *Proceedings of the National Academy of Sciences*, 105(4), April 8, 2008.

<sup>166</sup> See Powell, *My American Journey*, p. 472 on using nuclear weapons during the 1991 Gulf War; and *The U.S. Nuclear War Plan: Time for Change*, Natural Resources Defense Council, Washington, D.C., 2001.

<sup>167</sup> Powell, *My American Journey*, 1995, p. 472.

a single unsophisticated 14kt nuclear bomb devastated the city in August 1945.<sup>168</sup>

Use of nuclear weapons by Western powers for anything other than national survival would almost certainly terminate the international norm against the use of nuclear weapons that has held since 1945.<sup>169</sup> The use of a nuclear weapon by a 'rogue' state could, on the other hand, be used by Western governments to reinforce that norm.<sup>170</sup> John Simpson, for example, questions whether the "theoretical ability of nuclear explosives to destroy other WMD justifies their use in this role, despite the destructive effect this will almost certainly have on the international nuclear non-proliferation regime".<sup>171</sup> There would considerable danger that nuclear use could become routine against 'rogue' states, that possession and use of nuclear weapons will be legitimised leading to further nuclear proliferation, that nuclear weapons would be used in conflicts by non-Western states and that crossing the nuclear threshold and breaching the nuclear 'taboo' would place Britain in a far less stable and predictable world.<sup>172</sup> Britain's international standing would deteriorate and its ability to take a leading role in preventing the further proliferation of nuclear weapons would disappear. To cite Lee Butler again: "how could the US or UK possible justify use of nuclear weapons in response to chemical or biological attack and legitimise the very means we abhor and condemn? How could they ever again justify their WMD

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<sup>168</sup> Richard Rhodes, *Arsenals of Folly*, Knopf, New York, 2007, p. 98.

<sup>169</sup> Sagan, 'Commitment Trap', p. 112.

<sup>170</sup> Bruno Tertrais, *Nuclear Deterrence in 2030*, Fondation pour la Recherche Stratégique, Paris, February 2007, p. 43.

<sup>171</sup> John Simpson, 'France, the United Kingdom and Deterrence in the Twenty-First Century' in Ian Kenyon and John Simpson (eds), *Deterrence and the New Global Security Environment*, Routledge, London, 2006, p. 139.

<sup>172</sup> *US Coercion in a World of Proliferating and Varied WMD Capabilities*, DFI International/SPARTA, Inc, p. 40; Oelrich, *Missions for Nuclear Weapons after the Cold War*, p. 32.