

# **Worse than Irrelevant?**

British Nuclear Weapons in the 21st Century



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The title of this report echoes the final op-ed by Robin Cook MP before his untimely death. Titled 'Worse than Irrelevant', this was published in the *Guardian*, July 29, 2005.

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# Worse than Irrelevant? British Nuclear Weapons in the 21st Century

## Executive Summary

Tony Blair has put the question of a replacement for Britain's nuclear weapon system, Trident, onto the agenda for this parliament. The Trident decision embodies both an opportunity and a responsibility to examine Britain's security needs and debate our role in the world for the 21st century.

In advance of the promised White Paper, which is expected to outline the government's preferred options, this report argues for a wide and informed debate on the future of UK nuclear policy. It contributes by examining the decision in the context of Britain's security, legal and international priorities and providing an in-depth analysis of the technical and political options facing decision-makers.

### A comprehensive security and defence review is needed

In addition to its national and budgetary implications, Britain's choice will have ramifications for the course of nuclear non-proliferation and international security for decades to come.

Questioning the apparent haste with which the government seeks to determine the future of Britain's nuclear policy, the report calls for the decision on Trident replacement to be placed in the context of a comprehensive security and defence review that combines the perspectives of foreign affairs, defence, non-proliferation and international law.

Such a review should start with a reappraisal of Britain's role in the world and an evaluation of the security challenges relevant to the 21st century. As outlined in this report, it is necessary to analyse the efficacy of nuclear deterrence in the transformed security environment and re-examine the circumstances, if any, in which it might be justifiable to use nuclear weapons. The review should also take account of Britain's non-proliferation objectives – including questions relating to the safety and security of materials, components and facilities – as well as the wider concept of human security.

In its analysis, the report shares government concerns about proliferation and stresses the importance of upholding and strengthening the multilateral treaties and instruments that strive to prevent the acquisition and spread of nuclear weapons and weapon-usable fissile materials. Whilst questioning whether present UK policies are appropriate for building a more secure, stable and just international order, the report provides an alternative perspective on the nature of the threats facing Britain and arrives at different possible means of meeting the nuclear challenges ahead.

### The choices

The current Trident nuclear weapon system comprises four *Vanguard*-class nuclear submarines, equipped with US Trident D5 ballistic missiles (SLBM), and sustained by a stockpile of nearly 200 warheads. According to its original design specifications, it was planned to be operational until the 2020s.

A nuclear follow-on for Trident, depending on what is chosen, has been estimated to cost anywhere between £20 billion and £76 billion over a projected service life. The report examines the main options facing decision-makers and argues that no decision should be made to commit

public money to a new generation of nuclear weapons unless there has first been an open, informed debate about security priorities and alternatives for non-nuclear deterrence.

### ***Trident 'like-for-like' replacement***

Replacing Trident with a practically identical system would signal 'business as usual'. It would continue nuclear reliance on the United States and provide a large new submarine order for British shipbuilders at Barrow. Advocates would also underline the importance of retaining compatibility with the US Trident system, the relative invulnerability of the submarines, and the accuracy and intercontinental range of the missiles. Decisions have already been taken to upgrade facilities at Aldermaston with, among other things, a sophisticated new laser (Orion) and a supercomputer. Such upgraded facilities may make it possible to produce a new generation of warheads of variable yield without overtly breaching the Comprehensive Test Ban Treaty (CTBT) that Britain has ratified.

Trident 'like-for-like' replacement would give weight to the perception that British policy-makers regard nuclear weapons as "indispensable". Underscoring Britain's intent to deploy nuclear weapons for the next five decades or more, this risks further undermining the nuclear non-proliferation regime. Serious questions need to be answered about whether a system of Trident's size and cost can be relevant in the post-Cold-War security environment and about the implications of extending Britain's dependence on the United States. Since the submarines are deployed from the Clyde Submarine Base at Faslane, there may be difficulties in the future if Scotland decided it no longer wished to host UK nuclear weapons.

### ***'Trident-lite' – a scaled down capability***

An option that is gaining ground in some circles is to extend reliance on submarine-based ballistic missiles, but to reduce the number of boats, missiles or warheads, or a combination of all three elements. 'Trident-lite' would encounter many of the same problems as a direct replacement, but could be presented as a less expensive option that takes further steps towards nuclear arms reductions, while still enabling Britain to retain nuclear weapons "for the foreseeable future".

### ***Adapting smaller submarines***

Britain is currently building a new generation of nuclear powered 'hunter-killer' submarines, starting with HMS Astute. These submarines were originally designed to carry only conventional weapons, but there has been speculation that two to four of them could be adapted to deploy nuclear warheads on either a Trident (or comparable ballistic) missile or a nuclear version of the Tomahawk cruise missile.

Such an option might offer a more flexible nuclear force, combining smaller, tactical weapons with strategic or sub-strategic forces. However, it would be subject to the same problems as the other submarine-based options, including dependence on the United States for missiles and Scotland for a 'home' port. Moreover, combining conventional and nuclear forces on a 'mixed' platform would increase the vulnerability of the nuclear weapons and heighten the risks of miscalculation.

### ***Air-launched options***

Another option would be to equip long-range bombers with either cruise missiles or free-fall bombs. This could be a means of demonstrating a 'downgrading' of nuclear weapons in Britain's defence posture, without abandoning their role altogether. It is considered the least likely choice however, as the development of such bombers would be expensive, they would be more vulnerable to pre-emptive attack than submarines and would have reduced capability – both in terms of target coverage and guaranteed target destruction – than SLBMs. Moreover, neither the Royal Air Force nor the Ministry of Defence appears interested.

### **Service life extension**

The service reliability of the existing Trident submarines could be extended for some years with a major refit of the hulls and nuclear reactors. Though less expensive than a direct replacement, service life extension would not be cheap. Depending on the nature and extent of the refit, estimates vary as to whether it would buy an extra 15-20 years or only another five.

Essentially, this option would defer the more fundamental decision about whether Britain should remain a nuclear weapons state, and if so, for how long. Some proponents feel that extending the current system would be useful because it could help to synchronise the UK nuclear weapon procurement cycle with that of the United States. Others hope it might 'buy time' during which the challenges to world security might become clearer, thereby facilitating efforts to pursue multilateral disarmament.

### **Non-nuclear defence**

Having analysed the major nuclear options to replace Trident, this report also considers the implications and challenges if Britain were to take the lead in international efforts to devalue and abolish nuclear weapons.

A commitment not to develop a nuclear follow-on to Trident would be consistent with the UK's international obligations and could significantly contribute to strengthening the non-proliferation regime and go some way towards establishing the "safer world" wished for by the government in its 1998 Strategic Defence Review, "in which there is no place for nuclear weapons". At issue is not whether the concept of deterrence is valid, but whether the nuclear component is necessary or even useful, and whether deterrence may be as – or more – effective without nuclear weapons.

A decision not to replace Trident would need to be taken in conjunction with the implementation of a more coherent and effective non-proliferation strategy in which nuclear weapons play a less prominent role in international affairs. Without underestimating the challenges, the report identifies ways in which Britain could facilitate the political, legal, technical and security conditions necessary for nuclear weapons to be eliminated globally on a multilateral basis.

### **Take time for an informed debate before deciding**

This report strongly endorses the conclusion of the House of Commons Defence Committee which stated in its June 2006 Report on *The Future of the UK's Strategic Nuclear Deterrent*, that: "the public should know what decisions will be required, when they must be taken and implemented, and what factors are driving consideration of the issue now."

The Defence Committee warned that a series of funding and planning decisions already being taken under the rubric of 'keeping options open' may amount – by default or intention – to a decision to develop the next generation of nuclear weapons.

In light of the significant expenditure already committed to building up the design capabilities at the Atomic Weapons Establishment (AWE) at Aldermaston, we call on the government to halt new building work pending debate and decision on the future of these nuclear facilities. The government also needs to provide full disclosure of its planning assumptions, together with a detailed breakdown of estimated costs covering all the options under consideration, including committed and planned costs relating to infrastructure, transport security, and decommissioning.

It is also important that opportunity costs be taken into account. These include resources that could be directed towards dealing with other challenges, such as climate change, terrorism, public health and education, as well as other elements of the defence budget – for example, equipment shortfalls currently being experienced by the armed forces in Iraq and Afghanistan.

From poll data and media coverage, the report finds that general public consent for British nuclear policy during the Cold War does not necessarily translate into public support for a nuclear follow-on for Trident, particularly in light of budgetary constraints in other areas of public spending. The key will be how such a decision is taken and represented. All sides need to leave behind the political baggage of the past and allow debate to take place based on finding the best ways to diminish nuclear threats and build a more secure Britain in a more secure world.

## **A historic chance**

The report concludes that preventing the development of further nuclear weapons is an integral part of a successful and sustainable non-proliferation policy. It argues that the global elimination of nuclear weapons is a more feasible – and more pressing – security priority than current official assumptions and policies acknowledge. Moreover, the continuing importance attached to having a national nuclear force and the high-level maintenance, modernisation and doctrine for the possible use of Trident put at risk this country's long-term security interests.

Britain is not merely a passive bystander as the international and security environments change around us. The government's policies and actions can play a significant part in marginalising or aggrandising nuclear weapons, preventing or abetting proliferation, and strengthening or undermining international law. The report argues that Britain's policies need to be directed towards devaluing nuclear weapons and promoting and sustaining multilateral non-proliferation, which any replacement of Trident would make more difficult.

At a time when the non-proliferation regime is under severe pressure, Britain has a historic chance to provide leadership and influence the future direction of international security. The government needs to seize this opportunity to promote more effective strategies to reduce nuclear threats and create the conditions for nuclear weapons to be systematically eliminated worldwide.

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## Introduction

Tony Blair has announced that the government needs to decide in this Parliament whether to commission a nuclear follow-on to Britain's Trident nuclear weapon system. The government has announced that it is preparing a White Paper, due to be published later this year, which will set out its preferences. It may try to engineer a decision as soon as possible thereafter.

In late 2005, the House of Commons Defence Committee instituted an Inquiry on 'The Future of the UK's Strategic Nuclear Deterrent'.<sup>1</sup> This was billed as the first in a series of inquiries, and prioritised consideration of the strategic environment and the timing of the decision. When it reported in June 2006, the Defence Committee raised concerns that it had not received cooperation from the government, and stated,

*"a genuine and meaningful debate is only possible with the active participation of the Ministry of Defence (MoD). The public should know what decisions will be required, when they must be taken and implemented, and what factors are driving consideration of the issue now."*<sup>2</sup>

According to the MoD, Britain's nuclear weapon system, comprising four nuclear submarines equipped with US Trident D5 missiles, will cease to be reliable during the 2020s. The government appears to have based the timing for its decision on a projected procurement schedule for commissioning a direct replacement for Trident, which would entail building a new fleet of submarines to carry similar or upgraded missiles.

This is not the only option on the table, however. A growing number of voices, backed up by opinion-poll majorities, are questioning the role of nuclear weapons in deterrence and security policy. There are also lobbies for extending the service life of the existing fleet and/or converting hunter-killer submarines to carry ballistic or, perhaps, cruise missiles equipped with nuclear warheads. In addition, the timing and assumptions dictating such apparently urgent decision-making have been questioned by a number of defence analysts, including retired senior officers.

As illustrated in a collection of essays recently published by the Oxford Research Group, all sides of the debate on Trident's follow-on believe that their stance on the issue is the one that would best enhance Britain's security. They may differ fundamentally in the options they advocate or on considerations of timing and cost, but it is striking how many of them seem to consider that nuclear weapons should (or already do) play a diminished role in security in the post Cold War world, and that they have little or no role to play in the majority of threat scenarios that can be envisaged for the foreseeable future.<sup>3</sup>

The evidence to the Defence Committee and other writings in the public domain reveal two basic arguments in favour of a nuclear follow-on. These are: 'our nuclear deterrent deters' and 'we need the nuclear deterrent as an insurance policy'.

There is also a growing strand of opinion, including from among those who staunchly supported nuclear weapons in the Cold War, questioning the rationale for any nuclear follow-on to Trident. From former Conservative Defence Secretary Michael Portillo to the late Robin Cook, Tony Blair's first Foreign Secretary, doubts have been raised across the political spectrum about whether nuclear weapons would play any useful role for British security in the 21st century.

Instead of rushing into a decision on replacing Trident, they argue, consideration needs to be given to how the security environment is changing, together with analysis of the continuing role, if any, national nuclear forces should play in the new strategic context.

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1 House of Commons Defence Committee, *The Future of the UK's Strategic Nuclear Deterrent: the Strategic Context*, Eighth Report of Session 2005-06, HC 986, June 30, 2006.

2 The Committee noted that it was "surprised and disappointed" by the MoD's refusal to participate in its 2006 Inquiry. Ibid.

3 Oxford Research Group, *The Future of Britain's Nuclear Weapons*, Current Decisions Report, March 2006.

The debate over nuclear weapons in Britain has long been distorted by political ideology. Without downplaying the importance all sides attach to the morality of their positions on nuclear weapons and deterrence, this report aims to analyse the practical and security implications of the choices facing Britain.

The UK will need to examine whether nuclear deterrence remains relevant in the current strategic environment. We must take into account the nature of the threats currently facing our country and examine how those threats could evolve over the lifetime of any potential Trident successor.

*The Future of the UK's Strategic Nuclear Deterrent: the Strategic Context*, House of Commons Defence Committee, June 30, 2006.

## Chapter 1 | Security Threats and Nuclear Policies

Trident was commissioned in 1980 and the first submarine was brought into service in 1994. Hence, the Soviet bloc had disintegrated before Trident – quintessentially designed as a Cold War system for deterring the Soviet Union – even entered into service. No comparable strategic threat has emerged, but since then, Britain has undertaken significant military operations in Bosnia, Kosovo and Sierra Leone, and UK armed forces have become embroiled in two protracted wars, in Iraq and Afghanistan.

These interventions reflect how security perceptions have changed. As the superpower rivalry diminished, the 1990s saw an initial reinvigoration of multilateralism and the United Nations, in which new doctrines of humanitarian intervention – the ‘Responsibility to Protect’ – came to the fore. The Labour government was actively engaged in these developments, as illustrated by Tony Blair’s proposed ‘Doctrine of the International Community’, which identified five criteria to decide “when and whether to intervene”.<sup>4</sup>

It is widely accepted that in these modern conflicts there is no relevant role for nuclear weapons. Even in the Cold War, the fact that they were major nuclear powers did not enable the United States or Russia to achieve their objectives in Viet Nam and Afghanistan respectively. Britain’s nuclear weapons failed to deter the Argentinean Generals from invading the Falkland Islands. Does anyone imagine that nuclear weapons could be used to help the United States and Britain prevail in Iraq or Afghanistan, or for Russia to overcome opposition in Chechnya? India and Pakistan were not deterred from engaging in two bouts of fierce fighting in Kargil and Kashmir soon after they each tested nuclear weapons in May 1998. More recently, in July-August 2006, Israel’s nuclear arsenal and overwhelming military force did not enable it either to deter or defeat Hezbollah in Lebanon.

Nuclear developments in North Korea and Iran and revelations from the nuclear ‘Wal-Mart’ of Pakistan’s Dr A.Q. Khan have exacerbated concerns about the attraction of nuclear weapons for weak leaders and non-state terrorists. Some may argue that these developments demonstrate the need for Britain to retain nuclear weapons. On the contrary: renewing Trident won’t deter, but it could add to the proliferation impetus.

Such negative developments bear out the predictions of former US Secretary for Defense Les Aspin, who in 1992 prophesied that in the post Cold War strategic environment nuclear weapons would transfer their cachet and become a sought-after weapon of the weak to deter or bring down the strong.

Nuclear weapons are a global problem, though they may also have specific regional complexities, not only in areas of potential conflict like the Middle East, South Asia and North-East Asia, but also in Europe, where hundreds of nuclear weapons continue to be deployed as relics of the Cold War. If detonated by accident or intention, the impact of nuclear weapons would be serious and far reaching. Where not destroyed, cities or large areas would need to be practically quarantined, and trade, transportation, commerce and agriculture would be hard hit, causing widespread economic misery. The raw materials and technologies pose dangers of accidental release, leakage, pollution and accidents. Even if nuclear bombs are never used in war, they carry heavy costs. Developing, testing, manufacturing, maintaining and guarding nuclear weapons create unnecessary hazards and absorb not just money but human energies and talents, with lives put at risk at every level.

<sup>4</sup> Tony Blair, ‘Prime Minister’s speech: Doctrine of the International community at the Economic Club, Chicago’, April 24, 1999, Number 10 Downing Street website, <http://www.number10.gov.uk/output/Page1297.asp>.

If the government commissions a nuclear follow-on to Trident, it could carry Britain's nuclear weapon dependence beyond the year 2055. What, then, are the priority security issues likely to be for this period?

Not only has the nature of the nuclear threat changed, but its relative ordering within the range of security threats and challenges facing the UK today and over the next few decades has also changed. Though it is not within the remit of this report to analyse or rank these threats, UK policy-makers responsible for allocating resources need to understand and address the real regional and international challenges to our security and prioritise accordingly.

By contrast with the Cold War fixation on nuclear war, the major security challenges facing Britain (and the world) are generally recognised to be:

- Environmental degradation and climate change
- Poverty, hunger, overpopulation, pandemics like AIDS or SARS
- Failing states, corruption, and the disintegration of social and state institutions
- Conflict, within and between states
- Terrorism – non-state armed groups – especially if enabled to acquire the capability to inflict mass destruction
- Organised crime, gangs, warlords
- Transnational trafficking in drugs, arms, people
- Poorly educated and/or under-employed young men



There may be significant overlap among the causes and categories of these modern security challenges, but one conclusion is clear: nuclear weapons have no part to play in protecting civilians against these threats. They are not merely irrelevant, however; as long as nuclear weapons, materials and technologies are circulating in the nuclear programmes of some states, they have the potential to add greatly to other threats, notably terrorism, organised crime and trafficking.

## Five levels of nuclear danger

Because of the unprecedented effects of nuclear blast, heat and radiation, as illustrated by the relatively small bomb (13-15 kt) used on Hiroshima in 1945,<sup>5</sup>, nuclear weapons are recognised to be the most deadly and devastating of mass destruction weapons, distinct from conventional and even other WMD in the scope of their destructive power and long-term effects.

The primary nuclear threat envisaged during the Cold War was military conflict between some or all of the nuclear weapon states leading to all out war. The five or six states that developed nuclear weapons held them under tight control, and a number of treaties were enacted to keep the threats of escalation and proliferation in check. Today, the nature of nuclear threats has changed, along with their relative importance. Today's nuclear-related dangers may be summarised as follows:

- Proliferation to states with aggressive intent and/or fundamentalist ideology, which might also be politically unstable.
- Regional rivalries and potential escalation of conflict between two nuclear-armed states leading to nuclear weapon use and the risk of nuclear war.
- Weak states or armed fundamentalist groups gaining access to sufficient weapons-grade fissile material to make a nuclear weapon or dirty bomb, which they then threaten to use and/or actually use. This is related to persistent concerns about the insecurity of nuclear weapons, material and expertise, especially with regard to states that experience internal conflict and entrepreneurs seeking to benefit from the nuclear black market.
- Revaluing of nuclear weapons as an instrument of policy and power projection, and the adoption of nuclear deterrence doctrines, particularly for weak or tyrannical regimes to maintain domestic control and hold off outside interference.
- The emergence of doctrines of nuclear pre-emption and retaliation, that could lead to accidental or deliberate nuclear weapon use by one or more nuclear weapon possessors.

Such threats are inter-related in complex ways, and they are compounded by the continued possession of sizeable arsenals of nuclear weapons by a small number of states that advertise their importance, and the pursuit of nuclear fuel cycle capabilities or weapons-related programmes by further states, whether outside the treaty regimes or in violation of them.

Clearly, the risk that nuclear weapons will be used rises the more that they spread around the globe. This is especially true when proliferation occurs in unstable regions or if the weapons come into the possession of religious or political zealots. The risks are also increased when nuclear weapons are deployed on high alert, or in ways that invite pre-emptive attack and exacerbate the chance of accidental use.

Recent US-led policies may have been intended to reduce threats from weapons of mass destruction, but they have proved counterproductive, and have arguably exacerbated the problems and increased the perceived value accorded to nuclear capabilities. Rightly or wrongly, public and political opinion in key regions have drawn certain conclusions from the perception that North Korea has withdrawn from the NPT and claims to have nuclear weapons but has not been invaded, while Iraq and Serbia – neither of which had nuclear weapons – were attacked. In addressing nuclear dangers, therefore, it will be important to pay attention to regional and symbolic factors, as well as to facilities and materials.

We are approaching a point at which the erosion of the nonproliferation regime could become irreversible and result in a cascade of proliferation.

*A More Secure World: Our Shared Responsibility*, Report of the UN Secretary-General's High-level Panel on "Threats, Challenges and Change" December 2, 2004

5 The Hiroshima 'gun-type' atomic bomb, dubbed "Little Boy", used highly-enriched uranium. The plutonium implosion bomb used on Nagasaki – "Fat Man" – is estimated to have been around 20 kt.



## What is the use of Trident?

Faced with the complex threat scenarios of the 21st century, it is reasonable to ask what defence role is envisaged for British nuclear weapons. A year ago, the Ministry of Defence gave the following description of UK policy:

*“While there is no immediate direct military threat to the UK or our NATO Allies, we live in a changing and uncertain world and new threats to our security could emerge in the future. To provide the ultimate assurance of our security, Britain continues to require a credible and effective minimum nuclear deterrent, which is currently Trident.”*<sup>6</sup>

Whilst most people believe (and some government officials claim) that UK nuclear weapons exist in order to ensure that nuclear weapons will never be used, a number of possible ‘uses’ are envisaged:

- ‘Deterrence’, including ‘war prevention’ – the strategic role intended “to deter aggression against the United Kingdom or its Allies”.<sup>7</sup>
- A ‘sub-strategic’ role, described as “an option for a limited strike that would not automatically lead to a full scale nuclear exchange”.<sup>8</sup> A variation of this sub-strategic concept is to use a small nuclear weapon as a ‘demonstration’ or ‘shot across the bows’, involving the “more limited use of nuclear weapons [which] would allow us to signal to an aggressor that he has miscalculated our resolve, without using the full destructive power that Trident offers”.<sup>9</sup>
- Retaliation against biological or chemical weapon threats or attacks on Britain or its allies.
- Pre-emptive use against a state that was threatening Britain’s vital national interests.

## Deterrence

The government describes UK nuclear forces as representing a ‘minimum deterrent’. However, the doctrines, policies and practicalities of deterrence have changed several times, as have the quantity and diversity of weapons and targets deemed to be a ‘minimum’. If British nuclear weapons are officially still envisaged for ‘deterrence’, it is legitimate to raise questions about what the concept means in the post-Cold-War world. Who is Trident intended to deter, and how?

The concept of nuclear deterrence takes various forms, depending on the perceptions of those involved. The main versions include: deterrence by denial, which can include demonstrating that an aggressor’s objectives will not be obtained; deterrence by threat of punishment; deterrence through the threat of mutual assured destruction; extended deterrence, where the threat that nuclear weapons might be used by one or more parties prevents aggression against homeland, allies, military forces or ‘vital assets’; and core deterrence, where nuclear weapons are held solely to prevent any nuclear attack or use of nuclear weapons.<sup>10</sup>

6 MoD Statement cited on BBC Radio 4’s Analysis programme ‘Flirting with Armageddon’, on August 25, 2005. Transcript at: [http://news.bbc.co.uk/nol/shared/spl/hi/programmes/analysis/transcripts/25\\_08\\_05.txt](http://news.bbc.co.uk/nol/shared/spl/hi/programmes/analysis/transcripts/25_08_05.txt)

7 House of Commons, Hansard, March 26, 1999, column 433.

8 The ‘sub-strategic’ role was first assigned to Trident by Malcolm Rifkind, the Conservative Party’s Secretary of State for Defence in 1993. Malcolm Rifkind, *UK Defence Strategy: A Continuing Role for Nuclear Weapons?* Speech to the Centre for Defence Studies, London, November 16, 1993. In 1998, the Strategic Defence Review provided the following explanation: “The credibility of deterrence also depends on retaining an option for a limited strike that would not automatically lead to a full scale nuclear exchange. Unlike Polaris and Chevaline, Trident must also be capable of performing this ‘sub-strategic role’.” The 1998 Strategic Defence Review, op. cit. p 18 paragraph 63. This is the language reproduced at House of Commons, Hansard, March 26, 1999, column 433. See also Rebecca Johnson, *British Perspectives on the Future of Nuclear Weapons*, Henry L Stimson Center, Washington DC, January 1998.

9 House of Commons, Hansard, March 26, 1999, column 433.

10 For a useful discussion of this and other aspects of nuclear deterrence, see Robert Green, *The Naked Nuclear Emperor: debunking nuclear deterrence*, Christchurch NZ, 2000.

Though some still credit nuclear weapons with having deterred the Soviet Union and prevented direct war among major powers since 1945, this is essentially unknowable. General Lee Butler, the first President Bush's Commander-in-Chief, US Strategic Command, described nuclear deterrence as "a rhetorical sleight of hand, deceptively packaged and oversold".<sup>11</sup>

Deterrence cannot be proved except in the negative, i.e. if the action that was supposed to be deterred takes place, by which time it may be too late to take alternative action. We now know there were a number of near misses during the Cold War, when nuclear war was nearly triggered, suggesting that other relevant factors were at work.

We can speculate about the relative weight to accord the Cold War variables, but there is no credible way to demonstrate the significance – or not – of nuclear weapons per se, rather than, say, the development of the European Union or NATO, alternative Soviet economic or political ambitions, economic or political constraints, less offensive military intention than was assumed at the time, luck, etc. Even if nuclear weapons did deter war among the major Cold War powers, relying on them in the demonstrably different conditions we face now seems an extraordinary stretch of faith. Adherence to a policy of nuclear deterrence in a proliferating world increases the risks of its failure. The failure of nuclear deterrence could result in the use of nuclear weapons, which could well prove worse than the original threat.

It took time and several mistakes for the United States and Soviet Union to learn that for deterrence to work at all, the parties must be able to communicate, comprehend, and make similar, rational calculations. This report is not the place for a detailed dissection of deterrence theory, but four points need to be emphasised: it is naive to ascribe deterrent properties to a single weapon system – if that were true, all governments would feel duty-bound to provide such protection to their populace; to the extent that deterrence applies, it is the product of the interplay of multiple instruments, any one of which might fail; psychological, cultural and communications factors play important but not necessarily predictable roles in deterrence; and the possibility of failure is inherent.

Deterrence requires some level of shared values and reliable communications among protagonists. To make an adversary believe that a nuclear weapon threat is credible, deterrence theorists maintain that it is necessary to demonstrate a preparedness to use the weapon. This entails concomitant risks of miscalculation, inadvertence or accident.

The circumstances in which the UK's nuclear forces might conceivably constitute a credible deterrent are extremely narrow. Essentially, only when this country's very survival is at stake might an adversary believe that the UK would be prepared to use its nuclear weapons to forestall such a threat. Beyond that, in the context of undertaking military action overseas, for example, it is extremely difficult to envisage how UK nuclear weapons might *credibly* deter an adversary.

UK nuclear weapons did not deter Argentina from invading sovereign UK territory in the Falklands in 1982. Nor did US and UK nuclear weapons deter Saddam Hussein from annexing Kuwait in 1990. On each occasion despotic regimes calculated correctly that they would not incur nuclear retaliation for their actions, despite not having nuclear weapons of their own. Would their behaviour have been different if the UK had made a prior declaration that nuclear retaliation would be provoked by an invasion? Experience suggests this is highly doubtful.

If the threat is not deemed credible, it can be counter-productive. Indeed, given the uniquely destructive power of nuclear weapons, the international community's increasing emphasis on the 'responsibility to protect' non-combatants, and this country's international legal obligations, it is hard to see when the use of UK nuclear weapons would not be highly counter-productive, if not also illegal, beyond the national survival scenario described above.

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<sup>11</sup> General Lee Butler (retired), Speech to the National Press Club, Washington DC, December 5, 1996. On a further occasion, he called nuclear deterrence "a dialogue between the blind and the deaf, born of an irreconcilable contradiction". Speech to IPPNW, Wellington, NZ, October 2, 1997.

When discussing the efficacy of UK nuclear weapons, therefore, it is very important not to overstate their value as a deterrent.

### ***Nuclear deterrence for biological or chemical weapons?***

Could a successor to Trident be useful against countries with chemical or biological weapons? As noted above, in line with NATO policy, Britain continues to refuse to rule out the first use of its nuclear weapons. Previously, the assumption has been that this relates to a nuclear-armed adversary, such as Russia. In recent years, government spokespeople have used deliberately ambiguous language, hinting that British nuclear forces could be used to deter chemical or biological proliferators. Do they believe that deterrence would operate under such conditions, and if not, do they plan to use nuclear weapons in a punitive, retaliatory role?

To date neither arms control nor export controls have been sufficient to prevent the proliferation of biological and chemical weapons. We must therefore also seek to deter the use of biological and chemical weapons by assuring a potential aggressor of three related outcomes, namely that: their use will not be allowed to secure political or military advantage; it will, on the contrary, invite a proportionately serious response; and that those, at every level, responsible for any breach of international law relating to the use of such weapons, will be held personally accountable.  
Ministry of Defence, July 1999<sup>12</sup>

As the UK no longer deploys biological or chemical weapons, a “proportionately serious response” could mean an overwhelming conventional attack, but it was intended to convey that the use of nuclear weapons has not been ruled out. In March 2004, Bill Rammell, a Foreign Office Minister, told the House of Commons that, “the circumstances in which any use of nuclear weapons might have to be contemplated would be extremely remote, and that we would use them only in extreme circumstances of self-defence and in accordance with our obligations under international law.”<sup>13</sup>

This echoes language from the 1996 Advisory Opinion of the International Court of Justice and would only really cover a situation in which Britain were about to be attacked or invaded by an overwhelming – and, it could be argued, nuclear-armed – adversary. On that basis, in the absence of any overwhelming military power that has territorial or annihilation ambitions towards Britain, what is the purpose of deploying Trident with continuous at-sea patrols and what are the envisaged legal uses for Britain’s nuclear weapons?

Nuclear weapons are frequently lumped in with chemical and biological weapons, but they are very different, as made clear in the report of the International Weapons of Mass Destruction Commission, chaired by Dr Hans Blix.<sup>14</sup> Moreover, as Professor Michael Clarke points out, “There is no comparison between the strategic destructive power of nuclear weapons on the one hand and of chemical and biological weapons on the other.”<sup>15</sup> Hence, nuclear weapons would not be a proportionate response even in the event of a significant attack using biological or chemical weapons.

Given the extremely low risk of a military (as opposed to environmental) threat emerging in the foreseeable future that would threaten the nation’s survival, current expressions of UK nuclear policy beg the question, what is Trident for?

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12 Defending Against the Threat: Chemical and Biological Weapons, Ministry of Defence, July 1999, Chapter 3.

13 Bill Rammell, MP, Parliamentary Under Secretary of State at Foreign and Commonwealth Office, House of Commons, Hansard, 16 March 2004, col 297.

14 *Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms*, Report of the International WMD Commission, Stockholm, 2006.

15 Michael Clarke, ‘Does my bomb look big in this? Britain’s nuclear choices after Trident’, *International Affairs*, Volume 80, Issue 1, January 2004.



A convincing case has yet to be made for the UK to spend billions of pounds on another generation of nuclear weapons.

Admiral Sir Raymond Lygo, the former Chief of the Naval Staff recently wrote: “Having a nuclear deterrent does give us the freedom to operate at lower levels of conventional military capability should we be required to do so politically.”<sup>16</sup> Undoubtedly this argument worked during the Cold War, persuading many to ignore the high price tag on UK nuclear weapons because they provided ‘bigger bangs for the buck’ given the Soviet Union’s large conventional forces. In the 21st century security environment this may be a popular argument in Pakistan, but it is surprising to find the assertion revived to justify a follow-on to Trident.

### ***Sub-strategic use***

The notion of a sub-strategic role for Trident was developed during the 1990s, in part to provide a post-Cold War justification for continuing to deploy strategic nuclear weapons on long range submarines.

Sir Michael Quinlan argued that the “declared intention since the mid 1990s has been to exploit the versatility and accuracy of the Trident system to provide ‘sub-strategic’ deterrent or war-termination options short of extensive multiple strike.”<sup>17</sup>

Noting that details have not been disclosed, Quinlan suggests that this probably entails that “some missiles may carry only one live warhead, and that that one warhead may have an explosive yield – perhaps through the use of only the ‘primary’ detonation – well below that of the normal warhead...”<sup>18</sup>

Members of Parliament have questioned how the use of a nuclear weapon against another country could ever be “seen as anything other than a strategic assault or a strategic threat”.<sup>19</sup>

### ***Pre-emption and the UK’s negative security assurance***

Despite the end of the Cold War, the government has refused to adopt a ‘no first use’ policy in respect of Britain’s nuclear weapons, saying that to do so would be “incompatible with our and NATO’s doctrine of deterrence”.

In the run-up to the war on Iraq, then Secretary of State for Defence Geoff Hoon told the Defence Select Committee that Saddam Hussein or other putative aggressors “can be absolutely confident that in the right conditions we would be willing to use our nuclear weapons”.<sup>20</sup> He later clarified to Jonathan Dimbleby on television that this might encompass both retaliation and pre-emption: “Let me make... clear the long standing British government policy that if our forces – if our people – were threatened by weapons of mass destruction we would reserve the right to use appropriate proportionate responses which might... in extreme circumstances include the use of nuclear weapons.”<sup>21</sup>

However he subsequently asserted in response to a Defence Question on July 15, 2002, “that British Government policy has not changed since John Major, during the Gulf War, explicitly ruled out the use of British nuclear weapons against Iraq, even in reply to a chemical or biological attack on our

16 Admiral Sir Raymond Lygo, ‘Are there realistic security and military rationales for the UK retaining its nuclear weapons?’ in *The Future of Britain’s Nuclear Weapons*, op. cit., p 29.

17 Michael Quinlan, ‘The Future of United Kingdom Nuclear Weapons: Shaping the Debate’, *International Affairs*, 82:4 July 2006, p 628.

18 Ibid.

19 House of Commons Defence Committee, “The Strategic Defence Review”, Volume III – Minutes of Evidence and Memoranda, September 10, 1998, Q3009-3015.

20 Minutes of Evidence taken on March 20, 2002, Q237, published in House of Commons Defence Committee, ‘Missile Defence’, First Report, HC 290-II, January 30, 2003.

21 Rt. Hon. Geoff Hoon, MP, Secretary of State for Defence, speaking on the *Jonathan Dimbleby* programme, ITV, 24 March, 2002.

forces, on the grounds that a proportionate response could be made using conventional weapons and that Britain would never breach the Nuclear Non-Proliferation Treaty.”<sup>22</sup>

Though the question was specific to Iraq, there is confusion whether Hoon meant to reflect that Labour was continuing the general policy of the previous Conservative government or whether he envisaged using nuclear weapons not only in retaliation against a country that has used chemical or biological weapons against UK territory, but also if it has used them against UK forces.

The language suggests the possibility of using nuclear weapons *first* against an adversary that may not possess nuclear weapons or that Britain is itself preparing to invade. If so, it would contradict Britain’s negative security assurance (NSA) to non-nuclear weapon parties to the NPT. Provided first in a statement made in conjunction with the UK’s signature of the NPT, Britain’s NSA was modified and reiterated as a political commitment just prior to the decision by NPT parties to indefinitely extend the Treaty in 1995, as follows:

*“The United Kingdom will not use nuclear weapons against non-nuclear-weapon States parties to the Treaty on the Non-Proliferation of Nuclear Weapons except in the case of an invasion or any other attack on the UK, its dependent territories, its armed forces or other troops, its allies or on a State towards which it has a security commitment, carried out or sustained by such a non-nuclear-weapon State in association or alliance with a nuclear weapon State.”*<sup>23</sup>

When the Prime Minister decided to join the invasion of Iraq in 2003, the government knew that Iraq had no nuclear weapons. At the time it was believed that Iraq might be in possession of a residual or very limited chemical and biological weapons (CBW) capability. Even so, it is difficult to envisage how the use of Britain’s nuclear weapons, either to pre-empt the imminent use of tactical CBW or in retaliation against such use, would have been proportionate.

The statements by Mr Hoon and others suggest that Britain’s nuclear forces are now being accorded a military utility over and above the deterrent role to which most people believe them to be confined. This shift reflects changes in US policy. Though the Bush administration has taken the policy further, it was the Clinton Administration that argued for invoking the long-standing international law doctrine of belligerent reprisal, if it was attacked with CBW. Some proponents insist that this means that if a state is attacked by another state in violation of international law, the state attacked is freed from all international commitments with regard to the attacking state.<sup>24</sup>

In seeking to understand the circumstances under which the British Prime Minister would authorise the use of nuclear weapons, it is important to recognise the degree to which UK nuclear policy is harmonised with the United States and NATO. Though it is believed that there may be important differences in intent and emphasis, in the absence of open information from the UK government, US documents on nuclear doctrine provide some clues on rationale, doctrine and targeting policy.<sup>25</sup> See Appendix I for more detail on the developments in post 9/11 nuclear policy and US targeting doctrine.

22 Defence Questions, 15 July 2002, Columns 10f, cf. Early Day Motion 1707 [Session 2001-2], (23.07.2002).

23 Statement by Sir Michael Weston, Ambassador for the United Kingdom to the Conference on Disarmament, April 6, 1995 and UN Security Council Resolution 984 on Security Assurances (1995). Four of the five acknowledged nuclear weapons states – US, Russia, France, UK – have provided an essentially common NSA text. The fifth – China – has vowed never to use nuclear weapons first at any time and in any circumstances.

24 See, for example, ‘Explosive Alliances: Nuclear Weapons Simulation Research at American Universities’, Natural Resources Defense Council, January 1998, Chapter 1B, <http://www.nrdc.org/nuclear/expl/eainx.asp>.

25 See, for example, *Doctrine for Joint Nuclear Operations*, US Joint Chiefs of Staff, Joint Publication 3-12, March 15, 2005. Available at: <http://www.acronym.org.uk/docs/0503/usdoctrine.pdf>.

### **No defence against terrorism**

Tony Blair recently admitted to the House of Commons, “I do not think that anyone pretends that the independent nuclear deterrent is a defence against terrorism”.<sup>26</sup> He is right, but needs to carry this observation further.

In accordance with its own logic, nuclear deterrence is worse than irrelevant when faced with extreme ideologues. Not only will such aggressors not be deterred by nuclear or other WMD held by their target countries or anyone else; on the contrary, their game plan could include provoking a nuclear or similarly disproportionate retaliation.

As Professor Malcolm Chalmers noted, “Far from being deterred by nuclear weapons, terrorists would be delighted to provoke a Trident retaliation, fully aware of the global opprobrium that this would bring on Britain. Even a nuclear attack on the UK by an identifiable ‘rogue’ state could not justify a British nuclear response in which the main victims would be thousands of innocent civilians. Regime change using conventional forces would be a more appropriate, and moral, response.”<sup>27</sup>

Similarly, David Clark, a former special adviser to the Foreign Secretary, argued: “Deterrence means instilling in the mind of a potential adversary the inevitability that aggression would meet with a devastating response. Since the West has the means to do this with conventional force alone, the threat of incinerating a rogue state’s population with a nuclear strike would have no additional deterrence value.”<sup>28</sup>

In his authoritative book *Nuclear Weapons and International Law in the Post Cold War World*, US attorney and legal scholar Charles J. Moxley Jr, concluded that the policy of nuclear deterrence is “vulnerable under the established principle of law accepted by the United States and confirmed by the ICJ in the Nuclear Weapons Advisory Opinion, to the effect that it is unlawful to threaten to do that which it is unlawful to do. This vulnerability is highlighted by... US military manuals, whereby the military acknowledge that deterrence threatens disproportionate and indiscriminate injury.”<sup>29</sup>

Advocates of nuclear weapons seem to favour the term ‘deterrent’ because it incorporates the desirable attribute of prevention while avoiding the unpleasant acknowledgement that what is being discussed is a weapon capable of killing and contaminating on a massive scale. In addition, the euphemism impedes analysis of the efficacy of nuclear deterrence. It is reasonable to ask if a nuclear weapon can deter a foreseeable threat, and if so, how? By contrast, the very language makes it sound nonsensical to pose the question, “does the deterrent deter?”

Consider the statement, “Only the Prime Minister can authorise the use of the UK’s nuclear deterrent.”<sup>30</sup> If authorised for use, the weapon cannot logically be regarded as a deterrent. It has failed to deter, and is about to be used. Hence, the linguistic camouflage and sleight of hand inherent in constant repetition of the phrase ‘the British nuclear deterrent’ impedes reasoned analysis and should have no place in serious discourse on the future of British nuclear weapons.

26 House of Commons, Hansard, October 19, 2005, column 841.

27 Malcolm Chalmers, ‘Long Live Trident?’ *Physics World*, August 2005.

28 David Clark, ‘The Blairite love affair with the bomb will cost Britain dear’, *The Guardian*, November 1, 2005.

29 Charles J. Moxley, Jr, *Nuclear Weapons and International Law in the Post Cold War World*, Austin & Winfield, 2000. Moxley specifically raised concerns that the continued pursuit of nuclear deterrence policies introduces “significant risk factors with implications both for security and for compliance with the principles and obligations in the international, US and British legal systems: the danger of precipitating a nuclear war; the fostering of an arms race; the fostering of nuclear proliferation; the risks of terrorism; the risks of human and equipment failure; risks of testing, production, storage and disposal of nuclear weapons materials; the risk of the degradation of conventional weapons capability; jeopardy to rule of law; and overriding risk factors as to the likelihood that the unlikely will occur”.

30 As previously noted, this statement can be found in *The Future of the UK’s Strategic Nuclear Deterrent: the Strategic Context: Government Response to the Committee’s Eighth Report of 2005-06*, HC 1558 of Session 2005-2006, July 26, 2006, para 12.

## Insurance policy

Justifying a nuclear follow-on in terms of an insurance policy also begs some serious questions. The strategic environment has profoundly changed and there is a danger that retaining traditional policies may now be hampering efforts to address actual and foreseeable threats, most notably, nuclear proliferation. The perceived strategic and ideological threat from the Soviet Union has disappeared and has not been replaced by a threat of similar strategic consequence. As noted earlier, by Tony Blair's own admission, nuclear weapons are not useful against terrorists.

The insurance analogy illustrates a misunderstanding of both the role of nuclear weapons and the role of insurance policies. Insurance policies do not purport to prevent a threat or catastrophe, but to help pay for the damage in the event that a threatening event has occurred. Likening 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. It also assumes a reasonable ratio between the costs and the benefits of the chosen insurance, and glosses over the terrible costs if the failure of the relied-upon 'deterrent' requires that the weapons are launched.

Since it is so frequently evoked, however, it may be illuminating to extend the analogy a bit further. Houses built in high risk areas, such as flood plains, are expensive – and sometimes impossible – to insure. Insurance brokers routinely advise clients to undertake prudent measures to avoid placing themselves in positions of high risk. Householders would not be taken very seriously if they took out an expensive insurance policy against being hit by a meteor, especially if they neglected sensible measures to prevent fire and theft and left themselves with inadequate resources to provide less-expensive practicalities like smoke alarms or fire extinguishers.

The decision about the future of British nuclear weapons needs to take into account that this country is not a passive bystander in international affairs. Government policies, actions (and non-actions) play a major role in shaping the kind of future our children and grandchildren will have to deal with. We need to think very carefully about the wisdom of saddling them with a nuclear policy that could mortgage their future rather than providing genuine insurance. Moreover, if Trident were decommissioned and not replaced, Britain would retain a significant latent capability for a long time, if insurance was felt to be needed.

Nuclear weapons were the instruments of 20th century conflicts and fears, and the theories of nuclear deterrence were developed to cope with the peculiar conditions of the Cold War. The United Nations High-Level Panel on Threats, Challenges and Change acknowledged that nuclear weapons continue to pose a threat, but argued that they had no constructive role as a security enhancer or instrument for addressing the real security challenges. The Panel stressed the need for a more comprehensive concept of collective security, including cooperative approaches to address the dangers of non-compliance with international law and the "precarious state of the nuclear nonproliferation regime."<sup>31</sup>

It is within this broader understanding of security that decisions concerning Trident replacement and the future of UK nuclear policy need to be contextualised.

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31 *A More Secure World: Our Shared Responsibility*, Report of the Secretary-General's High-level Panel on "Threats, Challenges and Change", December 2, 2004. See also *In Larger Freedom: Towards Development, Security and Human Rights for All*, Report of the Secretary-General, March 21, 2005.

I firmly believe that our generation can build a world of ever-expanding development, security and human rights – a world “in larger freedom”. But I am equally aware that such a world could be put irrevocably beyond our reach by a nuclear catastrophe in one of our great cities.

In the chaos and confusion of the immediate aftermath, there might be many questions. Was this an act of terrorism? Was it an act of aggression by a state? Was it an accident? These may not be equally probable, but all are possible. Imagine, just for a minute, what the consequences would be. Tens, if not hundreds, of thousands of people would perish in an instant, and many more would die from exposure to radiation.

The global impact would also be grave. The attention of world leaders would be riveted on this existential threat. Carefully nurtured collective security mechanisms could be discredited. Hard-won freedoms and human rights could be compromised. The sharing of nuclear technology for peaceful uses could halt. Resources for development would likely dwindle. And world financial markets, trade and transportation could be hard hit, with major economic consequences. This could drive millions of people in poor countries into deeper deprivation and suffering. As shock gave way to anger and despair, the leaders of every nation represented here at this conference – as well as those who are not here – would have to ask: How did it come to this? Is my conscience clear? Could I have done more to reduce the risk by strengthening the regime designed to do so?

Kofi Annan, UN Secretary-General, to 2000 NPT Review Conference, May 2, 2005

## Chapter 2 | Options for Extending Nuclear Reliance

In June 2006, the House of Commons Defence Committee identified four basic decisions to be considered: retention versus abolition; service life extension; future capability; and further investment in current capability.<sup>32</sup> The next chapters consider these choices, starting with the options that would extend Britain's reliance on nuclear weapons in one form or another.

The Trident nuclear weapon system comprises several parts, of which only the US ballistic missiles are actually called 'Trident'. The 'platforms' are four British-built nuclear-powered submarines (SSBNs). The first of these, HMS Vanguard, went out on its first patrol in 1994 and the last, HMS Vengeance, followed suit in February 2001. In large part due to the design of the nuclear reactor, the MoD maintains that the service life of these submarines is 25 years.<sup>33</sup> On that basis, without service life extension they would be expected to be decommissioned around 2019-2026. In 2003, however, the Defence White Paper had given the submarines' life expectancy as 30 years, the figure also cited in the 1998 Strategic Defence Review. In addition, there have been suggestions that the submarines may be capable of longer service than this, since the estimates appear not to have taken into account the reduced frequency of patrols following changes introduced by the government after the SDR.<sup>34</sup>

The Trident submarines are deployed from the Clyde Submarine Base (CSB) at Faslane, Scotland, operated by the Royal Navy. The warheads are designed and manufactured at AWE Aldermaston and Burghfield, in Berkshire, but they are stored with the US ballistic missiles at the Royal Navy Armaments Depot (RNAD) at Coulport, a few miles from Faslane, on the Clyde. Since February 2002, refits and repairs have been carried out at the naval dockyard at Devonport.

The submarines are equipped with Trident D5 submarine-launched ballistic missiles (SLBMs) supplied from the United States. The solid-fuel missiles comprise three stages. After each booster stage has expended its fuel and fallen away, the un-powered Post Boost Vehicle (known as a 'bus') proceeds on a ballistic trajectory, carrying a number of conical, multiple independently targetable re-entry vehicles (MIRVs), each of which contains a nuclear warhead. At the appropriate time a warhead is released from the bus and carries on to hit its specified target. Gas generators on the bus provide power to adjust the direction and inclination of the bus, allowing a second warhead to be released towards a different target. The procedure is repeated until all the warheads have been released to attack separate targets.

Under current arrangements, Britain has a contract with the United States to receive<sup>35</sup> 58 missiles from a larger pool of Trident missiles produced by the US defence contractor Lockheed Martin for the US navy. The missiles have a high unit cost to procure, as they are highly complex and technologically sophisticated pieces of equipment, and there are only two customers – the US and British governments. The D5 missile contracts are described as a "perennial money maker",<sup>36</sup> for Lockheed Martin. It should be noted that Lockheed Martin is also one of three private companies in the management consortium that runs the Atomic Weapons Establishment at Aldermaston and Burghfield.<sup>37</sup>

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32 House of Commons Defence Committee Report, HC 986, op. cit. p 28, para 105.

33 Ministry of Defence, Memoranda to Defence Select Committee, Annex B, The Expected Life of the Trident System, 2(b).

34 The authors are grateful to Malcolm Savidge, formerly Labour MP for Aberdeen North, for drawing our attention to the following quote attributed to Defence Minister Dr Lewis Moonie: "For as long as necessary we will maintain a nuclear deterrent and that means Trident to the end of its useful life, a minimum of 30 years". *The Times*, December 30, 2002. See also Paul Ingram, "Trident: Do we really need to make a decision now?" *BASIC Special Briefing*, July 2006.

35 The 1998 Strategic Defence Review states that 58 "missile bodies" were purchased from the United States, but these are taken from a common pool maintained by the United States at King's Bay, Georgia. Therefore, Britain owns the title to 58 missiles, but it cannot be said that a particular missile is exclusively owned and used by the UK. See the Strategic Defence Review, July 1998, Cm 3999, p 18 para 65.

36 Anthony Capaccio, 'Lockheed Martin Nuclear Missile Purchases by U.K. Likely to End', *Bloomberg*, July 6, 1998.

37 AWE is a Government Owned Contractor Operated (GOCO) facility. It has been managed since April 2000 by AWE Management Limited, which comprises Lockheed Martin, British Nuclear Fuels Ltd. and SERCO.



Down at Aldermaston they are spending hundreds of millions of pounds of your money on a refit of the production line for nuclear warheads. We are assured this does not mean that any decision has been made to replace the Trident nuclear system. Dear me no, the investment is merely intended to keep open our options.

Robin Cook, July 29, 2005<sup>38</sup>

Under a 1982 agreement, the missiles are regularly sent to King's Bay, Georgia, for refurbishment. When making the decision to procure the Trident nuclear weapon system in 1980, Britain originally envisaged using the smaller Trident C4 missiles, but had to upgrade to D5 in 1982 when the United States made the unilateral decision to upgrade its own fleet.<sup>39</sup> This necessitated design modifications to the submarine launch configurations. The additional expense for Britain was offset by the decision to have the missiles more cheaply serviced by Lockheed Martin at the King's Bay Naval facilities instead of at Coulport (which had serviced Britain's Polaris SLBMs).

The plutonium-based design for the British warheads is closely allied to the American W76 warhead in order to fit the Trident D5 missiles, but it is not identical. However, far from being independently British, the warheads rely on components from the United States, including tritium (a radioactive, non-fissionable material with a half life of 12.32 years which is used to boost the size of a nuclear explosion) and the neutron generator.<sup>40</sup> Despite the similarities in warhead design, Aldermaston scientists have indicated that they do not think the concerns raised by some officials in the Pentagon and the US Department of Energy (DOE) about the robustness of the W76 warheads – even if warranted (which some American commentators doubt) – apply to the British warheads.

The United States is currently in the process of modernising its warhead delivery system, increasing the accuracy with Global Positioning System (GPS) and modifying the fuse design to augment the explosive options. The purpose of replacing the fuse is to provide the warhead with ground-burst capability so that the W76-1/Mk4A will be able to destroy a broader range of targets including hardened facilities. The modified warhead is scheduled to be ready in 2007. The upgrade is part of the DOE Life Extension Programme to retain the W76 in service through 2030.

In July 2005, the House of Commons library research services published a briefing for MPs on the replacement options for Trident which highlighted three alternatives: procurement of a direct replacement for Trident in line with current UK-US agreements; extending the in-service life of the submarine and missiles in the near term; and procuring “a brand new capability”.<sup>41</sup> The House of Commons briefing missed out a fourth option that will be considered in Chapter 3: namely, the managed transition to a non-nuclear-reliant defence policy.

The options for continuing Britain's reliance on nuclear weapons are considered in more detail below, together with proposals for a reduced capability, which is being canvassed by some former defence practitioners, including Sir Michael Quinlan.<sup>42</sup>

## 2.1 Like-for-like direct replacement of Trident

Off-the-record conversations with officials have indicated that the option that is most seriously under consideration is that of building a new generation of SSBNs that would be equipped with similar missiles and warheads as at present, probably upgraded and perhaps modified.<sup>43</sup> This may

38 Robin Cook, 'Worse than Irrelevant', *The Guardian*, July 29, 2005.

39 "Following President Reagan's decision to accelerate the Trident II D5 programme, if we were to choose the C4 missile, it would enter service with the Royal Navy only shortly before it left service with the United States." John Nott, Secretary of State for Defence, addressing the House of Commons, March 11, 1982, as quoted in *Trident and the future of the British Nuclear Deterrent*, House of Commons library, Standard Note: SN/IA/3706, July 5, 2005 p 5.

40 See John Ainslie, *The Future of the British Bomb*, WMD Awareness Programme/Clydeside Press, October 2005, p 12.

41 *Trident and the future of the British Nuclear Deterrent*, op. cit. p 11.

42 See, for example, Quinlan, op. cit., p 636.

43 On the record, Commodore Tim Hare, former MoD Director of Nuclear Policy, has commented "more of the same remains the only sensible option". Tim Hare, *What next for Trident?* RUSI Journal, April 2005.

be a direct 'like-for-like' replacement along the same lines as Trident or, possibly, a 'lite' version with fewer submarines, missiles and warheads. Though the 'Trident-lite' option is considered separately below, many of the technical and political arguments for or against a direct replacement would apply also to 'Trident lite'.

Direct replacement is favoured for a variety of reasons:

- The relative invulnerability of the submarine platform when at sea arguably avoids the 'use them or lose them' dilemma. This dilemma theoretically escalates conflict by placing nuclear powers in the invidious position of having to fire nuclear weapons before they planned or intended to, for fear of losing them through pre-emptive military action by an adversary.
- Retaining compatibility with the US SLBM deployment and maintaining current operating procedures should cement US-UK nuclear and military cooperation and minimise procurement and maintenance costs, especially when compared with developing, operating and maintaining an indigenous system. (Britain does not have an independent ballistic missile research and production capability, and to develop such a programme now would be prohibitively expensive.)
- The intercontinental range of the SLBM not only provides wide target coverage but also avoids the need to deploy the submarine platform closer to the theatre of conflict at time of crisis.
- Notwithstanding potential developments in missile defence technology, ballistic missiles are the most assured means of delivering a nuclear payload to its target. Nuclear planners also argue that this enables the number of warheads to be kept to a minimum.
- The perils of miscalculation can be better avoided if the force is deployed solely in a nuclear role i.e. the submarines do not serve a dual purpose by also carrying conventionally-armed missiles for a military purpose.
- Replacing Trident with a practically identical system avoids difficult choices and would signal nuclear 'business as usual'. It would maintain existing arrangements: providing a large new submarine order for British ship-builders at Barrow and justifying significant upgrading of facilities at AWE Aldermaston. The latter would be able to produce a further generation of warheads that would not need to be explosively tested (Britain has signed and ratified the CTBT).
- Ensuring a large nuclear weapon capability to at least the year 2055 (and some suggest this could be extended to 2070 or beyond) would underscore the UK's intent to remain a nuclear weapon state for many decades to come.
- It would also maintain the arrangement with the US whereby Britain has access to a certain number of Trident D5 missiles from a common pool, at least for as long as the United States continues to manufacture them. This means the UK would remain dependent on US "goodwill" in operational cooperation, for instance, with the refurbishment of the missiles and reloading of UK submarines at Kings Bay.

These arguments in favour are very familiar, and continue to be elaborated by proponents of Trident. Less well documented are the pragmatic arguments against this option, which include:

- Costs and nuclear liabilities, including decommissioning, 'undiscounted costs', funding that has already been committed and defence industrial strategy;
- Extending dependency on the United States, including nuclear cooperation and the reliability of the supply of US missiles over the projected life of the UK weapons; and
- The 'Scottish Question' – particularly, the potential consequences for continued deployment at the Faslane submarine base, given widespread public opposition to nuclear weapons in Scotland and the possibility of further devolution or eventual Scottish independence.



These concerns are dealt with in more detail below.

### **Costs and nuclear liabilities**

Assessing the overall cost of such a replacement is difficult this far in advance but it is not unrealistic to assume that the figure would be more than the procurement costs of the present Trident system, given as £14.893 billion in a recent parliamentary answer.<sup>44</sup> Without full and transparent accounting, it is not clear what the various estimates include or exclude. Do they include the associated direct costs of maintaining the nuclear weapons establishments at Aldermaston and Burghfield and the naval infrastructure at Faslane and Coulport, for example? Do they include the indirect costs of assigning conventional forces to protect the SSBN fleet and security for land-based operations, including the transporting of warheads from Berkshire to Argyll? Are future decommissioning costs being taken into account in addition to the price tag on decommissioning the current Trident system? If not, as is certainly the case, such integrally-connected expenses need to be calculated and factored in.

The estimates for replacing Trident were initially estimated to be between £15 billion and £25 billion,<sup>45</sup> but a recent *Guardian* article has suggested that the “true cost of replacing and operating the Trident nuclear missile system would be at least £76 billion”.<sup>46</sup> This figure was calculated by the Liberal Democrats from parliamentary answers and backed up by independent Commons researchers, according to the *Guardian*. It was based on official figures, taking into account the initial cost of acquiring new Trident missiles and replacing Britain’s existing nuclear submarines, with calculated annual running costs of 5.5 percent of the defence budget for maintaining the nuclear weapon system over a basic 30-year span.

This estimate is open to question. There are suggestions that it may have double-counted the capital costs and over-simplified maintenance and running costs, which fluctuate and may be significantly lower (or higher) in some years. It is not clear what proportion of the costs of maintaining AWE Aldermaston and Burghfield and the naval bases at Coulport and Faslane have been included, as some of these facilities would need to be maintained even if Trident were cancelled tomorrow. Even so, it is not unreasonable to estimate that there will be an overall price tag rather higher than the £25 billion frequently attached to a submarine-based replacement for Trident.

The widely differing estimates also point to the need for government costings to be fully transparent and comprehensive to enable elected representatives to make informed decisions. A recent response from the Secretary of State for Defence, Des Browne, to a question from Paul Flynn MP concerning “the function and location of the £9,753,827,000 undiscounted costs of nuclear liabilities” gives some indication of the associated costs that would need to be taken into account.

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44 House of Commons Hansard, January 18, 2005, column 29WS.

45 See, for example, Michael Clarke, *op. cit.*, p 53. It is not clear what this figure is based on, and as with the previously noted price tag, probably does not include AWE costs or decommissioning. It may be argued that this option would benefit from the fact that the major infrastructure costs, including for Faslane and Coulport, have already been met. Even so, it should be noted that military inflation runs at around 10 percent a year, and each new nuclear weapon acquisition appears to cost roughly double that of its predecessor. Keith Hartley, ‘The Economics of UK Nuclear Weapons Policy’, *International Affairs*, 82:4, (July 2006), p.675.

46 Richard Norton-Taylor, ‘New Trident system may cost £76bn, figures show’, *The Guardian*, September 21, 2006. Calculating from information given by Defence Secretary Des Browne to the House of Commons, including that the annual expenditure for capital and running costs for Trident amount to up to 5.5 percent of this year’s defence budget, the £76 billion figure is based on the value the government has put on the cost of the existing Trident system - £14.9bn - plus the percentage of the £30bn defence budget now devoted to Trident for 30 years.

### Excerpt from Hansard (written questions) on nuclear liabilities, July 24, 2006.

**Paul Flynn:** To ask the Secretary of State for Defence if he will publish a disaggregation by function and location of the £9,753,827,000 undiscounted costs of nuclear liabilities, set out at page 220 of his Department's Annual Report and Accounts for 2005-06, HC1394, for which his Department is responsible; and if he will publish the advice provided to his Department by NIREX to which the Report makes reference. [86925]

**Des Browne:** A disaggregation by function and location of the £9,753,827,000 undiscounted costs of nuclear liabilities, stated in the Department's Annual Report and Accounts for 2005-06, is as follows:

**£3,394,744,000**—Costs associated with decommissioning, care and maintenance of redundant facilities (the conditioning, retrieval and storage of contaminated materials); research and development; and the procurement of capital facilities to handle the various waste streams.

*Location: AWE Sites, Berkshire.*

**£2,132,782,000**—Decontamination and decommissioning of Naval Test Reactor and waste disposal.

*Location: Dounreay.*

**£1,052,580,000**—Costs associated with the research, development and construction of the NIREX Deep Waste Repository.

*Location: Not yet known.*

**£934,659,000**—Storage of nuclear materials.

*Locations: Springfields, Capenhurst and Sellafield.*

**£909,892,000**—Nuclear Propulsion decontamination and decommissioning liabilities at various sites which conduct nuclear submarine decommissioning work on behalf of MOD.

*Locations: Sellafield, Derby and mobile support equipment.*

**£504,144,000**—Berthing and decommissioning of out of service submarines.

*Locations: Rosyth and Devonport.*

**£332,835,000**—Decommissioning of current in-service submarines.

*Location: Rosyth and Devonport.*

**£177,259,000**—Sundry provisions, the bulk of which is in respect of costs of storage of low level waste.

*Location: Sellafield.*

**£146,401,000**—Dismantlement of Warheads.

*Location: AWE Sites, Berkshire.*

**£119,168,000**—Decommissioning of nuclear submarine refit and refuelling facilities.

*Location: Devonport Dockyard.*

**£32,299,000**—Nuclear Decommissioning and Decontamination of Rosyth Dockyard on completion of the final Nuclear Submarine Project contract.

*Location: Rosyth.*

**£10,627,000**—Decommissioning and disposal of the Neptune Test Reactor.

*Location: Derby.*

**£4,030,000**—Disposal of Support Equipment which contains depleted uranium.

*Location: Rosyth and Devonport.*

**£2,207,000**—Decommissioning of a facility that processes radiological submarine effluent at HM Naval Base Clyde which is being superseded by a new Radiological Processing Facility.

*Location: HM Naval Base Clyde.*

**£200,000**—Decontamination related to low-level and small quantities of nuclear materials used in educational laboratories at the Defence Academy.

*Location: Shrivenham.*

**Source: House of Commons, Hansard, July 24, 2006, column 779W** (The information provided by NIREX for the Department's Annual Report and Accounts is commercially sensitive. Its publication is a matter for NIREX.)

## Decommissioning

Included in Mr Browne's list of nuclear liabilities, was a £120 million for decommissioning the Devonport nuclear submarine refit and refuelling facilities near Plymouth, with a further £4 million earmarked for disposing of 25 tonnes of depleted uranium stored at Devonport and also Rosyth, in Fife. A further £830 million is set aside for decommissioning, berthing and disposing of nuclear submarines at Devonport and Rosyth, and £1 billion for some kind of underground nuclear waste dump. A further £2.2 billion is earmarked for replacing facilities for processing radioactive effluent at Faslane.<sup>47</sup>

These costs identified by Mr Browne may be just the tip of the real iceberg of decommissioning and environmental costs. Deciding to build further submarines powered by nuclear reactors will extend the decommissioning and environmental burdens of dealing with the nuclear waste that will be produced as the current Trident is decommissioned. Any extension involving the production of a further generation of nuclear weapons at Aldermaston will also add to the environmental and health burden that these facilities inflict on the surrounding communities in Berkshire, Devon and Scotland.

## Funding already committed

According to evidence provided to the Defence Committee, decisions were taken as far back as 2002 to fund 'new build' capabilities at Aldermaston, including a supercomputer and Orion laser. In 2000, the government awarded a 10-year contract worth £2.3 billion to AWE Management Limited to run AWE Aldermaston and Burghfield. Following publication of a Site Development Plan in July 2002, the government extended the contract to 25 years in January 2003, increasing its value to £5.3 billion.<sup>48</sup> A further £350 million was granted in July 2005 for each of the next three years, amounting to just over a billion pounds.<sup>49</sup> AWE's 'in house' magazine subsequently claimed that the new developments "will make AWE one of the largest construction sites in the UK – similar in scale to the Terminal 5 project at Heathrow".<sup>50</sup>



47 House of Commons, Hansard, July 24, 2006, column 779W. Also the following articles: '£3 bn to clean up MoD nuclear sites', *The Scotsman*, July 27, 2006; and 'Taxpayers facing huge nuclear clean-up bills', *Western Morning News*, July 29, 2006.

48 See Memorandum from Aldermaston Women's Peace Campaign, House of Commons Defence Committee, HC 986, op. cit., Ev 121-125.

49 House of Commons Hansard, November 3, 2005, column 1259W. AWE Management Ltd comprises Lockheed Martin, British Nuclear Fuels and SERCO.

50 From *AWE Today*, January 2006, quoted at House of Commons Defence Committee, HC 986, op. cit., Ev 124.

These developments in construction and financing are geared towards maintaining research, design, testing and production capabilities. These increased levels of investment and the purposes for which they are intended indicate that the government is already banking on AWE continuing to make nuclear weapons well into the future. These spending commitments appear to pre-empt the decision about future nuclear policy and are inconsistent with government claims that no decision on a follow-on to Trident has yet been made.

### **Defence industrial strategy**

Although the government insists that no decision has yet been taken on whether to replace Trident, the Ministry of Defence's December 2005 White Paper on Defence Industrial Strategy seems to be predicated on the assumption of further submarine procurement to maintain the UK's capability in this field. The White Paper states,

*"We have duties of nuclear ownership and commitments to the USA which can only be fulfilled by close control of an onshore submarine business. Therefore, it is essential that the UK retains the capability safely to deliver, operate and maintain these platforms, without significant reliance on unpredictable offshore expertise... key capabilities must be sustained in the UK."*<sup>51</sup>

The White Paper notes that the sector is currently dominated by a small number of "monopoly suppliers" (BAE Systems, DML, and Rolls-Royce Marine), which contract direct with the MoD.<sup>52</sup> The government's current plans for the Astute-class nuclear-powered submarines, along with the Future Aircraft Carrier and the Type 45 Destroyer are expected to "keep the UK shipbuilding industry fully employed for some years". However, "from around 2016, the steady-state demand will be significantly lower,"<sup>53</sup> suggesting that the companies involved are likely to want further orders to sustain the industry. An attractive contender would be a replacement for Trident.

Whilst the government has not commented on any linkage between the Defence Industrial Strategy and Trident replacement, it has not gone unnoticed by supporters of Trident replacement. As Conservative MP Mark Harper asks, "How will we maintain our skills base and what capability will be retained if there is a significant production gap between the completion of the Astute-class and the potential replacement of Trident?"<sup>54</sup> Similarly, Labour MP David Crausby urges "an early published resolution to what we intend to replace the Vanguard class with, alongside firm decisions on the acquisition of the proposed Astute-class nuclear-powered submarines so that we can ensure, most importantly, that we retain necessary skills and design capabilities onshore."<sup>55</sup>

There is thus the risk that future procurement might be driven more by the objective of sustaining certain defence companies than any assessment of the UK's real security needs. There is a degree of circularity in this argument, in which we need to maintain a particular kind of industrial base because a particular weapon depends on it, and then we need to keep procuring that weapon to maintain the appropriate industrial base. If we chose not to deploy nuclear weapons, we could also reduce dependence on other nuclear-powered submarines, thereby shrinking that specific industrial base and releasing resources for other defence requirements.

A further area of concern is the role played by the giant US defence contractor, Lockheed Martin. Already comprising one-third of the management consortium that runs AWE Aldermaston, together with British Nuclear Fuels Ltd (BNFL) and Serco, Lockheed Martin also manufactures the Trident D5 missiles and owns the company Insys, which advises the MoD on whether Aldermaston is fulfilling its job criteria satisfactorily. With recent indications that BNFL is seeking

51 Defence Industrial Strategy, Defence White Paper, Ministry of Defence, Cm 6697, December 2005.

52 Ibid.

53 Ibid.

54 House of Commons Hansard, February 2, 2006, column 563.

55 House of Commons Hansard, February 2, 2006, column 528.

to sell its one-third share in AWE Management Ltd (AWE M-L), Bechtel or Lockheed Martin could be looking for an even larger role in supplying and managing Britain's nuclear weapons programme.<sup>56</sup>

## Trident's dependency on the United States

The Trident like-for-like replacement option would extend the UK's dependence on US policy, procurements and nuclear cooperation. While it is anticipated that a positive and effective transatlantic alliance will remain a key strategic objective for British governments in the future, it may not be considered desirable to be so dependent on the vagaries of US attitudes and political decision-making where British security and defence are concerned.

Since 1995, missile production and funding for both the British and American D5 missiles have been "fully integrated",<sup>57</sup> in order to sustain specialised production lines for missile components for as long as possible at the lowest possible rate, (around 12 missiles per year), a strategy that the US Department of Defense calls 'Low Rate Production Continuity'. The objective is to "sustain Trident missile component lines without breaks in US production lines, thus avoiding costly requalification."<sup>58</sup>

Though the United States is clearly the dominant partner, UK procurement decisions can also have impact on US production plans.<sup>59</sup> When Britain decided to reduce its order for D5 missiles from 65 to 58, following the 1998 Strategic Defence Review, negotiations with the United States were painful and instructive.

In 1998 four missile component production lines were closed due to a reduction in Congressional funding for US missiles, which must have made the UK reduction in orders even less palatable. The production lines cost \$144 million to restart.<sup>60</sup> According to a joint briefing by the US Department of Defense and the UK Ministry of Defence, during this period "neither US or UK stand-alone orders [were] adequate to keep open some specialized production lines." The D5 procurement programme therefore required "funding by both US and UK to sustain minimum production rates".<sup>61</sup>

Hence, when the UK government in 1998 reduced the order from 65 to 58, the US Director of Strategic Systems Programs (US Navy) wrote that "without the UK's participation, the US program for FY 1999 is unexecutable".<sup>62</sup> According to a joint US DOD / UK MoD briefing, "without UK resources in FY99, US cannot execute the FY99 production contract".<sup>63</sup> As a result, a complex arrangement was negotiated, in the form of a Memorandum of Understanding (MOU) between the US Secretary of Defense and the UK Secretary of State for Defence, whereby the UK proceeded as originally planned with procurement of the full order of missile components, with the US buying some back at a later date at a reduced cost. As a result, Britain paid a total of \$107 million for production of these missile components, which was partially mitigated by payment of \$61 million by the US for the "buy-back". The UK retained some components as spares.

56 Terry Macalister, 'BNFL looks to avoid political row with subsidiary break-up', *The Guardian*, August 23, 2006.

57 US/UK Trident D-5 Missile Production Status, Navy Strategic Systems Programs, June 19, 1998, Co-ordinated US DOD/ UK MoD briefing, obtained under the US Freedom of Information Act by Rob Evans.

58 Ibid. Note: 'requalification' is military jargon for the process of assuring that the reopened production lines meet standards for quality and reliability.

59 Email message from a US official, April 21, 1998, obtained under the US Freedom of Information Act by Rob Evans.

60 The cost of restarting and requalifying production lines that have been closed is understood to be disproportionately expensive, as these production lines often require highly specialised staff and equipment. Questions and Answers for Congress, obtained under the US Freedom of Information Act by Rob Evans.

61 US/UK Trident D-5 Missile Production Status, June 19, 1998, op. cit.

62 Letter from Director, Strategic Systems Programs (Department of the Navy), June 29, 1998.

63 US/UK Trident D-5 Missile Production Status, June 19, 1998, op. cit.



Questions about this agreement were raised at the time by a number of British officials, who noted that as “the US has itself cut missile production by four, the UK ought to be able to make a similar change without being asked to mitigate in full”. British officials raised concerns that there should be an “equitable approach in terms of the reductions both nations are making”.<sup>64</sup>

With the lack of openness that has characterised UK nuclear decision-making from its earliest days, the government used the mechanism of an MOU to avoid parliamentary scrutiny, since “using an MOU avoids the constitutional process of laying the treaty before Parliament (for 21 sitting days), publishing it in the Treaty series, etc.”<sup>65</sup>

As noted above, the United States is currently undertaking a life extension programme for the Trident D5 missile, which would enable it to remain in service to 2042: but this could change if US policy were to change.<sup>66</sup> If built along similar designs to the current Vanguard-class, a new generation of UK SSBNs would be expected to be operational to at least 2055. Therefore, if the United States decided to discontinue D5 missile production before that date, Britain could be left with expensive but impractical submarines with years of life left in them.<sup>67</sup> Another option would be to find alternative missiles, although this might necessitate costly re-design of submarine hulls to accommodate them.

Britain has found itself in similar difficulties as a result of US policy changes on at least three previous occasions: in 1962, when Washington cancelled the Skybolt air-launched ballistic missile system; in 1980, when the Reagan administration decided to equip its submarines with D5 missiles instead of its predecessor the C4, the missile that Prime Minister Margaret Thatcher had originally thought Britain would be leasing; and in 1992, when President George H. W. Bush signed a Senate-mandated moratorium on nuclear testing just weeks before Aldermaston was due to conduct a warhead test explosion at the Nevada test site.

The dangers of dependence on the United States have also been highlighted by the recent problems in negotiations on the Joint Strike Fighter (JSF). In Washington, Britain is seen as very much the junior partner in any special relationship. The UK is planning to buy 150 planes for its aircraft carriers and has already committed £2 billion to the programme, which is led by Lockheed Martin, partner in AWE-ML and manufacturer of the Trident D5 missile. The US government has recently blocked the transfer of sensitive JSF technology with the UK, so the Royal Navy will be dependent on the United States for future testing, modification and updating of the aircraft. The US has also declined to buy British-manufactured Rolls Royce engines for the planes, despite personal lobbying from Tony Blair.<sup>68</sup>

During the 2006 Defence Committee hearings on the future of strategic deterrence, considerable evidence was heard about Britain’s heavy nuclear reliance on the United States. In the government’s brief response to the Committee report, the MoD registered its disagreement with much of this evidence and insisted (emphasis in original): “The UK Trident system is *fully* operationally independent of the US or any other state.” The statement continued, “Decision-making and use of the system remains entirely sovereign to the UK. Only the Prime Minister can authorise the use of the UK’s nuclear deterrent, even if the missiles are to be fired as part of a NATO response. The instruction to fire would be transmitted to the submarine using entirely UK codes and UK equipment.”<sup>69</sup>

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64 ‘Trident Missile Buy’, Fax Message from John Clayton, UK MoD Abbey Wood, May 11, 1998, obtained under the US Freedom of Information Act by Rob Evans.

65 Loose Minute, D/CSSE/9/198/6594, SP510, June 18, 1998.

66 *Trident and the future of the British Nuclear Deterrent*, op. cit. p 12. This House of Commons briefing noted that in 2000, Lockheed Martin undertook a programme to upgrade some 300 D5 missiles to match the expected service life of the US’ Ohio-class SSBNs, extended now to 2042.

67 This underpins one of the arguments of advocates of either a service life extension or delay in decision-making, who believe Britain should not irrevocably commit to a new generation of nuclear weapons until the US decisions have become clearer.

68 Richard Norton-Taylor, ‘A close ally, but no influence’, *The Guardian*, February 15, 2006.

69 Government Response to the House of Commons Defence Committee’s Eighth Report of Session 2005-06, HC 1558, op. cit., para 12. Emphasis in original.

Following a point made by Sir Michael Quinlan, the Defence Committee considered that it was “important to distinguish between two different types of independence: independence of acquisition and independence of operation”. Quinlan had argued that Britain had retained independence of operation, but “[W]e have not got independence for procurement and the result of that is that if, over a very long period, we became deeply estranged from the Americans and they decided to rat on their agreements, we would be in schtuk, great difficulty...”<sup>70</sup> In his published writings, Quinlan further dismissed what he called the ‘independence issue’, arguing that even a large degree of procurement dependence did not imply operational dependence, at least in the short term.<sup>71</sup>

Though the distinction drawn between independence of procurement and operation appears neat and convenient, it glosses over some important and interpenetrating links and implies a clear demarcation between the two that in practice is much more porous. For example, although UK nuclear warheads are manufactured at Aldermaston, they have to fit the US missile specifications and are thus closely based on one of the US Trident warheads, the W76.<sup>72</sup> The UK is hence dependent on the United States for significant support and collaboration on its nuclear warhead programme, as well as for components such as tritium and neutron generators. According to the MoD, ongoing stockpile stewardship for the UK Trident warhead is “undertaken in continuing co-operation with the United States, which will contribute to the safe stewardship of Trident throughout its service life as well as sustaining capabilities to meet future requirements”.<sup>73</sup>

As noted earlier, the UK harmonises its target selections with the United States and NATO. The navigation and targeting systems of the Vanguard-class submarines and Trident missiles have been adapted to make use of the US satellite-based Global Positioning System (GPS), though it is also true that – as the MoD asserts – UK submarines can operate without GPS and the D5 missiles were designed with onboard inertial and stellar guidance systems that predate GPS.<sup>74</sup>

### **US-UK Mutual Defence Agreement**

Nuclear cooperation takes place under the auspices of the 1958 Agreement for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes, usually shortened to Mutual Defence Agreement (MDA). This provides for the exchange of classified information concerning nuclear weapons to improve “design, development and fabrication capability”.<sup>75</sup> The work is carried out through Joint Working Groups, covering all aspects of warhead design, development and maintenance<sup>76</sup> and through extensive visits and contacts between British and US personnel, including officials from government and industry.<sup>77</sup>

Cooperation under the Mutual Defence Agreement is considered to be of such importance to Britain’s warhead programme, that the 2000 AWE Annual Report described it as being “a cornerstone of life for our nuclear weapons community”.<sup>78</sup> When the MDA came up for its

70 House of Commons Defence Committee Report 2006, HC 986, op. cit., Ev 12.

71 Citing the evidence of Peter Whitehouse of Devonport Management Limited, Quinlan emphasised that in “key aspects of operation” Trident was wholly under UK control: “No other aspect of cooperation with the United States, such as the purchase of warhead components or the involvement of US national in contracts, makes it physically possible for hypothetical unfriendly acts to render the UK force non-operational in any short timescale.” Quinlan, op. cit. p 633.

72 In the early 1980s, when the UK was designing its Trident warhead, the US Joint Atomic Information Exchange Group, established communication channels to allow the US to pass to the UK atomic information on the MK-4 Re-entry Body and W76 Warhead for the Trident Missile Systems. This information must have been of vital importance to the UK’s effort to design and manufacture a warhead for Trident.

73 Progress of the Trident Programme, House of Commons Defence Committee, HC 350 of Session 1994-1995, p.24, Q.10.

74 Government Response, HC 1558, op cit, p 5 para 12. See also Ainslie, op. cit. p 80.

75 ‘Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United States of America for Co-operation on the Uses of Atomic Energy for Mutual Defence Purposes’, signed in Washington, July 3, 1958.

76 An unclassified list of current Joint Working Groups is available in House of Commons, Hansard, February 22, 2005, column 603W.

77 For example, during the 12 months to January 2005, AWE staff visited 29 US facilities, including the US nuclear weapons laboratories, government agencies, and weapons companies, see House of Commons, Hansard, February 22, 2005, column 597W for a list.

78 AWE Annual Report 2000 ([http://www.awe.co.uk/Images/annual\\_report\\_2000\\_tcm6-1764.pdf](http://www.awe.co.uk/Images/annual_report_2000_tcm6-1764.pdf)).

10-year renewal in 2004, it was rushed through parliament using the Royal Prerogative and the Ponsonby Rule to avoid the debate in the House of Commons that had been requested by a number of Labour MPs.<sup>79</sup>

This refusal to allow discussion in the UK parliament strongly echoed the government's determined avoidance of debate in 2002 over its decision to permit the Fylingdales base to be upgraded in support of the controversial US missile defence programme. This was especially troubling because an authoritative legal opinion from Rabinder Singh QC and Professor Christine Chinkin of Matrix Chambers had been released in July 2004, which concluded that "it is strongly arguable that the renewal of the Mutual Defence Agreement is in breach of the Nuclear Non-Proliferation Treaty".<sup>80</sup>

Drawing from documents and statements, Singh and Chinkin noted that the MDA was necessary principally for "improving the UK's state of training and operational readiness ... [and] atomic weapon design, development or fabrication capability" which implied "continuation and indeed enhancement of the nuclear programme, not progress towards its discontinuation".<sup>81</sup> President Bush endorsed this view when he recommended the amended US text for Congressional consideration, saying "it is in our interest to continue to assist [the United Kingdom] in maintaining a credible nuclear force".<sup>82</sup>

Such close nuclear cooperation entails more than dependence on the US for procurement. It carries costs and benefits that go to the core not only of independence of operation of the nuclear weapons, but also independence of UK foreign policy. Supporters argue that the nuclear relationship reinforces the 'special relationship' between Britain and the United States, and enables the former to remain a nuclear power at affordable cost. Supporters aver that this also helps London to have continuing influence in Washington.



By contrast, there is a growing perception that Britain's nuclear dependency undermines national autonomy, especially in defence, international relations and security decision-making. Far from augmenting British influence in Washington, the asymmetric nuclear

relationship may make it more difficult for UK governments to challenge or influence the United States where it matters.<sup>83</sup> For others, such as Tim Hare, the "worrying strategy of extraordinary sycophancy towards the most right wing US administration that one can remember"<sup>84</sup> cannot be blamed on the UK's nuclear dependence.

79 For more information of this, see Rebecca Johnson, Legal Opinion Says US-UK Nuclear Cooperation breaches NPT, *Disarmament Diplomacy* 78, July/August 2004, pp 53-60.

80 Rabinder Singh QC and Professor Christine Chinkin, 'Mutual Defence Agreement and the Nuclear Non-Proliferation Treaty', Joint Advice, Matrix Chambers, London, July 26, 2004, para 2. The full text of this Joint Advice is reproduced in *Disarmament Diplomacy* 78, available at <http://www.acronym.org.uk/dd/dd78/78news02.htm>

81 Singh and Chinkin, *ibid.*, para 39.

82 George W. Bush, Message to the Congress of the United States, and Memorandum for the Secretary of Defense and the Secretary of Energy on Proposed Amendment to the United States/United Kingdom Agreement for Cooperation on the Use of Atomic Energy for Mutual Defense Purposes, June 14, 2004, available at <http://www.whitehouse.gov/news/releases/2004/06/20040614-16.html>.

83 See also Malcolm Chalmers and William Walker, *Uncharted Waters: the UK, Nuclear Weapons and the Scottish Question*, (East Linton: Tuckwell Press, 2001) pp 9-10.

84 Commodore Tim Hare (retired), "Should the decision on Trident replacement be a subject of public and parliamentary debate?" in *The Future of Britain's Nuclear Weapons*, *op. cit.*



## The Scottish question

British nuclear weapons have never been very popular in Scotland, where many members of the Scottish Parliament including Labour, Liberal Democrats, Scottish Nationalists and Scottish Socialists support nuclear disarmament. In 2001, University of St Andrews Professor William Walker and Professor Malcolm Chalmers of the University of Bradford published a detailed analysis of the potential implications of Scottish political developments and devolution on UK nuclear policy.<sup>85</sup>

Recognising why the MoD would want to continue basing its nuclear weapons fleet at Faslane (also using the adjacent warhead handling and storage depot at Coulport), Walker and Chalmers noted that there were few if any feasible alternative sites for deploying nuclear submarines in England or Wales. Their analysis provides a sobering challenge to Westminster's assumptions that this arrangement will remain practical for the next fifty years.

In particular, they identified five sources of difficulty:

- Considerable scepticism about nuclear deterrence and status among Scottish political elites, as well as the wider population;
- London's apparent failure to recognise that there are "special and distinct" problems for Scotland arising from the fact that UK nuclear weapons are based at Faslane and Coulport;
- Scotland's institutions have no say over matters relating to defence and security – including nuclear weapons deployment – although their cooperation is necessary;
- "Fuzzy" boundaries of responsibility between London and Edinburgh; and
- The possibility that one day Scotland may become fully independent.<sup>86</sup>

In June 2006, a delegation of representatives from Scotland, including the former Lord Advocate, Lord Murray, the Moderator of the Church of Scotland, Alan McDonald, and a number of Members of the Scottish Parliament (MSP) visited Aldermaston and the Westminster Parliament to raise their concerns about UK nuclear policy.



As things currently stand, the Scottish Parliament will not be consulted about whether a new generation of nuclear weapons will be deployed on the Gare Loch, but they will be expected to find the money to support and service the Faslane base in a variety of ways, including policing and protecting the warhead convoys that travel past Glasgow and Loch Lomond before heading for the Coulport base, near Faslane. Though the Faslane and Coulport bases provide some local jobs, they are limited, as attested by the depressed state of towns nearby. Because of the Navy's activities and need for security, the area cannot be significantly developed for other purposes. Several MSPs expressed the view that jobs would be more plentiful if the area were economically revitalised, which could only happen if the naval bases – particularly Faslane – were closed and the Scottish local authorities became free to develop other options, including leisure and sports.

85 Chalmers and Walker, *op. cit.*

86 *Ibid.* pp 48-49.

## 2.2 Trident Lite – scaling back nuclear deployments

Faced again with highly controversial choices about nuclear policy, there are signals that some within the government may once again seek to achieve ‘triangulation’ by retaining nuclear weapons but equipping only two or three submarines, with fewer missiles and warheads.

Military analysts have also begun publicly to fly kites on the option of scaling down Britain’s nuclear capability. Sir Michael Quinlan recently speculated, “whether fewer than four boats might suffice”, with perhaps twelve missile tubes or lower – instead of the current sixteen – on each.<sup>87</sup> And Stephen Haines suggested, “Britain might sensibly reduce... to just two submarines and a longer period of readiness, to fewer missiles and to a downgraded (if modernised) warhead arrangement.”<sup>88</sup> In addition to the price tag, Haines underlined that a major attraction of this option is that the UK would retain nuclear weapons “for the foreseeable future” while claiming that it was going “some way to meeting the obligations on disarmament contained in the NPT”.<sup>89</sup>

### *Reducing size and operations – the 1998 Strategic Defence Review*

Eight years after the Berlin Wall was brought down, the newly-elected Labour government undertook a Strategic Defence Review, which was published in 1998. Then Secretary of State for Defence George Robertson made clear in advance that the Review would not consider whether to retain Trident, procure the Eurofighter or maintain the UK’s membership in the NATO alliance. These decisions had already been taken. The SDR responded to concerns about the relevance of nuclear weapons then prevalent among many Labour supporters by reducing the size and operational readiness of the UK nuclear force.

This new level of ‘minimum deterrent’<sup>90</sup> cut the number of Trident D-5D5 missiles acquired from the United States from 65 to 58, and reduced the operationally available stockpile to “fewer than 200 warheads” from a previously publicised stockpile of 300.<sup>91</sup> The MoD claimed that this constituted “a 70 % reduction in the potential explosive power of our nuclear forces since the end of the Cold War”.<sup>92</sup> The SDR also reduced the readiness of the nuclear forces, promising that only one Trident submarine at a time would be on patrol, carrying 48 warheads (down from the 60 warheads previously carried and half the previous ceiling of 96).<sup>93</sup> Labour also announced that Trident would be on a “reduced notice to fire” measured in days rather than the “15 minutes’ readiness to fire”<sup>94</sup> associated with Cold War anxieties and postures of hair-trigger alert. Decisions were also taken in 1995 by all five NPT weapon states not to keep their weapons targeted at any specific country.<sup>95</sup>

Though widely welcomed, these were operational gestures that could be quickly reversed, as clearly stated in the SDR: “We will... ensure that we can restore a higher state of alert should this become necessary at any time.”<sup>96</sup> Unlike de-alerting, with which they were sometimes confused, the detargeting and “reduced notice to fire” decisions involved only computer and operational changes

87 Quinlan, op. cit. p 636.

88 Haines, op. cit. p 56.

89 Ibid.

90 Britain used this term for its bigger, diversified nuclear forces during the Cold War. With their rather different sized nuclear arsenals, China, France, Israel and India all claim to have only a ‘minimum’ or ‘minimal’ deterrent, which in China’s case also carries the connotation of doctrines of de-alerting and no first use, to which Britain does not subscribe.

91 The 1998 Strategic Defence Review op. cit. p 18 para 64.

92 Government Response, HC 1558, op. cit., p 3, para 6.

93 The previous Conservative Government had itself reduced the maximum ceiling for the number of warheads carried by each Trident submarine from 128 to 96. In practice, the Labour Government subsequently revealed, Trident submarines were usually deployed with around 60 warheads. According to information elicited by Julian Lewis MP from a series of Parliamentary Questions he asked of the Government “...the typical number of warheads deployed on Trident submarines from the moment of their inception in service was 60. Sometimes it was slightly fewer, sometimes it may have been a little more, but it was never more than 65.” Debate on Royal Navy, House of Commons, *Hansard*, November 1998, column 551.

94 Sir Michael Quinlan, oral evidence to the House of Commons Defence Committee, HC 986, op. cit., Ev 2.

95 Government Response, HC 1558, op. cit., p 3, quoting also SDR, Chapter 4, para 67.

96 The 1998 Strategic Defence Review op. cit. p 19 para 68.

that did not affect the physical deployment of Trident. The guidance systems could be reprogrammed relatively quickly with new targets, and an order from the Prime Minister could restore operations to bring the command and control procedures for firing back to minutes. If, as Sir Michael Quinlan noted, “we got into a serious crisis”, the readiness to fire could be changed and the nuclear weapons retargeted by computer operation within minutes.<sup>97</sup>

Presented in the SDR as a means “to avoid misunderstanding or escalation if a Trident submarine were to sail during a period of crisis”,<sup>98</sup> continuous at-sea Trident patrols had not always been possible during the later years of Polaris deployment, according to civil society groups monitoring the nuclear bases.<sup>99</sup> Though their claim is denied by MoD officials, Polaris undoubtedly had technical and service problems that made it difficult for the MoD to maintain continuous at-sea patrols, even though this was the policy and intention.

Assuming 185-200 operational warheads of about 100 kt, the aggregate explosive power of the present UK nuclear arsenal is calculated to be some 19 megatonnes. The declaration that it had been reduced by 70 % from the height of the Cold War can be misleading: explosive power does not necessarily equate with damage and killing power. Such a gross figure fails to take into account the number and sophistication of the weapons, whether or not the warheads can be independently targeted, and their accuracy. For example, larger nuclear warheads used on a smaller number of targets are likely to cause less damage and fewer casualties than the equivalent explosive power distributed among a bigger number of smaller warheads independently targeted against multiple sites.

### ***Questioning continuous at-sea patrols***

Reflecting the evidence from Sir Michael Quinlan and others, the Defence Committee in its 2006 Report speculated that the UK could consider retaining nuclear weapons “but not continuously at sea”.<sup>100</sup> The MoD gave a less than enthusiastic response to this option, and quoted from the supporting essays for the SDR, that “ending continuous deterrent patrols would create new risks of crisis escalation if it proved necessary to sail a Trident submarine in a period of rising tension or crisis”. With reference to the question of continuous at-sea patrolling, the government maintained, “the ability of any deterrent system to survive pre-emptive action by an adversary is likely to remain an important aspect of its credibility.”<sup>101</sup>

Despite the frosty reception such Trident-lite proposals appear to have received from the MoD, they are likely to become more attractive if the government comes under pressure – whether political, budgetary or legal – to make reductions in capability. Depending on the decision, fewer submarines and missiles would cost less and potentially could also be consistent with either new submarines or adaptation of the Astute-class boats.

Contrary to Haines’ view, however, Trident-Lite would not necessarily be welcomed by NPT States Parties. Though the government could claim some credit for scaling down further, ‘Trident Lite’ would be less likely to garner praise than the previous reductions because the strategic, security and diplomatic contexts are very different. The previous cuts were welcomed as reductions to existing systems, in response to the end of the Cold War. In the present case, Trident-lite would actually represent the first significant investment in a new nuclear weapons system since the end of the Cold War, a retrogressive step in relation to Britain’s obligations under the NPT.

Cynical observers may regard this option as a relatively cheap way to hold on to nuclear weapons. It would not be the optimum means by which Britain could take a leadership role in devaluing nuclear weapons and curbing the plans of potential proliferators.

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97 Quinlan, evidence to House of Commons Defence Committee HC986, op. cit., Ev 2.

98 The 1998 Strategic Defence Review held that four submarines were the minimum necessary for continuous ‘deterrent’ patrols. Op. cit., p 19, para 66.

99 Correspondence with the authors, August 2006

100 House of Commons Defence Committee Report HC 986, op. cit. p 32, para 130.

101 Government Response, HC 1558, op. cit., p 9, paras 21-22.

If the intention is to signal nuclear business as usual at reduced cost and operations, then Trident-lite may be an attractive option, though it would require changes to some of the elements of Britain's nuclear posture. If the intention is to show the country's desire to take more steps towards fulfilling its NPT obligations, then there is no reason why some measures should not be undertaken now, without waiting for the next generation of nuclear weapons.

Hence, while any reduction in nuclear weapons and posture would be welcome, and scaling down the nuclear deployments would be likely to bring financial savings, the Trident-lite option should not be used as a means of avoiding more fundamental questions about Britain's role in the world and the future of nuclear weapons. Instead, any further reductions in nuclear capability would need to be set in the context of further efforts to devalue nuclear weapons and promote their global elimination.

### 2.3 Adapting smaller submarines to carry nuclear weapons

HMS Astute is the first of the next generation of nuclear powered 'hunter-killer' submarines (SSNs), commissioned to replace the five Swiftsure-class that are now approaching the end of their operational life. It is due to enter service in 2009, with two further submarines, HMS Ambush and HMS Artful scheduled for 2010 and 2011.

The intention was that the 7,800-ton Astute-class submarines would be armed with conventional cruise missiles and Spearfish torpedoes. However, there is now speculation that the government may be considering the possibility of adapting them to carry nuclear weapons, either Trident (or a comparable SLBM) or perhaps a nuclear version of the 'Tomahawk' submarine-launched cruise missiles (SLCMs), which the United States used to deploy and currently maintains in storage on land, with the potential of redeployment if ordered.

The speculation on this option arose after newspapers claiming a "naval source" suggested two possibilities: adding an extra hull section to Astute to take a reduced number of Trident missiles (perhaps four, each of which might carry up to 12 warheads); or fitting up to 16 external tubes for nuclear tipped cruise missiles.<sup>102</sup> Hans Kristensen, senior nuclear analyst with the Federation of American Scientists, has expressed some scepticism about both these options. He points out that Trident missiles would be too big to fit on Astute unless they "added a very bulgy section" to the hull, which could be potentially unstable at low sea depths. Furthermore, the US may soon retire the few remaining Tomahawk missiles.<sup>103</sup>

Another possibility might be to develop new types of submarine-launched intermediate-range ballistic missiles (SLIRBM). This was considered in a 2003 US study, and development and testing is going ahead, but it is understood that they are envisaged as carrying conventional warheads. Nuclear SLIRBMs are regarded as offering few benefits over Trident and additional constraints on range and mission.<sup>104</sup>

The Astute submarine's major attraction is that its Rolls Royce second-generation nuclear pressurised water reactor (PWR) would not require refuelling during its 25-year service life, thereby mitigating one important aspect of the Vanguard-class's service schedule that has been problematic for Trident.<sup>105</sup> Although only three Astute-class submarines were originally commissioned, a further order of at least three more has been anticipated since 2003, and Barrow shipyards expect the eventual order to rise to nine.<sup>106</sup> The Faslane nuclear base is already being fitted out to be the 'home port' for the Astute-class submarines. It should be noted that the Astute class is smaller than Vanguard, with a performance specification similar to the Trafalgar Class

102 'We'll save you cash on submarines', *Northwest Evening Mail*, April 17, 2006. <http://www.nwemail.co.uk/news/viewarticle.aspx?id=356124>

103 Hans Kristensen, email communication with the authors, September 2006.

104 Ainslie, op. cit., p 33.

105 See, for example, Sam Wollaston, 'Will this submarine carry the UK's next nuclear deterrent?', *The Guardian*, July 29, 2006.

106 'Shipyard has work to 2020', *Northwest Evening Mail*, August 1, 2005. <http://www.nwemail.co.uk/news/viewarticle.aspx?id=268464>

Batch 1 fleet of the Royal Navy's Second Submarine Squadron based at Devonport. BAE Systems Astute Class Ltd is the prime contractor for the project and the submarines are being built at BAE Systems Marine shipyard in Barrow.<sup>107</sup> Already significantly over budget, HMS Astute is more than three years behind schedule. However, if it were decided to adapt Astute-class submarines to carry nuclear weapons, some economies of production scale might be envisaged.

A further possibility that should be mentioned here is whether the Maritime Underwater Future Capability (MUFC) submarine programme might be considered as a platform to carry a limited number of nuclear weapons. Originally known as 'Future attack submarines' (FASM), these submarines are being developed to replace the Trafalgar-class of attack SSNs. There has already been some speculation that if budgets are tight, the government may choose to rationalise by adapting them to cover a 'nuclear deterrent' role as well.<sup>108</sup>

Such options are unlikely to receive serious consideration if the United States does not plan to produce a new generation of nuclear SLIRBM. If being considered as a follow-on to Trident, a key question is how well the Astute-class or MUFC could be adapted to withstand ballistic missile launches. Further questions arise about the feasibility and strategic wisdom of carrying a mixture of nuclear and conventional weaponry, with the heightened risk of misperception, miscalculation or escalation at times of tension.

## 2.4 More 'flexible' nuclear weapons

One option on the table is for the UK to acquire a cheaper system than Trident that could be flexibly adapted more readily for tactical or sub-strategic missions. Although initially this was not thought to be under very serious consideration among political and military decision-makers in the UK, the United States is pursuing more flexible nuclear force options in conformity with its new strategic doctrine.

Many British policy-makers, especially from the military services, are sceptical of US arguments for smaller, more flexible nuclear weapons, but Whitehall has yet to exclude these options, so they require at least to be examined.

### 2.4.1 Submarine-launched cruise missiles

The Astute-class submarines are already being built with the intention of deploying conventionally-armed Tomahawk cruise missiles, which Britain currently deploys on its SSN fleet. One option, – if feasible – would be for Britain to switch its nuclear forces over to delivery by cruise missiles, rather than replacing the current Trident ballistic missile system and submarines. The main attraction would be that if nuclear weapons were deployed on Astute-class submarines, there would no longer be a need to deploy a specialised fleet of SSBNs, raising the possibility of significant cost savings.

Tomahawk missiles are built by the US company Raytheon. The latest version, known as Block IV, is equipped with the TERCOM Terrain Contour Mapping Assisted Inertial Navigation System and would be fired from the 533mm torpedo tubes. TERCOM combines onboard radar altimeter measurements with terrain mapping data installed in the missile, enhanced with Digital Scene Matching Area Correlation (DSMAC) guidance and Navstar GPS guidance capability. The GPS provides location and velocity data of the missile for precision targeting. Tomahawk has a range of up to 1,000 miles and a maximum velocity of 550mph. Block IV includes a two-way satellite link

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107 For more detail on the Astute-class submarines, their equipment and weaponry, see <http://www.submariners.co.uk/Boats/Barrowbuilt/Astute/index.htm> and [http://www.naval-technology.com/project\\_printable.asp?ProjectID=1571](http://www.naval-technology.com/project_printable.asp?ProjectID=1571). Though designated for Faslane, Astute-class submarines could theoretically be based at Devonport, unlike the larger Vanguard-class submarines.

108 Ripley, T., 'Secret plans for Trident replacement', *The Scotsman*, June 9, 2004; and 'UK debates Trident sub replacement', *Defense News*, May 31, 2004.



that allows reprogramming of the missile in flight and transmission of Battle Damage Indication (BDI) imagery.<sup>109</sup>

Since the UK does not have a cruise missile programme of its own, this option would not make Britain's nuclear forces any more independent of the vagaries of US policy than Trident like-for-like replacement or Trident-lite. Additionally, it would be necessary to design a new warhead or to modify a known design, probably substantially copying the warhead deployed on US SLCMs.

Assuming the UK continues to abide by the terms of the CTBT, which it ratified in 1998, developing new warheads could prove a complicated technical challenge that weapons designers may not be able to overcome to their satisfaction. Though the UK government continues to underscore its adherence to the CTBT, which prohibits explosive nuclear testing, the refusal by the United States and a handful of other states to ratify the Treaty has prevented it from entering into force. Furthermore, the recently-funded Orion laser facility and supercomputer planned for installation at Aldermaston would go some way to bypassing the test ban and meeting any technical challenges for modifying or designing new warheads for alternative delivery means.

A central drawback envisioned by military analysts is that of dual-use unpredictability, which potentially undermines deterrence assumptions and might destabilise or escalate conflict situations. If this option were pursued it would become known that British submarines carried a mix of nuclear and conventionally-armed cruise missiles. An adversary could not be certain of the nature of an attack until a missile hit its target. By merging nuclear with conventional missions, the UK risks sending confusing signals about a greater preparedness to use nuclear weapons in a war-fighting role. This could be construed as lowering the threshold for use.

If it operated a 'mixed' platform, the UK may also increase the vulnerability of its nuclear forces, which could be carried on submarines assigned to conventional missions at potentially more dangerous locations than the deep oceans from which the Vanguard-class submarines normally operate.

### **2.4.2 Air-launched cruise missiles**

The UK might instead opt for nuclear-armed air-launched cruise missiles (ALCMs), suitable for deployment with the Royal Air Force. This would require a certain number of aircraft to be converted and diverted from current conventional duties, but would be cheaper than building and equipping a new fleet of SSN or SSBNs.

This option carries the drawbacks associated with increased vulnerability, mixed platforms, and the dual-use dilemma of unpredictability (thereby undermining deterrence calculations by adversaries). Unless Britain decided to design and develop its own cruise missile, which would be expensive, this option would continue to keep UK nuclear weapons dependent on US delivery systems.

In addition to airfields and aircraft carriers being more vulnerable to pre-emptive attack than submarines at sea, the deployment of nuclear weapons at airbases might also raise the weapons' visibility, thereby potentially increasing public concerns and also access for protesters.

There are other reasons why the UK may not find cruise missiles – whether sea- or air-launched – an attractive option. Cruise missiles have a far shorter range than ballistic missiles and are much slower. As a consequence they would not be able to reach as wide a geographical area and, hence, would be more likely to need to move closer to their assigned targets before firing. They do not achieve the same level of target penetrability as ballistic missiles.

Because they are designed to fly low to evade enemy radar, if cruise missiles are detected they are comparatively easy to destroy. In other words, there is a greater risk of them being shot down or otherwise intercepted. This poses an added risk to countries en route, from unintended nuclear detonations and radioactive contamination. There is also the danger that nuclear planners might seek to deploy cruise missiles in greater numbers in order to compensate for their vulnerabilities.

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109 See [http://www.naval-technology.com/project\\_printable.asp?ProjectID=1571](http://www.naval-technology.com/project_printable.asp?ProjectID=1571).

### **2.4.3 Other air-launched nuclear options**

Another option that has been mooted would return the Royal Air Force to a role in carrying free-fall nuclear bombs on long-range aircraft. The principal advantages of this option might be cost and flexibility, offering a less expensive way to remain a nuclear power.

Tornados, designed to be nuclear capable, are expected to reach the end of their service life in the 2020s. There are as yet no published plans for a follow-on aircraft to replace the Tornado GR4's ground-attack role, though it would be surprising if the RAF were to give up this capability entirely. If a nuclear-capable follow-on were pursued, the UK could seek to develop a long-range bomber, either an updated version of Tornado, or along the lines of the US B52, or perhaps a stealth bomber such as the US B2. These options would all be expensive, the latter especially so. Alternatively, it may be possible to convert the Eurofighter (Typhoon) or Joint Strike Fighter to carry nuclear payloads, but neither was designed for ground attack. Moreover, due to their short range, the targets would need to be close, the planes would have to be stationed on aircraft carriers, or they would need to rely on highly vulnerable refuelling arrangements. Another route would be to purchase a suitable aircraft 'off the shelf', probably from the United States.

Though the provision of greater flexibility might be attractive, a multi-role capability such as this would have the concomitant disadvantages of ambiguity and potential miscalculation discussed above. Free-fall bombs suffer many of the same drawbacks as cruise missiles – the aircraft are relatively slow and vulnerable in delivery, and the dual-use nature of the delivery vehicle risks lowering the threshold for nuclear use. It would, however, be more feasible for these forces to be generally de-alerted, with the warheads stored away from their delivery systems. Whilst at present neither the MoD nor Royal Air Force is interested in this option, it could be contemplated as part of a phased move towards a non-nuclear weapon status.

### **2.4.4 Develop own missiles or collaborate with France**

To avoid the problem of dependence on the United States, the UK could consider developing an independent missile capability. Sir Michael Quinlan recently noted that Britain could have chosen the French route to nuclear independence, since its "technological base at that time was far from inferior to that of France". However, the UK "judged the opportunity cost too severe in relation to other defence commitments within constrained budgets".<sup>110</sup> That judgment probably still stands.

Since France has an independent missile programme, the possibility has also at times been canvassed that Britain should explore with its European neighbour the option of sharing technology or even combining or sharing nuclear forces.

France currently maintains some 347 nuclear warheads for delivery by SLBMs (on Triomphant- and L'Inflexible-class submarines), as well as on two types of aircraft: Mirage and Super Étendard, both of which are designed to carry France's cruise missile, the air-sol moyenne portée (ASMP). France is also developing an upgraded cruise missile, some of which may be carried on Rafale aircraft.<sup>111</sup>

Despite increased cooperation between Britain and France on defence issues, France is proud of its history of nuclear independence and has still not integrated into NATO nuclear planning. Though some French policy-makers may be attracted by the possibility of closer nuclear collaboration with Britain, especially if France supplanted the United States as Britain's major supplier, any serious consideration of this option would represent a fundamental departure from Britain's traditional nuclear collaboration with the United States and NATO. Officials on both sides of the Atlantic have expressed off-the-record views that Washington would prefer Britain to pursue nuclear disarmament rather than transfer its nuclear collaboration and dependence to France.

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110 Quinlan, *op. cit.*, p 632.

111 SIPRI Yearbook 2006, pp 655-657.

This option might find advocates among those keen to see a switch in foreign policy away from dependence on the United States towards a more coherent common European defence policy. Only a small subsection of this group, however, would be likely to want a joint UK-French European nuclear force. In any case, it is highly unlikely that this view would achieve any sizeable support within the British political or military establishments.

## 2.5 Service extension

The government has stated that service life extension “would be possible, albeit with gradually increasing cost and some increasing risk of reduced availability, perhaps out to the mid-2020s.”<sup>112</sup>

After taking evidence from naval analysts and two industry experts, the Defence Committee raised concerns that service life extension would only add “an additional five years”, which would “allow the UK to postpone decisions on whether to replace Trident until around 2010”.<sup>113</sup> It took the view that “[S]uch an expensive option should not be used only as a means of deferring a decision on the future of the UK’s strategic nuclear deterrent”.<sup>114</sup>

Other nuclear experts disagree with this. On the basis of US experience, they suggest that life extension could add some 15-20 years to the submarines’ service.<sup>115</sup> The discrepancy may be the result of confusion between two kinds of life extension. One is little more than an extended refit, with the replacement of certain key components. This may give only a few extra years – hence the reference to a five-year extension. A more substantial extension may also be envisaged, entailing the fitting of a new nuclear reactor core developed by Rolls Royce for the Astute submarines. This is likely to involve cutting part of the hull, lifting out the aged nuclear reactors and then rebuilding that section of the hull with the emplaced new reactors. Not only would this be extremely expensive, but it may also raise concerns about hull integrity when submerged for prolonged periods at the depths necessary to evade detection (consistent with its ‘invulnerability’ requirement).

Others have questioned whether such drastic refitting would be necessary, noting that some reduction in the depths of dive and longevity of submersion is expected as submarines age.<sup>116</sup> Whilst the main element of service life extension is undoubtedly the hull and reactor, questions also need to be asked about whether opportunities would be taken with this option to upgrade the missiles or warheads as well.

Despite the Defence Committee’s apparent lack of enthusiasm for service life extension, this option may carry two very different kinds of advantages: as a bridging measure to bring the UK decision into harmony with the US procurement cycle; and as a delay on major investment in a new nuclear system, thereby providing more time for Britain to develop and pursue an effective strategy of multilateral denuclearisation.

### *Harmonising with US procurement cycle*

Because of the uncertainty surrounding US plans, some argue that if a sufficiently long service extension to the existing submarines is feasible, this could have the advantage of delaying the longer-term decision until America has made its choice. If Trident can be extended to 2040, the UK might avoid the ignominy of being left high and dry if US procurement decisions prove incompatible with UK developments.

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112 Government Response, HC 1558, pp 7-8, para 15.

113 House of Commons Defence Committee, HC 986, op. cit., p 29, para 110.

114 Ibid.

115 Correspondence with Frank von Hippel and UK naval experts who wished to remain anonymous.

116 The final years of the Polaris programme were beset with hull and reactor problems. Ibid. As noted earlier, some analysts suggest that the service life of Vanguard-class submarines may be extended without major refit since they have performed fewer patrols per year than originally envisaged.





This view reflects the fact that the British and American procurement cycles are out of synch. Having just undertaken an extensive programme to prolong the service life of its Trident fleet, the United States is not projected to begin a new submarine procurement process until 2016. (The first boat is now due for decommissioning in 2029, and the last in 2042.) One possible US option is a new SSBN, either based on the Ohio-class or involving the development of a new type of ballistic missile and submarine. Another option is conversion of

a smaller, more flexible SSN, such as a variant of the Virginia-class. The US choice could have profound implications for the delivery options available to Britain. Notwithstanding these practical considerations, extending Trident's service in this case would add a further layer of cost and could serve to reinforce the fact of UK nuclear dependence on US decision-making.

### ***Delaying irrevocable procurement decisions***

Arguments have been advanced that with the non-proliferation regime under particular strain at present, a clear indication of UK intent to continue as a nuclear weapon state could further damage the NPT, especially if the new weapon system could be viewed as providing up-graded warheads and delivery technologies. A delay, so the argument goes, could “give space to the UK to initiate multilateral disarmament negotiations prior to any final decision on major investment in a new system.”<sup>117</sup>

Service life extension has also been mooted as a way to address the oft-heard argument that it would be politically difficult for Britain to disarm first and leave France as the sole European nuclear power. In this case, extending the timing for British decision-making to fit more closely with France's procurement cycle could pave the way for British and French nuclear – or, perhaps, denuclearisation – policy to be harmonised. Though the likelihood of this happening is rather slim, and other difficulties would have to be overcome, the potential benefit would be in facilitating public opinion in other European countries to exert equal pressure on both countries to reduce their reliance on nuclear weapons at the same time.

As identified by the Defence Committee, a delay simply to postpone a difficult decision would not be appropriate. Also weighed against the extension option are factors of cost and practicality. Though less expensive than a full replacement to 2055, service life extension will not be cheap. Some may feel the delay would be worth it if conditions become more conducive to making the right decision in the future (whatever ‘right’ might be deemed to mean at the time).

If service extension were intended as a bridging policy to pave the way to the elimination of UK nuclear weapons, then simultaneous with a decision to commit resources to service life extension, the government could emphasise this intention by issuing a White Paper outlining the elements of the new approach and the process and conditions for managing the transition to a non-nuclear defence policy. If that were the purpose, however, the government would already have acknowledged (at least to itself) that nuclear weapons have little or no positive security utility. If that were the case, there could be little justification for undertaking service life extension. Far better to make the elimination case openly and use it to exert maximum leverage to strengthen the non-proliferation regime and promote multilateral denuclearisation. If policy-makers feel the need to hold on to nuclear weapons during an interim period, the next two decades of Trident's current service life already offer a feasible timetable for managing the transition to a non-nuclear defence policy and developing more effective approaches and tools for security, non-nuclear deterrence and sustainable non-proliferation.

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117 Correspondence with Paul Ingram, October 2006. See also Ingram, *op. cit.* where these arguments are further developed.

## Chapter 3 | A Future Without Nuclear Weapons

*Before any decisions on the future of the deterrent are made, it will be important to consider whether the possession of nuclear weapons enhances the UK's international influence and status, and whether this contributes to the justification for retention of a strategic nuclear capability.*

**House of Commons Defence Committee, Report on 'The Future of the UK's strategic nuclear deterrent', June 2006.**

In 1998, the government stated that it wanted to “see a safer world in which there is no place for nuclear weapons”.<sup>118</sup> In this context, it is important to recognise that we are not merely passive bystanders as the international and security environments change around us. Britain's policies and actions can play a significant part in marginalising nuclear weapons, preventing proliferation, and strengthening international law.

The Defence Committee rightly started its inquiry by considering the international security environment. The Committee acknowledged that Britain faces a fundamental choice between retention and abolition and called on the MoD “to explain its understanding of the purpose and continuing relevance of nuclear deterrence now and over the lifetime of any potential Trident successor system”.<sup>119</sup>

Having analysed the options for replacing Trident, it is now necessary to consider the implications of the abolition option.

A commitment not to replace Trident, combined with a managed transition to non-nuclear-dependent defence would greatly strengthen the NPT and be in conformity with policy objectives set out in the 1998 Strategic Defence Review. If the UK is to make progress towards its stated goal of a nuclear-weapon-free world, it needs to break from the past and develop an effective disarmament strategy. The question of whether to replace Trident should be considered within the context of how to achieve the UK's goal of a safer world, with no place for nuclear weapons.

While the Labour Party's leaders appear to be stuck with their painful memories of the 1980s, some prominent, formerly enthusiastic advocates of nuclear weapons are managing to make a different assessment of the options. A growing number of them are coming to the view that our security environment has changed so much that retaining nuclear weapons would be at best irrelevant for UK security and at worst, could increase the dangers by promoting nuclear weapons as a high value asset, thereby aiding and abetting proliferation.

For example, Michael Portillo, the former Conservative Secretary of State for Defence, recommends that Mr Blair should evaluate Britain's nuclear weapons based on future needs and not past traumas, and concludes: “it lies entirely in his hands to make a unilateral cut in the global arsenal of weapons and to lead the world by example.”<sup>120</sup>

Former Shadow Defence Secretary Michael Ancram, who now chairs the Global Strategy Forum think tank, has also been questioning whether a nuclear deterrent is still necessary. Noting that “today's enemy is often indistinctly known and the danger unquantifiable,” Mr Ancram is reported saying that “the threat of using nuclear weapons is not only illogical but incredible... the need for genuinely independent alternative and flexible non-nuclear deterrence is if anything greater.”<sup>121</sup>

118 The 1998 Strategic Defence Review op. cit. p 17 para 60.

119 House of Commons Defence Committee, HC 986, op. cit., paras 56 and 105.

120 Michael Portillo, 'Does Britain Need Nuclear Missiles? No. Scrap Them', *The Sunday Times*, July 19, 2005.

121 'Ancram calls for non-nuclear Trident replacement', David Bentley, *Press Association*, October 2, 2006.

A major factor in the default argument for retaining nuclear weapons is the unexamined belief that nuclear disarmament is impossible and the fear among politicians that they would appear naive if they suggested that Britain's policy objective of a nuclear-weapon-free world is actually one that could be achieved with the appropriate strategy and determination.

One political hurdle that needs to be overcome is the unilateral-multilateral dichotomy that was asserted in the 1980s, chiefly for political propaganda purposes. Juxtaposing unilateral and multilateral nuclear disarmament as if they were mutually exclusive was a sterile debate back then, and clearly has no relevance to the nuclear choices facing Britain in the 21st century. On the contrary, the history of progress, whether to abolish slavery, ban landmines or build the European Union, shows the importance of someone sufficiently strong, courageous and motivated to exert leadership and take the first steps, while working hard to build alliances and create the political will and conditions for others to join in.

First moves and multilateral initiatives are part of a dynamic process, where each level of increased knowledge, confidence and security will stimulate and reinforce positive changes in the policies of others. There may be setbacks, as such major political changes are never linear, but with enough determination, the momentum towards eliminating nuclear dangers can be maintained.

Advocates of a follow-on to Trident seem to assume that we can advertise that nuclear weapons are indispensable for our security for the next fifty years without having a negative effect on the credibility of the non-proliferation regime. They are quick to dismiss any suggestion that a UK decision not to replace Trident would influence the choices of others. But in doing so, they grossly oversimplify the argument. Undoubtedly, countries like North Korea, India and Pakistan have their own motivations for going nuclear, but the attitudes and policies of the nuclear weapon states are also relevant components. The mere fact of Britain deciding not to replace Trident would have a positive impact, but it would be limited and short-lived unless put to good effect practically and politically as part of a concerted effort to devalue nuclear weapons and strengthen all aspects of the non-proliferation regime.

Whilst it is not necessary to work out all aspects in advance, this chapter discusses some of the relevant political, technical and legal considerations, concluding that denuclearisation may not be quick or easy but it is feasible and achievable. If managed sensibly a UK renunciation of nuclear weapons would enhance – not compromise – our security. Far from leaving us isolated, as some government officials seem to fear, the decision could give Britain the moral and diplomatic authority to exercise real leadership in international relations.

## Alternative futures

Professor Ken Booth identified a tendency for protagonists debating nuclear weapons “to best case their own risk assessments, while worst-casing those of their opponents”.<sup>122</sup> As he and others have noted, in the absence of any current or foreseeable rationale, the fall-back argument for proponents of retaining nuclear weapons is that the future is uncertain and “the unknown threat” must be taken very seriously.<sup>123</sup> Apart from adopting some inordinately idealistic assumptions about the efficacy of nuclear deterrence, this notion of a precautionary nuclear insurance policy for an uncertain future relies on several questionable premises.

Professor Booth notes that “uncertainty” provides a permanent rationale for retention, unlike the Soviet or other particularised threat. But, he reminds, “history also warns that states have sometimes suffered disasters when they have committed themselves to continuity in a changing world... change rather than continuity may sometimes be the rational response to the inevitability of future uncertainty.”<sup>124</sup>

122 Ken Booth, ‘Debating the future of Trident: who are the real realists?’ in ‘The Future of Britain's Nuclear Weapons’, op. cit., p 78.

123 In the words of Admiral Sir Raymond Lygo, “The unknown threat must be very real in this very uncertain world...”, op. cit. p 28. Or Sir Michael Quinlan: “History is full of painful surprises. Defence provision, by its nature, has to deal in insurance against darker provisions...” op. cit. p 634.

124 Ken Booth, ‘Debating the future of Trident: who are the real realists?’ in ‘The Future of Britain's Nuclear Weapons’, op. cit., p 78.

Why is it assumed that in retaining nuclear weapons Britain will continue to benefit from the attributes of deterrence, security value, status etc. that are currently accorded to nuclear weapons? Such benefits derive in part from the fact that so few countries possess them: the more states that acquire nuclear weapons, the more likely it is that they will lose much of their usefulness as political instruments. Concomitantly, they are likely to increase in military salience, especially for weak leaders and vulnerable states, with the corresponding effect of diminishing the security of others. A high salience nuclear world is one where the risk of nuclear use is also high. The more nuclear weapon possessors, the more complex the communication and interactions on which any expectation of deterrence would need to rely – thus increasing the risks of failure.

As discussed in Chapter 1, the most far-reaching threats Britain will face in the 21st century will be from climate and environmental changes. That does not mean that other threats should be ignored, but attention and resources need to be sensibly allocated. Any decision to commit billions of pounds of public money to a new nuclear weapon system requires convincing arguments that the continued possession of such weapons will enhance – or at least be compatible with – UK security for at least another half a century (into the 2050s and beyond).

Choosing to spend money on nuclear weapons carries opportunity costs in terms of resources and attention being siphoned away from more real and urgent security challenges. Major environmental changes could have the effect either of precipitating a massive breakdown in international relations or accelerating common security approaches. Narrowing our analysis for the time being to nuclear weapons, at least three possible nuclear futures can be projected for the next 50 years: slow proliferation; fast proliferation; or sustainable non-proliferation, which will require that nuclear weapons are progressively devalued and marginalised for everyone.

### **Slow proliferation**

If we were to extrapolate from the past 30 years with a linear projection, there might appear to be a trend of slow, creeping proliferation, with gradually one state and then another crossing the nuclear threshold. After the five declared nuclear weapon states came Israel, then India and Pakistan; South Africa crossed the threshold and weaponised, but then took a big step back into non-proliferation by disarming and joining the NPT in 1992. Saddam Hussein had ambitions to acquire nuclear weapons, but was thwarted by the technological hurdles and his own invasion of Kuwait. After being defeated by a multinational coalition in 1991, Iraq was disarmed and denuclearised by the IAEA and the UN Special Commission (UNSCOM).<sup>125</sup>

North Korea violated its NPT obligations to pursue an illegal nuclear weapon programme. It withdrew from the NPT in 2003, and on October 9, 2006, conducted a provocative underground nuclear weapon explosion in defiance of the CTBT and declared itself a nuclear weapon state.

Iran is pushing hard to develop full fuel cycle capabilities, including uranium enrichment and a heavy water reactor, which it did not openly declare to the IAEA, thereby violating its NPT obligations. Iran is still some years away from any nuclear weapon capability, and its leaders continue to declare their opposition to nuclear weapons, though this is greeted with scepticism by many governments. The UN Security Council has called on Iran to suspend its uranium enrichment programme until it has fully satisfied IAEA concerns about its nuclear programme.

The world has already passed beyond the option of maintaining a status quo with eight states possessing nuclear weapons and the rest contained within the NPT. Professor John Holdren of the Kennedy School of Government, Harvard University, calls this scenario of slow proliferation ‘muddling through’. Though the nuclear programmes of some states give considerable concern to

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<sup>125</sup> Though claims about Iraq's WMD were used by US and UK politicians to pursue a new war in Iraq in 2003, the evidence from UNSCOM and the US-controlled Iraq Survey Group have shown conclusively that these claims were unfounded. See Hans Blix, *Disarming Iraq*, Bloomsbury, 2004; and Charles Duelfer, *Comprehensive Report, Special Advisor to the Director of Central Intelligence on Iraq's WMD* [the Duelfer Report], September 23, 2004, [http://www.cia.gov/cia/reports/iraq\\_wmd\\_2004/](http://www.cia.gov/cia/reports/iraq_wmd_2004/)

the international community, slow proliferation might be characterised as the most benign of the foreseeable trend-lines if the nuclear weapon states pursue business as usual and “continue to regard their nuclear weapon ‘needs’ to be of indefinite duration”.<sup>126</sup>

As Holdren noted, Western governments, especially in the nuclear weapon states, take the optimistic view that slow proliferation can be contained, and that *most* of the non-nuclear weapon states would grumble but stay non-nuclear within the terms of the NPT. This analysis rests on the assumption that the non-proliferation regime remains essentially credible. Instead, we see it undermined not only by the policies and pronouncements of Kim Jong-Il of North Korea and President Ahmadinejad of Iran, but – more importantly – by the actions of the Bush administration and the failure of a number of NPT parties, including the nuclear weapon states, to fulfil their own commitments in good faith.

### **Fast proliferation**

Unless concerted action is taken now, the dynamic of proliferation is unlikely to be slow and linear. Each new nuclear entrant or aspirant will cause several of its neighbours and geostrategic rivals to reconsider their positions. If the non-proliferation regime is allowed to erode any further, the danger is not just that a few additional countries will hedge their bets, but that global restraints will crash, causing what Kofi Annan called “a cascade of proliferation”, in which up to thirty countries could be nuclear-weapon capable within the next ten years.<sup>127</sup>

This is the fast proliferation scenario that Holdren characterised as a ‘nuclear nightmare’.<sup>128</sup> An increased level of proliferation would decrease security and stability worldwide and greatly increase the risks of nuclear accident, inadvertence and the acquisition opportunities for terrorists. If the spread of nuclear weapons is not checked, then somewhere in the next ten years, thousands, perhaps millions of people could die when nuclear weapons are used, by accident or malign intention. Nor can a nuclear exchange be discounted, with the risk of nuclear use spiralling out of control and devastating many areas, with catastrophic global consequences.

The nuclear programmes of India, North Korea and Iran have exposed areas of weakness arising from the inherent technological link between the nuclear fuel cycle and weapons materials. Other programmes, notably Pakistan and pre-1990 Iraq, exposed the lack of adequate enforcement powers in the non-proliferation regime. Steps have been taken to rectify some of these weaknesses, but serious problems remain.

If the nuclear weapon states continue to proclaim the value and indispensability of their nuclear ‘deterrents’ for the 21st century, they increase the perceived incentives justifications for others to go nuclear. If some states succeed in going down the route of nuclear weapons acquisition and can be seen to gain enhancements in status, security, political or regional prestige – as India and Pakistan appear to be achieving (aided by Bush administration policies) – or are perceived to have gained the deterrent capability to hold off invasion, as many believe North Korea to have done – then it becomes increasingly difficult for governments to explain why they are not giving these advantages to their people as well.

Unless one subscribes to the arguments of the nuclear optimists that such a proliferated world would promote peace by widely spreading the deterrent benefits that Britain and the other nuclear powers lay claim to, this ‘fast proliferation’ scenario is profoundly worrying.<sup>129</sup>

Some might be tempted to argue that this is precisely the kind of future scenario that could contain “unpleasant surprises” that would warrant a nuclear follow-on to Trident. But this scenario

126 John P. Holdren, Director of the Program on Science, Technology and Public Policy, Kennedy School of Government, Harvard University, ‘The future role of nuclear weapons in international relations’, presentation to the National Academy of Sciences, Washington DC, July 14, 2005. Available at: [http://bcsia.ksg.harvard.edu/BCSIA\\_content/documents/Holdren\\_071405.pdf](http://bcsia.ksg.harvard.edu/BCSIA_content/documents/Holdren_071405.pdf)

127 *In larger freedom: towards development, security and human rights for all*, op. cit., paras 84-85

128 Holdren, op. cit.

129 See, for example, Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons, a Debate Renewed*, NY: W.W.Norton and Co, 2003.



embodies the paradox that as more actors acquire nuclear weapons, their value for deterrence will erode. It could give rise to more situations where governments are put under pressure to make good the threats implied in their deterrent postures. The Catch 22 of this scenario is that nuclear deterrence risks being exposed as a bluff if states with nuclear weapons do not use them when faced with the kind of serious threats they have identified in their doctrines; but if nuclear weapons *are* used, deterrence will have failed.

This dilemma, which is inherent in deterrence theory, may result in nuclear weapons being more likely to be considered for use, whether in pre-emption or retaliation. Presented as a response to fears about terrorists or rogue states with weapons of mass destruction, recent policy shifts by the US, UK and French governments tacitly acknowledge the inapplicability of deterrence assumptions, but they carry further dangers and contradictions.

In the 21st century, having nuclear weapons may actually make a country more vulnerable to pre-emptive attack or provocation, particularly if adversaries calculate that they would benefit from a disproportionate response likely to engender international condemnation and recruit more supporters.

If proliferation accelerates, the future would likely be characterised by high insecurity and instability, where the possession of nuclear weapons could act more as a lightning rod or justification for aggression than as a deterrent.

### **Sustainable non-proliferation**

The third – and most desirable – possible future is one of sustainable non-proliferation. Article VI of the NPT made disarmament an indispensable part of the non-proliferation equation for a good reason: few governments would be able to renounce the option of such a powerful weapon if they thought others would keep it indefinitely for themselves. Twenty-five years on, when the NPT was indefinitely extended in 1995, the non-nuclear weapon states reinforced this understanding by insisting that ‘Principles and objectives for nuclear non-proliferation and disarmament’ and an agreement to strengthen the review and implementation of the treaty should be adopted at the same time, as part of a single package.

The alternative to prohibiting and eliminating nuclear weapons is not the status quo, in which Britain remains one of a few privileged nuclear ‘haves’. This is no longer a realistic prospect. As Kofi Annan recognised, the alternative to disarmament would be a future in which more and more states seek and obtain nuclear weapon capabilities. As noted by a panel of international experts in 1999, we must “choose between the assured dangers of proliferation and the challenges of disarmament”.<sup>130</sup> The British decision – whichever way it goes – could prove to be a tipping point, with profound implications – positive or negative – for global security and non-proliferation efforts.

For sustainable non-proliferation, what is needed is an integrated approach to disarmament that would:

- Reinforce the international laws and norms of the regimes with more effective policing and measures for compliance and enforcement;
- Implement further deep cuts in existing arsenals and ensure that no new nuclear weapons are developed or deployed by any nuclear weapon possessors or aspirant proliferators;
- Rule out the use of nuclear weapons altogether, thereby further embedding the taboo and prohibition on the use of weapons of mass destruction that applies already to biological and chemical weapons;

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<sup>130</sup> ‘Facing Nuclear Dangers’ Report of the Tokyo Forum for Nuclear Non-Proliferation and Disarmament, Japan Institute of International Affairs, 1999.

- Require each of the nuclear weapon possessors to develop a coherent plan of action for how they will implement their disarmament obligations under the NPT and other relevant treaties and agreements; and
- Rule out the production of plutonium and highly enriched uranium both for weapons purposes and for use in civilian reactors.<sup>131</sup>

Common security is best promoted when disarmament is integrated with non-proliferation in accordance with the non-discriminatory, shared responsibilities developed as part of the human security paradigm. Such an approach is needed to sustain and build on the norms, rules, institutions and practices developed to constrain nuclear, chemical and biological weapons during the 20th century. These need to be integrated with the policing powers and tools now being assembled to deal with non-compliant states, and with commercial or non-state actors whose activities are deemed to threaten national and international security.

The US-driven shift from norm-based non-proliferation to counter-proliferation, involving self-selected coalitions of the willing, has weakened some of the essential infrastructure and tools that the international community needs for combating nuclear weapons and terrorism. By deciding not to replace Trident and then using its considerable influence to strengthen international law and exert pressure for full implementation of the relevant treaties and resolutions, Britain could do much to restore and reinvigorate the international non-proliferation regime.

## Phase I: Taking the lead

In 1998, the House of Commons Defence Committee said that it would “look forward to hearing more about the government’s progress towards its aim to eliminate nuclear weapons from the world”.<sup>132</sup> Apart from commissioning a verification study from AWE Aldermaston in 2000, the government has yet to produce any kind of plan for creating the conditions or taking the necessary steps to bring about nuclear disarmament. It is time to remedy that omission.

### *Democratic decision-making and laying the groundwork*

How the decision is taken will constitute a first important step. The government – and parliament – need to ensure that there is an open, well-informed and accountable debate about the role of nuclear weapons in the current and future security environment. After an appropriate period of consultation and debate, which would require that the government provide more detail regarding the costs and implications of particular options, the decision should be made by the House of Commons, preferably with a free vote.

The following section considers some of the further tasks and implications if a decision is taken not to commission a nuclear follow on to Trident. Although a decision not to continue with nuclear weapons in perpetuity will be widely welcomed, both in Britain and around the world, it is inevitable that there will be also those who worry that such a significant policy shift might leave the UK vulnerable, harm the Atlantic Alliance, and/or result in job losses.

It will be important that the government lays the groundwork politically and diplomatically to allay these concerns and explain how its decision can be used to enhance national and international security. In particular, it will be necessary to explain and build support for these decisions, especially among domestic interest groups that currently support or benefit from nuclear weapons.

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131 See Rebecca Johnson, ‘Integrated Disarmament: a prerequisite for sustainable nonproliferation’, *Disarmament Diplomacy* 82, Spring 2006, pp 2-7.

132 House of Commons Defence Committee, *The Strategic Defence Review*, Volume I, HC 138-I, September 10, 1998.



The government should prepare to move swiftly to explain its decision to allies and maximise the positive impact that its decision will have before the next NPT Review Conference in 2010. Taking a leaf out of South Africa's book, the sooner the decision is announced, the better will be Britain's ability to work with influential NPT parties to put the non-proliferation regime back on track.

The Defence Committee heard a variety of views – positive, negative and dismissive – about the potential impact of the UK decision internationally, particularly on the dynamics of

the US-UK relationship and the risks of leaving France as the sole nuclear weapon power within Europe. It is not necessary to reprise those debates here, so much as to emphasise that political and diplomatic strategies will need to be developed to manage changes in the relationships with the United States, NATO and also with France and other EU members. During this time, Britain should build closer alliances with non-nuclear weapon countries, especially in Europe, and take a more effective leadership role in promoting new approaches to reduce nuclear dangers and proliferation.

Once the decision to denuclearise is made, Britain would have some years in which to build on the political and security benefits before the decision becomes irrevocable. Having accepted that nuclear weapons are not indispensable for the foreseeable future, the decision will inevitably give rise to choices about what to do with the existing Trident fleet.

The options are:

- Remove the warheads from the missiles and start decommissioning the submarines immediately;
- Undertake confidence-building measures, while embarking on a gradual decommissioning programme according to a timetable of Britain's choosing that is not contingent on the actions of others;
- Make concrete steps in de-weaponisation contingent on when certain conditions are created or met; or
- Make an in-principle decision to eliminate the arsenal, while continuing to deploy Trident until it ceases to be operationally viable.

The first of these would be the most logical choice. It would convey most clearly that Britain no longer regards nuclear weapons as necessary and so would boost diplomatic efforts. It would render the expensive upgrading of facilities at Aldermaston otiose and enable at-sea deployment to be halted, thereby saving public money or allowing resources to be redirected. Such benefits notwithstanding, the MoD may argue for a slower phase-out.

The MoD may also want a residual capacity to be maintained, at least for an interim period. Even if Britain's nuclear weapons and infrastructure are substantially dismantled, the country would retain sufficient technology and materials to keep open the option of reversing a disarmament decision until stringent international controls are imposed as part of multilateral agreements to abolish nuclear weapons. Unlike proliferators starting from scratch, such as Iran, a non-nuclear-armed Britain could expect to remain close to being able to re-acquire nuclear weapons for some considerable time.

## Phase II: Devaluing nuclear weapons

What prevents the nuclear genie from being put back into its bottle is not the existence of nuclear knowledge, but the high value still accorded to nuclear weapons, particularly by states that have them. While it is true that the basic knowledge cannot be ‘unlearned’, the fissile materials to make bombs are not found in nature and so can be controlled, degraded and kept out of circulation. Containing sophisticated nuclear technologies would present fewer hurdles than for chemical and biological weapons, both of which have been prohibited, despite the ubiquity and commercial applications of many of their raw materials. Proliferation and ‘breakout’ would be much less possible under conditions of nuclear abolition than it is in today’s contested world of ‘haves’ and ‘have-nots’.

In 1998, the Strategic Defence Review took the view that “[T]he world would be a better place if [nuclear] weapons were not still necessary, but the conditions for complete nuclear disarmament do not yet exist”. This begs the question, what are these conditions?

The end of the Cold War resulted in conditions that could have been used to promote disarmament. Deep cuts were made in the major arsenals, and Britain eliminated all its tactical nuclear weapons.<sup>133</sup> In conjunction with these welcome reductions and limitations, however, technological advances were pursued that made it possible to increase the power and targeting of Britain’s remaining strategic nuclear system, the size and deployment of which continued to be determined with a Russian nuclear threat in mind.

Unless a fundamental devaluing of nuclear weapons occurs soon, it is likely that the United States and Russia will further reduce their deployed strategic arsenals but keep tactical nuclear weapons in play and tens of thousands of warheads and delivery systems in storage. Such practices reduce some nuclear dangers, particularly from accident or inadvertent use, but they do little to reduce the role of nuclear weapons in security policies, as illustrated in Appendix I.

That nuclear weapons are presently valued as an important emblem and currency of power is not an inherent or military attribute, but a social and political assertion constructed and sustained by the actions of the major powers. It follows that when countries such as the United Kingdom act as though nuclear weapons are indispensable, they feed the perception that they are the ultimate symbol of state prestige and security. Accordingly, when Britain and other nuclear powers try to prevent developing states from obtaining nuclear weapons, they risk being perceived as denying sovereignty, power and self-determination to others. In such circumstances, coercive counter-proliferation becomes self-defeating. What should be a collective endeavour for common security is turned into a counter-productive contest for control, with the risk of feeding into nationalist or anti-imperialist agendas.

To make any real progress towards sustainable non-proliferation and multilateral disarmament, it is necessary for nuclear weapons to be devalued, thereby reducing their role and attractiveness. Cuts in arsenals may reduce some nuclear dangers, but unless and until they are accompanied by a disavowal of use (and therefore value), reductions will fail to have the desired political impact, for both the non-nuclear weapon states and the decision-making of potential proliferators. Addressing the use of nuclear weapons as well as their number is now necessary to convince NPT parties that they can continue to rely on the non-proliferation regime, and that genuine progress is being made towards the treaty’s goal of eliminating all nuclear weapons.

In order to reduce the threats and dangers from nuclear weapons, attention must be paid to the symbolic, strategic and political factors involved, as well as to the physical materials and components. The fact that the prohibition and elimination of nuclear weapons have never been internalised as a genuine policy imperative by the nuclear weapon possessors continues to

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133 It should be noted that though UK tactical nuclear weapons were removed, the United States continued to deploy tactical nuclear weapons in Britain and five other NATO countries. Russia also retains a large tactical nuclear arsenal, perceived as a way to counter-balance weaknesses in its conventional forces and political diplomacy.

complicate and thwart efforts to prevent proliferation, rendering those efforts less effective and authoritative.

### Phase III: Building A Nuclear Free World

Britain's decision may be nationally determined in the first place, but from the very beginning it must be placed in the context of efforts to promote multilateral non-proliferation and disarmament. As the UK embarks on the road towards devaluing and eliminating nuclear weapons, it will be in a much stronger position to push for international progress as well.

This does not require a naive assumption that Britain's decision will of itself cause others to renounce nuclear weapons. It merely recognises that Britain's decision, accompanied by political, diplomatic, legal and technical strategies, will help to lay the groundwork and pave the way for others to follow. It will provoke debates in all the weapon states and invigorate their domestic constituencies to raise questions about perpetual reliance on nuclear weapons. Even in France, where traditionally there has been little questioning of French nuclear policy and opposition to nuclear weapons has been weak and fragmented, a UK decision to forego a follow-on to Trident would be likely to increase public debate about the utility and value of France's *'force de frappe'*.<sup>134</sup>

France and the UK will have to decide whether it will be meaningful to retain costly nuclear arsenals that were developed for an enemy that no longer exists, in order to meet hypothetical threats against which such weapons are of questionable value. Both countries are now at a crossroads: going down one road would show their conviction that nuclear weapons are not necessary for their security, while the other would demonstrate to all other states a belief that these weapons continue to be indispensable. In addition, by pursuing their security interests without nuclear weapons, they would avoid the need for costly investments in dangerous new nuclear capabilities or replacements for existing weapons.

The International Weapons of Mass Destruction Commission<sup>135</sup>

Lessons can be gleaned from recent past experience that includes the 1993 Chemical Weapons Convention, the CTBT negotiations 1994-96, and the 1997 Mine Ban Convention. In general, some time before arms control negotiations formally open, the principal parties have to come to some kind of common understanding that there is a problem that requires concerted, multilateral action.

This diagnostic and bridge-building period of transition from ignoring a problem to willingness to negotiate is known as "prenegotiations". It comprises five elements: problem identification; the search for options; commitment to negotiate made by at least one party, marking the shift from "whether to negotiate to what will be negotiated"; communication and discussion, principally to determine the structure, boundaries, participation and agenda; and, finally, an agreement to negotiate.<sup>136</sup>

Three elements will be particularly important in this early phase: constructing political will; devaluing nuclear weapons and embedding norms against their use; and building confidence in the technical and structural feasibility of controlling fissile materials, eliminating nuclear weapons and preventing break-out or further proliferation.

134 As the oral evidence to the Defence Committee illustrated, the 'French question' – namely, that Britain could not leave France as the sole nuclear power in Europe – is cited by some advocates for retaining nuclear weapons. See House of Commons Defence Committee HC 986, op. cit.. This assumption that France would automatically benefit needs to be interrogated more closely. In conversations with the authors, some senior French officials acknowledged that a UK decision to renounce nuclear weapons would precipitate much wider debate about French nuclear deterrence, with unpredictable results.

135 *Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms*, op. cit., p 94-95.

136 Brian W. Tomlin, "The Stages of Prenegotiation: The Decision to Negotiate North American Free Trade" in Janice Gross Stein (ed.), *Getting to the Table: The Processes of International Prenegotiation*, (Baltimore MD and London: The Johns Hopkins University Press, 1989), pp 18-44.



### ***Constructing political will***

Once it has taken its decision, Britain could enhance its impact and leadership by joining (or initiating) alliances with influential non-nuclear weapon states. A precedent has already been created in July 2005. Responding to the failure of the NPT Review Conference, the foreign ministers of Australia, Chile, Indonesia, Norway, Romania, South Africa and the United Kingdom issued a declaration for non-proliferation and disarmament. Among other specifics, it required “urgent action to eliminate the proliferation of weapons of mass destruction” and the pursuit of “practical, systematic and progressive efforts to advance disarmament globally and reduce nuclear weapons towards achieving a world free of nuclear weapons, including through greater security and transparency of fissile material holdings for all States”.<sup>137</sup>

As a nuclear weapon state apparently bent on acquiring the next generation of nuclear weapons, Britain’s presence in the line-up did little to enhance the credibility of this Norwegian-led initiative, although its sentiments were lauded. Unlike the successes of the New Agenda Coalition from 1998-2000, it did not have the impact its participants had hoped for.<sup>138</sup> The lesson to be learned is that it is not sufficient to have good ideas or high-minded rhetoric: to be effective, such alliances need to choose their members purposefully and develop practical objectives and strategies. A Britain that has decided to renounce nuclear weapons would be ideally placed to contribute strategic thinking, diplomatic heft and technical knowledge, thereby enhancing the credibility and effectiveness of any future alliance.

Planning for the most positive route to promote the prohibition and elimination of nuclear weapons will inevitably encompass several phases, which will be most effectively accomplished by planning and preparing multi-layered approaches that use Britain’s available technical, political, diplomatic and legal skills to their best effect. The following section is not intended to provide a blueprint, but to indicate some of the phases and considerations that will need to be taken into account.

### ***Stigmatising the use and threat of use of nuclear weapons***

Nuclear weapons need to be understood as a security problem for states, not an asset. This is recognised for biological and chemical weapons – the possession, production and use of which are comprehensively prohibited by treaty law. Such weapons of mass destruction have now been universally rejected, though it is recognised that more still needs to be done to verify compliance with the relevant prohibition treaties and to prevent terrorist use by states or non-state actors.

An important reason why it was possible to prohibit biological and chemical weapons, persuading the vast majority of states to give them up, is that they came to be stigmatised not only as inhumane, but as unethical, even cowardly; that is, something that moral and responsible leaders would not use. Though this does not of itself eliminate the threat posed by these weapons, especially where unethical or irresponsible actors are concerned, the stigmatising and prohibition of the use of weapons involving disease and poison were important international security milestones. For landmines, biological and chemical weapons, reducing or reversing their value through stigmatisation was an important step towards changing political attitudes and overcoming perceived military utility and desirability. The same needs to be done for nuclear weapons.

NATO doctrine during the Cold War contained a threat to use nuclear weapons first in any conflict with a nuclear-armed adversary or its allies, whether or not they posed an explicitly nuclear threat. This doctrine was held to be necessary for deterrence, and justified because the conventional forces available to the Soviet Union/Warsaw Pact were considered to be greater in number than those of NATO. At the end of the Cold War, NATO – and its nuclear weapon states

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137 Nuclear non-proliferation initiative by the foreign ministers of Australia, Chile, Indonesia, Norway, Romania, South Africa and the United Kingdom, July 26, 2005.

138 The New Agenda Coalition (NAC) originated in a declaration by eight foreign ministers on June 9, 1998, entitled “A Nuclear Weapons Free World: The Need for a New Agenda”. Though Slovenia was forced to withdraw following US and French threats to its applications to join NATO and the EU, the other seven - Brazil, Egypt, Ireland, Mexico, New Zealand, South Africa and Sweden - went on to work with civil society to develop the ideas, teamwork and strategies that enabled the NPT Review Conference in May 2000 to adopt a substantive set of agreements.

– had the opportunity to join Russia and China in making no-first-use commitments. NATO failed to respond, and held on to its Cold War posture, despite the concerns raised by Secretary of Defense Les Aspin, former President Carter, and General Lee Butler, among others. On the basis that the United States and NATO had overwhelming conventional superiority at the end of the Cold War, Russia seized the opportunity to rescind the Soviet Union's no first use declaration, and adopted a doctrine similar to that of NATO.<sup>139</sup>

In addition to the benefits of reinforcing the taboo on nuclear use, a further consideration that should be taken into account by British policy-makers is that “the use of Trident is unlawful in the types of circumstances in which the government might actually consider such use”.<sup>140</sup>

This is the view of US attorney and noted legal scholar Charles Moxley, who highlighted the following applicable rules in law:

- Rule of proportionality, prohibiting “the use of a weapon if its probable effects upon combatant or non-combatant persons or objects would likely be disproportionate to the value of the anticipated military objective”;
- Rule of discrimination, prohibiting “the use of a weapon that cannot discriminate in its effects between military and civilian targets”;
- Rule of necessity, that a state “may use only such a level of forces as is ‘necessary’ or ‘imperatively necessary’ to achieve its military objective”;
- General principle of moderation, that the right of belligerents to adopt means of injuring the enemy is not unlimited; and
- Rule of civilian immunity, prohibiting the “directing of attacks against civilians, making them immune from such attack”.<sup>141</sup>

In a further communication, Moxley emphasised that “it is widely recognised by states, including Britain and the United States, that the use and threat of use of nuclear weapons is subject to the law of armed conflict. Nuclear weapons may not lawfully be used in circumstances where such use would not comply with the rules of the law of armed conflict... including the rules of necessity, discrimination, proportionality. No use of any weapon, including any nuclear weapon, is lawful unless it complies with these rules.”<sup>142</sup>

Article 2(4) of the UN Charter requires that states should not threaten or use force against other states “in any... manner inconsistent with the Purposes of the United Nations”.<sup>143</sup> The International Court of Justice stated that “A threat or use of force by means of nuclear weapons that is contrary to Article 2, paragraph 4, of the United Nations Charter and that fails to meet all the requirements of Article 51, is unlawful”.<sup>144</sup> The right of self-defence under Article 51 of the UN Charter would have to be consistent with the conditions of necessity and proportionality, and comply with the law of armed conflict, especially international humanitarian law.

As part of its prescription to reduce nuclear dangers, the WMD Commission, chaired by Hans Blix, recommended: “All States possessing nuclear weapons should declare a categorical policy of no-first-use of such weapons. They should specify that this covers both pre-emptive and preventive action, as well as retaliation for attacks involving chemical, biological or conventional weapons.”<sup>145</sup>

139 It is now known from Soviet documents released after the collapse of the USSR that despite the rhetorical declaration of no first use, nuclear planning had proceeded on a basis similar to that of NATO.

140 Charles J. Moxley, Jr., written communication with the authors, September 2006.

141 Charles J. Moxley, Jr., *Nuclear Weapons and International Law in the Post Cold War World*, Austin & Winfield, 2000.

142 Charles J. Moxley, Jr., written communication with the authors, September 2006.

143 Charter of the United Nations, Chapter I, Purposes and Principles, Article 2.4. Can be found at: <http://www.un.org/aboutun/charter/chapter1.htm>

144 Legality of the Threat or Use of Nuclear Weapons, ICJ Report, July 8, 1996, para. 105, point 2C. The full text of the ICJ ruling can be found at: <http://www.icj-cij.org/icjwww/icasess/iunan/iunanframe.htm>

145 *Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms*, op. cit., p 91, recommendation 15.

While a no-first-use declaration along these lines was a useful confidence-building measure to advocate, especially during the Cold War, there is the risk that this could now be construed as legitimising the use of nuclear weapons for punishment or retaliation. More relevant could be the promotion of no-use commitments, with the intention of sidelining nuclear weapons as an instrument of policy or coercion. While recognising that such declarations are unenforceable, such a step would undoubtedly contribute towards reviving and strengthening the taboo against using nuclear weapons and help to rebuild international confidence in non-proliferation norms. It would also constitute compliance with the International Court of Justice advisory opinion and reinforce the NPT.

In taking the decision not to replace Trident, Britain could ensure immediate and positive impact by leading the way in making a public commitment not to use or threaten to use nuclear weapons. In renouncing first use, nuclear pre-emption or retaliation, the government could then call on all the nuclear possessors to do likewise. At the same time, if required for reassurance purposes during the first few years of transition, British policy-makers might still choose to retain some physical weapons, while they become accustomed to the idea that they no longer need them and prepare the ground for total renunciation.

### ***Confidence-building measures***

On the basis of the non-replacement decision alone, Britain will strengthen its ability to reduce nuclear dangers. However, consideration should be given to additional confidence-building measures such as the no-use declaration discussed above, or taking Trident off continuous patrol, removing the missiles from the submarines and putting them into safe storage, and so on. Such measures would save public money and signal Britain's confidence that nuclear weapons are not necessary for security.

Admiral Stansfield Turner, a former head of the US Central Intelligence Agency (CIA), argued for the United States to undertake nuclear disarmament after the Cold War. In view of prevailing anxieties about 'break-out', Admiral Turner noted that the most difficult step may be proceeding from a few nuclear weapons to zero. Recognising that some leaders would have difficulty renouncing the weapons until they were more confident that non-nuclear security conditions were in place (and worked), Turner proposed placing a small number of nuclear weapons under a system of "strategic escrow".<sup>146</sup>

The thinking behind his proposal was that the nuclear weapons states would reduce to low levels and publicly declare their intention to carry out their legal undertaking to eliminate all nuclear weapons. While they worked on creating the conditions for a more secure non-nuclear future, they would retain a few weapons for a transition period, 'just in case', but keep them locked out of harm's way. To all intents and purposes, nuclear weapons would be prohibited and eliminated, but the few kept in strategic escrow could provide reassurance that in an exceptional emergency they could be accessed.

Although Admiral Turner was discussing global disarmament and his concept of strategic escrow presupposed US control, his proposal to remove deployed weapons and keep them in storage for a transition period could also provide reassurance to nervous UK leaders, as they embark on the first steps to disarmament.<sup>147</sup>

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<sup>146</sup> Stansfield Turner, *Caging the Nuclear Genie: An American Challenge for Global Security*, McGraw-Hill, 1997. Escrow is defined as a contract, deed, bond, or other written agreement deposited with a third person, by whom it is to be delivered to the grantee or promisee on the fulfillment of some condition.

<sup>147</sup> *Ibid.* Turner advocated strategic escrow as a kind of 'resting point' or threshold prior to complete elimination that would provide a "virtual zero".

### ***Decommissioning weapons and materials: safety and security first***

Once the political decisions have been taken, there will be technical tasks, such as storing and/or dismantling the warheads and facilities, disposing of the fissile and toxic materials, and verifying that all proliferation-sensitive materials and components have been accounted for.

Consideration will therefore have to be given to how AWE Aldermaston and Burghfield will need to be reconfigured as their priority work moves from warhead production and assembly to dismantlement and disposal of the fissile materials, with emphasis on minimising the risks of environmental contamination or re-use of fissile materials for weapons purposes. The expensive and sophisticated Orion laser facility and supercomputer would not be required and ought to be cancelled as soon as possible.



Technically, Britain is extremely well equipped to carry out these decisions. Having dismantled and disposed of Britain's Chevaline warheads and tactical nuclear bombs during the past two decades, Aldermaston has already developed considerable experience in these activities. However, it may require investment in appropriate facilities to ensure that dismantling Trident is accomplished as safely and speedily as possible. Decisions will also need to be made regarding the location (either Devonport or Rosyth?) for decommissioning the Vanguard-class submarines, including their nuclear reactors.

A note needs to be made here of the need for the international community to address (and renounce) the use of weapon-usable fissile materials in civilian nuclear fuel cycle programmes. This will not solve the Iranian nuclear crisis, but it will provide non-discriminatory and therefore stronger tools to thwart nuclear proliferators in Iran and elsewhere.

Dr Mohamed ElBaradei, Director General of the IAEA, and Dr Hans Blix have both accepted that neither plutonium nor HEU are required for nuclear power generation. Reflecting how much more is known about the nuclear fuel cycle since the NPT was negotiated and opened for signature in 1968, Article IV needs to be interpreted with an agreement to this effect. Such a decision, which could be underpinned by a decision of NPT states parties and the UN Security Council, would constitute a major – and, importantly, non-discriminatory – step towards more effective non-proliferation. For this to happen, the handful of developed countries with reprocessing and high enrichment capabilities need to accept further restraints.

Sellafield has long been an economic 'albatross', and it now stands in the way of Britain playing a more constructive role in promoting more effective strategies to curb the production of plutonium and highly enriched uranium worldwide. The THORP reprocessing plant is due to close, but it would enhance the political and non-proliferation effect of this decision if the government would give a clear signal that it intends to end all plutonium separation and designate the UK civil plutonium stockpile as 'waste', permanently removing it from circulation, pending disposal.

Once Britain embarks on its decommissioning process, it will be important to apply the lessons learned in order to control and prevent access to nuclear technologies and materials by others that may pose a threat. The exposure of Iraq's WMD programmes in the 1990s and the subsequent work of UNSCOM, the UN Monitoring, Verification and Inspection Commission (UNMOVIC) and the Iraq Survey Group have yielded valuable experience and insights. Much has also been learned from the dismantling of South Africa's weapons programme, as well as North Korean and Iranian attempts to conceal parts of their nuclear programmes from the IAEA.



### **Technical Preparations and Verification**

In the prenegotiations phase prior to states negotiating the prohibition of nuclear weapons, it will be important to build confidence in the technical processes and feasibility of implementing and verifying the elimination and non-development of nuclear arms. There are precedents: for instance, Britain's participation in the Group of Scientific Experts (GSE), which worked on seismic detection and contributed to many of the verification elements for the CTBT during the 1980s, well before the test ban treaty became a political reality.

Aldermaston verification scientists were constructive participants in the GSE, even when Mrs Thatcher was a determined opponent of the CTBT. They were recognised as being at the forefront of research in verification technologies and techniques, and as a consequence, during the CTBT negotiations, Britain was able to take the lead in informing and bringing the Conference on Disarmament to consensus on many verification questions, most notably the International Monitoring System.<sup>148</sup>

In response to the 'Thirteen Steps' adopted by NPT parties at the 2000 Review Conference, the government instructed Aldermaston to conduct "a small research programme to study techniques and technologies with the potential for application to the verification of any future arrangements for the control, reduction and ultimate elimination of nuclear weapon stockpiles".<sup>149</sup> Interim reports of this programme's findings were presented to meetings of NPT parties in 2003 and 2004 and a final report was issued as a working paper of the NPT Review Conference in 2005.

The project took up a very small fraction of Aldermaston's budget and covered:

- Authentication of warheads and components, to establish that an item declared to be a nuclear warhead or a component from a nuclear warhead is consistent with those declarations;
- Dismantlement of warheads and their components;
- Disposition of the fissile material, to ensure that it can no longer be used in nuclear weapons or other explosive nuclear devices; and
- Monitoring the nuclear weapons complex.<sup>150</sup>

The UK findings generated considerable interest among NPT parties, and shows the kind of positive role that AWE Aldermaston should be more pro-actively pursuing. Follow-on technical questions have been identified, including the need to share and compare verification information and research with other weapon states. But verification is not only a technical process. Intersecting technical capabilities and political concerns, an acceptable verification regime is one that balances what will provide sufficient confidence in a treaty with what is bearable for governments, keeping in mind deep rooted sensitivities around military intelligence, espionage and national security secrecy. The technologies and techniques need to be integrated within legal and political structures that can set objectives, requirements and limits, and provide reliable checks against cheating, spying or abusive intrusion.

Britain, which has been an important contributor of expertise for the IAEA, UNSCOM and UNMOVIC, would be well placed to lead the way once the government no longer had a vested interest in maintaining a national nuclear arsenal. Britain's expertise would be especially useful, since intimate knowledge of nuclear weapons technologies and practices are by definition barred to non-nuclear weapon state parties to the NPT (except in the rare case of South Africa, which

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148 Rebecca Johnson, 'Ending Nuclear Weapon Testing: Getting and Keeping the CTBT', *Verification Yearbook 1997*, VERTIC, London, 1997; and Rebecca Johnson, *A Comprehensive Test Ban Treaty: Signed but not Sealed*, Acronym Report No 10, May 1997.

149 'Verification of nuclear disarmament: final report on studies into the verification of nuclear warheads and their components', Working Paper submitted to the 2005 NPT Review Conference by the United Kingdom of Great Britain and Northern Ireland, April 18, 2005, NPT/CONF.2005/WP.1

150 Ibid.



developed a handful of nuclear bombs before renouncing them and joining the NPT in 1992).<sup>151</sup> As well as fostering technical solutions, Britain would be in a strong position also to debunk false technical arguments that other weapon states might try to use to protect their military or industrial interests and obstruct disarmament progress.

Those fearing job losses at Aldermaston could find that the opposite will be the case. The Atomic Weapons Establishment will need to maintain its skills base in shifting from nuclear weapon design and production to decommissioning and disarmament. There will be changes in priorities and some functions, but as certain jobs become less in demand, others will become more so. Even if no further warheads are manufactured, 50-60 years of nuclear production mean that Aldermaston will need to be kept open and working on decommissioning, verification and 'clean up' for decades to come.

Other elements that would require to be incorporated and verified as part of a process of nuclear arms reduction and disarmament include: declarations and registration of numbers of warheads and quantities of plutonium and highly enriched uranium and other related materials; an international monitoring system, which would probably involve extending the current remit of the IAEA; use and incorporation of information gained from national intelligence means, civil society observation and whistle-blowing; open skies; on-site inspections; and preventive controls, extending and legitimising the approaches contained in UN Security Council resolution 1540 (April 2004) and the 2003 Proliferation Security Initiative (which would work more effectively if transformed into a 'prohibition security initiative').<sup>152</sup>

## Phase IV: International negotiations

A first step from Britain would greatly boost the credibility of the non-proliferation regime and contribute positively towards creating the conditions for nuclear disarmament, but we must recognise that converting the other weapon states may still be a long and difficult process. Alternatively, as happened when President Mitterrand announced the French moratorium on nuclear testing in 1992 (which led directly to the US moratorium and the start of multilateral test ban negotiations in January 1994), the UK decision might be just the right catalyst at the right time to persuade others to seize the opportunity to alleviate the burden of maintaining arsenals of nuclear weapons, when they need to develop more appropriate tools for dealing with 21st century threats.

Though it may be early days yet, it is worth thinking through some of the steps and considerations that would need to be undertaken internationally.

### ***What would be the desired legal infrastructure?***

- One obvious objective could be a nuclear weapon convention. This might be envisaged as a framework convention that could incorporate protocols on specific elements that could be updated without revisiting the basic principles and obligations.<sup>153</sup>

151 During the late 1990s, VERTIC undertook a project on 'Getting to Zero', which included the following useful, but currently out-of-print reports: Patricia M. Lewis, 'Laying the Foundations for Getting to Zero: Verifying the Transition to Low Levels of Nuclear Weapons'; Tom Milne and Henrietta Wilson, 'Verifying the Transition from Low Levels of Nuclear Weapons to a Nuclear Weapon Free World'; George Palocz-Horvath, 'Virtual Nuclear Capabilities and Deterrence in a World Without Nuclear Weapons'; and Suzanna van Moyland, 'Sustaining a Verification Regime in a Nuclear Weapon Free World'.

152 Some of the elements in this chapter were first put forward in Rebecca Johnson, 'Building A Nuclear Free World', presentation to NATO Symposium on *The Future Role of Nuclear Deterrence in the New Strategic Environment*, Prague, March 9-11, 2004.

153 See, for example, the text of the Model Convention on the Prohibition of the Development, Testing, Production, Stockpiling, Transfer, Use and Threat of Nuclear Weapons and on their Elimination, submitted by Costa Rica to the UN General Assembly, A/C.1/52/7. Drafted by a consortium of scientists, engineers and physicians, the model nuclear weapon convention is explained and discussed in 'Security and Survival: The case for a Nuclear Weapon Convention', edited by Merav Datan and Alyn Ware and published by IALANA, INESAP and IPPNW in 1992. Although some aspects of this book are now out of date, it is still well worth a look.

- Another approach might be to develop a set of reinforcing agreements, accomplished one after another or in parallel, such as the CTBT, FMCT, protocols to the Geneva Convention on prohibiting the use of nuclear weapons and so on.
- Or states might prefer to take phased, step-by-step measures within a comprehensive approach with the goal of abolition and prohibition, such as the ‘comprehensive-incremental’ approaches taken by the Canberra Commission and New Agenda Coalition.

Whatever form it takes, there will need to be some kind of legal infrastructure to embed obligations and norms for ‘persons’ (individuals, corporations etc.) as well as states. These would entail both negative and positive obligations.

Negative obligations would specify the prohibitions on developing, testing, producing, otherwise acquiring, stockpiling, deploying, maintaining, retaining, transferring or using nuclear weapons.

Positive obligations would require governments to:

- Dismantle and destroy all nuclear weapons and their delivery vehicles;
- Secure fissile and other relevant materials, render them non-usable for weapons (e.g. through blending down) and ensure their secure storage or disposal;
- Prevent access to and acquisition of weapons materials, components or technology by other states or non-state actors (an extension of the obligations in the NPT and UNSC Resolution 1540 on Weapons of Mass Destruction);
- Enact tighter fuel cycle controls to prohibit – or at least restrict – uranium enrichment above the low levels necessary for nuclear power generation and the separation of plutonium through reprocessing;
- Enact tighter controls (even selective bans) on missiles or other means for delivering nuclear weapons;
- Convert nuclear research and production facilities and bases for non-weapon uses. This could be thought of as a worldwide cooperative threat reduction (CTR) programme, converting and utilising the weapons infrastructures and personnel skills for peaceful purposes, including verification.
- Close and monitor deployment facilities, such as weapons silos and naval bases, and, where necessary, keep them available for inspection by agents of the implementing organisation. There are precedents for this in the 1987 Intermediate-range Nuclear Forces (INF) Treaty.

It will be of vital importance for these steps to be undertaken in ways that secure the materials, facilities and technologies from theft by rogue proliferators or terrorists, break-out, clandestine acquisition or retention of a ‘hedge’ arsenal. It will also be important to pay attention to protecting and cleaning up the environment, especially around production and deployment facilities, and minimise radiation or other contamination that may harm workers or people living in the vicinity.

Finally, in putting forward the feasibility of a nuclear weapon free world, we do not underestimate the difficulties. It is important to recognise that though a decision by Britain not to build the next generation of nuclear weapons will have an impact internationally, more will need to be done, especially with regard to regional arms races, in order to turn the tide on nuclear proliferation. In renouncing its own nuclear reliance, Britain would gain the moral and political authority to be taken more seriously when the government seeks to provide leadership, diplomatic initiative and technical expertise to reduce nuclear and proliferation dangers worldwide.

Britain’s decision, however, would need to be integrated into a multilateral approach designed to strengthen the regime-based norms to stigmatise acquisition, production and use. This would need to incorporate supply-side constraints, controls and, where relevant, alternatives (in energy supply, for example); and demand-side incentives – regional as well as international – to address security concerns, development and technology access and assistance, and the motivations driving

proliferation threats. In working towards this objective, national and security policies will need to be transformed in other ways too.

Those who claim that nuclear weapons have kept the peace for 60 years tend to dismiss a nuclear weapon free world as one that would witness a resurgence of conventional weapons and wars. In fact, 60 years of nuclear weapons have done little to reduce violent deaths around the world. However, in seeking to eliminate nuclear weapons, it will be important also to address the causes and drivers of conventional wars as well.

## Chapter 4 | Strengthening International and Non-Proliferation Law

The question of replacing or extending UK nuclear weapons not only touches on Britain's place in the world, security and defence requirements; also at issue are international legal obligations, particularly in relation to the NPT, and the necessity to uphold international law and strengthen international efforts to prevent proliferation.

In 2005, a legal Advice on “*The Maintenance and Possible Replacement of the Trident Nuclear Missile System*” was delivered by Rabinder Singh QC and Professor Christine Chinkin of Matrix Chambers and the London School of Economics. This specifically addressed the question of whether a replacement for Trident would be likely to constitute a breach of Article VI of the NPT, and concluded that:

- The use of the Trident system would breach customary international law, in particular because it would infringe the “intransgressible” requirement that a distinction must be drawn between combatants and non-combatants;
- The replacement of Trident is likely to constitute a breach of Article VI of the NPT; and
- Such a breach would be a material breach of that treaty.<sup>154</sup>

The Advice concluded that, “Enhancing nuclear weapons systems, possibly without going through parliamentary processes, is, in our view, not conducive to entering into negotiations for disarmament as required by the NPT, article VI and evinces no intention to ‘bring to a conclusion negotiations leading to nuclear disarmament in all its aspects’. It is difficult to see how unilateral (or bilateral) action that pre-empts any possibility of an outcome of disarmament can be defined as pursuing negotiations in good faith and to bring them to a conclusion and is, in our view, thereby in violation of the NPT, article VI obligation.”<sup>155</sup>

Any state contemplating replacement or modernisation of its nuclear weapon systems must consider such action in the light of all relevant treaty obligations and its duty to contribute to the nuclear disarmament process. As a minimum, it must refrain from developing nuclear weapons with new military capabilities or for new missions. It must not adopt systems or doctrines that blur the distinction between nuclear and conventional weapons or lower the nuclear threshold.  
WMD Commission Report, 2006<sup>156</sup>

### Legal obligations under the nuclear non-proliferation regime

As noted above, the NPT is currently the primary legal instrument governing nuclear weapons. Unlike the treaties banning chemical and biological weapons, the NPT does not constitute a universal treaty prohibiting nuclear weapons.<sup>157</sup>

<sup>154</sup> Rabinder Singh QC and Professor Christine Chinkin, *The Maintenance and Possible Replacement of the Trident Nuclear Missile System*, Joint Opinion, Matrix Chambers, published by Peacereights, December 19, 2005.

<sup>155</sup> Ibid.

<sup>156</sup> *Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms*, op. cit., Recommendation 23.

<sup>157</sup> There are four nuclear weapon free zone treaties that prohibit nuclear weapons being acquired or used within certain geographical regions. Together, these cover Latin America and the Caribbean, Africa, South East Asia and the South Pacific, encompassing the whole Southern Hemisphere, but only parts of the Northern Hemisphere.

The treaty does, however, contain an explicit obligation on the nuclear weapon states to pursue disarmament, contained in Article VI:

*“Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.”*

Over the years, various nuclear weapon state representatives have sought to diminish the significance of this obligation in three key ways:

- by arguing that under the NPT, the five defined nuclear weapon states are entitled to have nuclear weapons;
- by emphasising that nothing is said about the speed or timetable for achieving nuclear disarmament; and/or
- by arguing that the nuclear disarmament obligation is set in the context of general and complete disarmament, and so the elimination of nuclear weapons does not have to be achieved until all weapons are eliminated.

As recently as 2004, in response to a written parliamentary question, Foreign Office Minister Denis MacShane argued that, “Under the Nuclear Non-Proliferation Treaty five states – the United Kingdom, the United States, France, Russia and China – are legally entitled to possess nuclear weapons.”<sup>158</sup> Such an assertion bases itself on a misinterpretation of the Article VI obligation and can be very misleading. The NPT does not entitle Britain or any of the other five to retain nuclear weapons indefinitely.

The nuclear weapon states were defined in the NPT solely in accordance with whether they had conducted their first nuclear test explosion prior to January 1, 1967. This definition was important because the NPT needed to recognise the status quo in order to govern differential obligations: non-nuclear weapon states were required not to seek to acquire nuclear weapons, and the nuclear weapon states were required not to supply or trade in nuclear weapon technologies or components and to pursue nuclear disarmament.

Reflecting its origins in the Cold War political context, the original text of Article VI was kept vague and, despite calls from non-nuclear weapon states – most notably from the Non-Aligned Movement, which comprises some 110 countries – no specific target date or timeline for the elimination of nuclear weapons has ever been formalised. Sir Michael Quinlan stressed this point when he told the Defence Committee that Article VI “says nothing about the speed at which, or the conditions under which, eventual elimination is to be achieved”.<sup>159</sup> Quinlan further argued that Article VI “sets the elimination of nuclear weapons alongside ‘general and complete disarmament’ by all parties. Nothing in the text puts the two obligations on different footings. We are not remotely in sight of ‘general and complete disarmament’.”<sup>160</sup>

In the past, this apparent linkage was often relied on by the nuclear powers – most notably Britain and France – to deflect charges of non-compliance with Article VI. Since general and complete disarmament was considered utopian and unattainable, the assertion of such a contingency was designed to let them off the hook with regard to nuclear disarmament.

During the past 35 years since the NPT entered into force, however, the meaning and interpretation of various treaty articles have been clarified, updated and strengthened by means of consensus agreements or decisions of states parties at the quinquennial review conferences.

In July 1996, in response to formal requests from the UN General Assembly and the World Health Organisation, the International Court of Justice gave an advisory opinion on whether the use or threat of use of nuclear weapons was permitted under international law in any circumstance. The opinion was not without its ambiguities, but two conclusions were very clear.

<sup>158</sup> House of Commons, *Hansard*, September 1, 2004, column 689W.

<sup>159</sup> House of Commons Defence Committee, HC986-I, Memorandum submitted by Sir Michael Quinlan, March 14, 2006.

<sup>160</sup> *Ibid.*



The Court unanimously agreed that “*There exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control.*”<sup>161</sup> This decision is clearly drawn from Article VI of the NPT, but the ICJ interpretation underscores that there is a limit on the apparent open-endedness of the Article VI obligations and provides additional legal force and urgency: first by emphasising that to negotiate in “good faith” implies bringing the negotiations to conclusion; and secondly, that nuclear disarmament is not contingent on general and complete disarmament. In other words, the objective was not simply nuclear *reductions*, but “nuclear disarmament in all its aspects”.

In the final document of the 2000 NPT Review Conference, states parties unanimously reaffirmed the Court’s interpretation of Article VI and clarified their expectations in a thirteen-paragraph section on nuclear disarmament, sometimes referred to as ‘the Thirteen Steps’. This was adopted by consensus following intensive negotiations between the New Agenda Coalition, a representative group of seven non-nuclear states parties, and the five nuclear weapon states, in which Britain played a major constructive role.

As part of this agreement, all five nuclear-weapon states made an “*unequivocal undertaking... to accomplish the total elimination of their nuclear arsenals*”, and committed themselves to a programme of “*practical steps for the systematic and progressive efforts to implement Article VI*”.<sup>162</sup> Though general and complete disarmament was identified as one of the steps, it was separated from the paragraphs relating to nuclear disarmament, and, indeed, was placed several paragraphs later than the unequivocal undertaking to accomplish nuclear disarmament.<sup>163</sup>

In 2004, an earlier Joint Advice by Mr Singh and Professor Chinkin had found that a declaration of an NPT Review Conference “may have juridical significance ‘*especially as a source of authoritative interpretation of the treaty,*’ ... A Declaration of a Review Conference such as that adopted by consensus [in 1995 or 2000] would fall within the wording of article 31 (3) (a) [of the Vienna Convention on the Law of Treaties (VCLT)] and is thus an appropriate source of interpretation of the obligations of the NPT.”<sup>164</sup>

In addition to specific injunctions on the United States and Russia to continue making bilateral deep cuts, the interpretation of Article VI that the 2000 NPT Final Document provides is that steps are needed by “all the nuclear-weapon states leading to nuclear disarmament”, including:

- Further efforts by the nuclear-weapon states to reduce their nuclear arsenals unilaterally.
- Increased transparency by the nuclear-weapon states with regard to their nuclear weapons capabilities and the implementation of agreements pursuant to Article VI and as a voluntary confidence-building measure to support further progress on nuclear disarmament.
- The further reduction of non-strategic nuclear weapons, based on unilateral initiatives and as an integral part of the nuclear arms reduction and disarmament process.
- Concrete agreed measures to further reduce the operational status of nuclear weapons systems.
- A diminishing role for nuclear weapons in security policies to minimise the risk that these weapons ever be used and to facilitate the process of their total elimination.
- The engagement as soon as appropriate of all the nuclear-weapon states in the process leading to the total elimination of their nuclear weapons.<sup>165</sup>

161 International Court of Justice (ICJ) Reports 1996, p 225, Decision F. [Reported for July 8, 1996, General List No. 95]. The full decision, documentation and dissenting decisions also formed the Annex to ‘Advisory Opinion of the International Court of Justice on the legality of the threat or use of nuclear weapons’, Note by the Secretary-General, United Nations General Assembly A/51/218, October 15, 1996 pp 36-37.

162 *Final Document of the 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, (Section on Article VI and preambular paras 8-12, Para 15, sub-para 6), NPT/CONF.2000/28 (Vol 1, Part I and II), May 25, 2000.

163 *Ibid*, (Section subtitled Article VI and preambular paras 8-12, from Para 15).

164 Rabinder Singh QC and Professor Christine Chinkin, ‘Mutual Defence Agreement and the Nuclear Non-Proliferation Treaty: Joint Advice’, *op. cit.*

165 NPT 2000 Final Document, NPT/CONF.2000/28, *op. cit.* Other paragraphs related to the nuclear test ban, fissile materials, verification and, as previously mentioned, general disarmament. For a detailed analysis of negotiations at the 2000 NPT Review Conference, see Rebecca Johnson, “The 2000 NPT Review Conference: a Delicate, Hard-Won Compromise”, *Disarmament Diplomacy* 46, May 2000, pp 2-21.

The consensus final document of the 2000 Review Conference – which the UK took credit for and whole-heartedly endorsed at the time – reinforces the ICJ’s 1996 opinion. These agreements give the endorsement of all NPT states parties to the understanding that the obligation and objective of Article VI is not just *reductions* in nuclear weapons, but their *elimination*. The final document also provided greater clarity and meaning to the ICJ’s advice that the nuclear disarmament objective of Article VI does not depend on the accomplishment of general and complete disarmament. Nevertheless, the reduction of conventional threats remains a desirable objective, and there is a security connection between the two that should not be ignored. Working towards a nuclear weapon free world should be considered in tandem with further progress towards controlling and eliminating all categories of conventional and inhumane weapons, with emphasis on collective and human security.<sup>166</sup>

## Use and threat of use of nuclear weapons

Although there is no treaty that explicitly and universally prohibits the use and acquisition of nuclear weapons, there are other laws that apply to nuclear weapons, including the UN Charter and the law of armed conflict.

The fundamental rules of humanitarian law constitute “intransgressible principles of international customary law”.<sup>167</sup> According to international humanitarian law, states that use force must do so with discrimination i.e. not make civilians the object of attack. Nor should states cause unnecessary suffering. In other words, they are prohibited from causing harm to combatants greater than that which is absolutely unavoidable to achieve legitimate military objectives. As discussed earlier, US attorney Charles Moxley noted that both the United States and Britain recognise the applicability of the rules of proportionality, discrimination, moderation, and civilian immunity.<sup>168</sup>

Moxley argues that the policy of nuclear deterrence is “vulnerable” under established principles of law accepted by the United States:

“There is a telling interplay between the rules of necessity and proportionality. If the military objective is, in a relative sense, not all that challenging... the use of nuclear weapons even of a low-yield tactical nature would not generally be necessary – conventional weapons would easily suffice... the strike would... be unlawful under the necessity rule even though potentially lawful under the proportionality rule. On the other hand, if one assumes an extremely challenging military situation... the risk factors increase exponentially, ostensibly precluding proportionality, even if it were assumed the use of nuclear weapons was militarily necessary.”<sup>169</sup>

During the hearings before the ICJ, John Major’s government made the case that there may be circumstances – such as the use of a low-yield nuclear weapon against a warship at sea or against troops in a sparsely populated area – in which comparatively few civilian casualties resulted.<sup>170</sup>

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166 In recent years, the United Nations, African, Latin American and European countries have made useful progress, in the teeth of opposition by the United States, China and Russia (major arms sellers and, of course, nuclear powers). See, for example, Rebecca Peters, ‘Small Arms and Light Weapons: Making the UN Programme of Action work’, *Disarmament Diplomacy* 82, Spring 2006, pp 27-34.

167 ICJ Report, op. cit., para 79.

168 Moxley, op. cit.

169 Moxley, op. cit.

170 ICJ Report, op. cit., para 91.

Recourse to nuclear weapons could never be compatible with the principles and rules of humanitarian law and is therefore prohibited. In the event of their use, nuclear weapons would in all circumstances be unable to draw any distinction between the civilian population and combatants, or between civilian objects and military objectives, and their effects, largely uncontrollable, could not be restricted, either in time or in space, to lawful military targets. Such weapons would kill and destroy in a necessarily indiscriminate manner, on account of the blast, heat and radiation occasioned by the nuclear explosion and the effects induced; and the number of casualties that would ensue would be enormous. The use of nuclear weapons would therefore be prohibited in any circumstance, notwithstanding the absence of any explicit conventional prohibition. That view lay at the basis of the assertions by certain States before the Court that nuclear weapons are by their nature illegal under customary international law, by virtue of the fundamental principle of humanity. International Court of Justice Report, July 8, 1996<sup>171</sup>

Though its advisory opinion contained a number of important clarifications, the ICJ did not address the doctrine of deterrence *per se*, and divided over the central question it had been asked by the General Assembly to address: “Is the threat or use of nuclear weapons in any circumstance permitted under international law?” By a majority of one (the President’s casting vote made it 8-7), the ICJ stated that although the threat or use of nuclear weapons would generally be contrary to the rules of international law, it “could not conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defence, in which the very survival of a State would be at stake”.<sup>172</sup>

While some commentators have argued from this that the court was evenly divided on this point, the reasons for voting against came from two opposite poles. In fact, only four of the 14 ICJ judges took the view that there was a possibly legitimate use in extreme circumstances. Three of the judges dissented from the tortuously worded paragraph (2E) because they considered the threat or use of nuclear weapons to be unlawful in *all* circumstances. The President of the Court, Judge Bedjaoui, explained his casting vote as indicating only that as the law currently stands, he could not say that there was a definitive prohibition against use. Such a law was needed, he suggested: “I cannot sufficiently emphasise that the Court’s inability to go beyond this statement of the situation can in no way be interpreted to mean that it is leaving the door ajar to recognition of the legality of the threat or use of nuclear weapons.”<sup>173</sup>

The nuclear weapon states have tended to downplay the significance of the ICJ advice, maintaining that it is not legally binding. Though an advisory opinion from the ICJ is not technically binding, it carries the authority of the UN’s principal judicial body. Somewhat paradoxically, while dismissing the ICJ’s advisory opinion, some spokespeople have also evoked this split judgment in order to argue that the ICJ had not ruled out the legality of using nuclear weapons in an extreme circumstance of self-defence. For example, in 1998, Her Majesty’s Government argued: “The ICJ opinion does not require a change in the United Kingdom’s *entirely defensive* deterrence policy. We would only ever consider the use of nuclear weapons in the extreme circumstance of self-defence, which includes the defence of our NATO allies.”<sup>174</sup>

Dr Steven Haines, who became an international relations lecturer after 30 years in the Royal Navy, noted, “possession and use are linked, in the sense that the very fact of possession creates the inherent threat – and the specific threat is only meaningful because it is backed up by the possession of a system actually capable of delivering the destructive power being threatened.”<sup>175</sup>

171 Ibid. para 92.

172 Ibid. para 105, point 2E.

173 Ibid. Declaration by President of the Court, Judge Bedjaoui, para 11, in reference to para 105, point 2E of the ruling.

174 Baroness Symons of Vernham Dean, Parliamentary Under Secretary of State for Foreign and Commonwealth Affairs, House of Lords, Hansard, 26 January 1998, Cols 7-8. [emphasis added] The UK generally accepts the authority of the ICJ.

175 Steven Haines, ‘Is Britain’s continued possession and threatened use of nuclear weapons illegal?’ in *The Future of Britain’s Nuclear Weapons*, op. cit., p 49.



Although Haines took the view that the possession of nuclear weapons is not contrary to international law, he argued that “the nuclear weapon states are under an obligation to move towards disarmament”. Even so, if another state were to breach the law of armed conflict by using nuclear weapons against the UK, Haines considered that “Britain might legitimately use nuclear weapons in the context of belligerent reprisals in order to persuade its opponent to comply with the law.”<sup>176</sup>

Nicholas Grief, a law professor and practising expert in international law, has taken a very different view. Arguing that “attacks on civilians by way of reprisals can never be

justified”, Grief concluded, “if the use of force in a given case is illegal for whatever reason, the threat to use such force is likewise illegal”.<sup>177</sup> He further noted that the ICJ had accepted “that ‘a signalled intention to use force if certain events occur’ constitutes a ‘threat’.”<sup>178</sup> The Court took the view that “possession of nuclear weapons may justify an inference of preparedness to use them, and held that a declared readiness to use force must be a use of force that is compatible not only with the [UN] Charter but also with international humanitarian law.”<sup>179</sup>

Article 2(4) of the UN Charter requires that states should not threaten or use force against other states “in any... manner inconsistent with the Purposes of the United Nations”.<sup>180</sup> The ICJ has stated that “A threat or use of force by means of nuclear weapons that is contrary to Article 2, paragraph 4, of the United Nations Charter and that fails to meet all the requirements of Article 51, is unlawful”.<sup>181</sup> And the right of self-defence under Article 51 of the UN Charter would have to be consistent with the conditions of necessity and proportionality, and comply with the law of armed conflict, especially international humanitarian law.<sup>182</sup>

With regard to the question of nuclear weapons being threatened or used for belligerent reprisals, Moxley noted, “While one can conjure up reprisals comparable to the limited strikes at remote sea or desert targets that were the basis for the US defence of nuclear weapons before the ICJ, such legalistic exercises are unrealistic in the real world context of the types of circumstances in which these weapons might be used and their potential effects, and cannot reasonably serve as the basis for the evaluation of lawfulness.”<sup>183</sup>

To conclude, despite the resistance of judges from some of the nuclear weapon states, including Britain, the text and tenor of the 1996 advisory opinion – when considered in its entirety – show the Court’s strong inclination towards the view that nuclear weapon use would be illegal in all circumstances. In particular, the Court recognised “the unique characteristics of nuclear weapons, and in particular their destructive capacity, their capacity to cause untold human suffering and their ability to cause damage to generations to come...” and stated that the use of such weapons

176 Haines, *Ibid.* p 55.

177 Professor Nick Grief, ‘Is Britain’s continued possession and threatened use of nuclear weapons illegal?’ in *Ibid.* p 43.

178 *Ibid.* p 41, quoting from *Legality of the Threat or Use of Nuclear Weapons*, ICJ Reports July 8, 1996, p 226 para 47.

179 *Ibid.* p 41, with reference to ICJ Report para 48.

180 Charter of the United Nations, Chapter I, Purposes and Principles, Article 2.4. Can be found at: <http://www.un.org/aboutun/charter/chapter1.htm>

181 *Legality of the Threat or Use of Nuclear Weapons*, ICJ Report, *op. cit.*, para. 105, point 2C.

182 This point was made by both Dr Haines and Professor Grief, though they adduced different conclusions.

183 Moxley, *op. cit.* Because of the blast, heat and radiation effects, the use of nuclear weapons in any realistic military scenario – even the use of relatively low yield, earth-penetrating nuclear weapons against underground targets – would vent massive quantities of highly irradiated material in a mushroom cloud that would contaminate the surrounding environment and cause substantial civilian casualties.

“seems scarcely reconcilable” with respect for the law of armed conflict, “at the heart of which is the overriding consideration of humanity”.<sup>184</sup>

The NPT states themselves then built on the Court’s advice when they elucidated and agreed specific steps towards compliance with Article VI in decisions taken at the NPT Review Conferences of 1995 (when the treaty was indefinitely extended by consensus) and 2000 (also by consensus).

These decisions make Article VI much more than just “a consideration weighing against renewal”, as Sir Michael Quinlan suggested. As Singh and Chinkin noted, “The linkage between the principles of non-proliferation and the obligation to negotiate towards disarmament shown by the negotiation history... indicate that Article VI is a provision ‘*essential to the accomplishment of the object or purpose of the treaty.*’”<sup>185</sup>

Singh and Chinkin concluded that “The non-nuclear weapon states required commitments from the nuclear weapon states as part of their willingness to accept non-nuclear status under the NPT, and failure to comply with article VI thus, in our view, constitutes material breach.”<sup>186</sup> Under the VCLT, article 60, “*A material breach of a treaty, for the purposes of this article, consists in: (a) a repudiation of the treaty not sanctioned by the present Convention; or (b) the violation of a provision essential to the accomplishment of the object or purpose of the treaty.*”<sup>187</sup>

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184 ICJ Report, op. cit., paras 36 and 95.

185 Rabinder Singh QC and Professor Christine Chinkin, *The Maintenance and Possible Replacement of the Trident Nuclear Missile System*, op. cit.

186 Ibid.

187 Ibid.



## Chapter 5 | The Need for a Comprehensive Review

The opportunities for building a more consensual world order to foster common security at the end of the Cold War were squandered. Near-sighted political and industrial leaders sought short-term advantage over longer-term mutual gains, and thereby hastened the disintegration of fragile states, releasing large quantities of arms into communities that were already under stress from poverty, inadequate social infrastructure and destabilising domestic rivalries. We cannot rewrite history, but we can do our utmost to avoid repeating its mistakes.

A number of prominent erstwhile advocates of nuclear deterrence in the Cold War seem to agree that on the basis of the current and foreseeable security conditions, “if Britain did not possess nuclear weapons already, we would not attempt to develop them”.<sup>188</sup> Inertia and default are not good enough reasons for replacing Trident. There is a real risk that Britain’s long-term security interests are being undermined by the continuing importance attached to the high-level maintenance, modernisation and doctrine for the possible use of nuclear weapons. A growing number of experts and public figures have raised concerns that the present direction of UK nuclear and non-proliferation policies are hampering the government’s ability to influence international policies in ways that will reduce nuclear dangers.

As noted by Professor Booth, “those who appeal to history as proof of the prudence of nuclear weapons, or to the need for nuclear weapons as a hedge against the vagaries of human nature need to be aware of two logical implications. First, if human nature is so flawed, then surely nuclear disaster is at some time inevitable. If it is: would it not then be wise to press for immediate abolition, and take the risks that go with it, rather than risk the great catastrophe of an inevitable nuclear conflagration? Second, if history shows that nuclear deterrence was the cause of the ‘long peace’ since 1945, should we not help disseminate nuclear capabilities globally, in order to spread their peaceful properties?”<sup>189</sup>

In this report, we have considered the pros and cons of a range of possible options, whilst recognising that some were higher on the MoD’s agenda than others. Three further questions need to be addressed before we conclude: costs, timelines and the decision-making process.

### Costs and opportunity costs

Although advocates of nuclear weapons during the Cold War felt that no price was too high to pay for ‘deterrence’, in the present debate it is clear that even for subscribers to the ‘insurance policy’ justification, cost is a factor.

In giving evidence to the Defence Committee, Sir Michael Quinlan said, “When we are dealing with something which is an insurance against a very unspecific, very distant set of possible circumstances, given that we cannot afford to cover every eventuality with utter certainty, one has to look at how much one is prepared to pay for that insurance... My own view is that there would be some costs that would be simply too much to pay for the insurance of staying in this business.”<sup>190</sup>

As discussed in Chapter 2, estimates for the cost of Trident replacement vary enormously, from £15 billion to £76 billion.<sup>191</sup> For any responsible decision to be made, the government needs to provide costings for capital and running expenses over the whole projected service life of the various options, as well as estimates for decommissioning and the environmental costs associated with maintaining the nuclear infrastructure.

188 Brian Wicker (ed), *Britain’s Bomb: What Next?* SCM Press, 2006, p 4.

189 Booth, op. cit. p 78.

190 House of Commons Defence Committee, HC 986, op. cit., Ev 9, Q36.

191 Richard Norton-Taylor, ‘New Trident system may cost £76bn, figures show’ *The Guardian*, September 21, 2006.

In addition to the financial costs of replacing Trident, it is important that the consequential opportunity costs be factored in. These may be indirect, in terms of the concentration of resources and effort that are spent on nuclear weapons rather than on dealing with other security issues. Military threats are essentially security challenges that were ignored or not adequately dealt with at a much earlier stage, so the opportunity costs of diverting resources to a weapon system of little or no relevance can be high.

In a recent House of Lords debate, it was noted that expenditure on a Trident replacement “might be equivalent to the sacrifice of some 100–130 new hospitals (capital costs only)”.<sup>192</sup> For the defence establishment, the opportunity costs may be rather more direct. Current operations in Iraq and Afghanistan are turning out to be more costly commitments, over a longer time frame, than was originally anticipated. Shortages of appropriate equipment have been a feature of both operations.

British troops are overstretched and put at mortal risk because of inadequate equipment, including lack of body armour. Following a visit to Iraq, James Arbuthnot MP, chair of the House of Commons Defence Committee raised concerns about this, commenting, “The number of helicopters there is tiny, and the number of vehicles is too small.”<sup>193</sup>

The Defence Committee raised concerns about practical capability shortfalls in a recent report on UK Operations in Iraq, published in August: “Long-term procurement projects are failing to deliver mission-critical capabilities on time. Capability gaps are opening up and these need to be met by the MoD as a matter of urgency, even if that means opting for interim solutions.”<sup>194</sup>

The Committee concluded: “The issues raised in this report give rise to a fundamental question: are our Armed Forces structured, trained and equipped to fulfil the role envisaged for them in the Strategic Defence Review and its successor policy documents? This is a question of very great importance, going to the heart of the Government’s defence policy. We believe this question needs to be addressed...”<sup>195</sup>

In addition to the wars in Afghanistan and Iraq, the defence budget is committed to a number of other costly and controversial major equipment programmes, including the Joint Strike Fighter, Type 45 frigates, aircraft carriers, and the Astute-class nuclear-powered submarines.

According to defence economist Professor Keith Hartley: “A combination of constant or falling defence budgets and rising input costs means that defence policy-makers and governments cannot avoid the need for difficult defence choices in an uncertain world.”<sup>196</sup>

Hartley concluded that any replacement of Trident would have an impact similar to the Typhoon programme in terms of the equipment budget. On the other hand, he argued, a decision not to replace Trident would free up resources for purchasing additional destroyers, more Astute submarines, additional A400M air-lifters and extra Joint Strike Fighters. Alternatively, the annual defence research and development (R&D) budget could be increased by over 25 per cent over a 20-year period.<sup>197</sup>

Clearly, if the replacement for Trident is funded from the existing defence budget, and there is no commensurate increase in that budget, it will have serious repercussions for other defence and conventional weapons programmes.

In a recent debate on the Armed Forces, former chief of the defence staff, Admiral Lord Boyce asked whether the Government could provide a reassurance “...that the money for our independent

192 House of Lords, Hansard, June 29, 2006, column 1368.

193 House of Commons, Hansard, June 22, 2006, column 1541. According to press reports, for example, UK ‘Snatch’ Land Rovers are “vulnerable to a new generation of Iranian-designed rocket grenades and roadside bombs”. Robert Fox, ‘Exhausted British troops to pull out of Afghan trouble spots’, *Evening Standard*, August 10, 2006.

194 House of Commons Defence Committee, *UK Operations in Iraq*, 13th Report, HC1241, August 10, 2006, para.88.

195 Ibid. para.89.

196 Keith Hartley, ‘The economics of UK nuclear weapons policy’, *International Affairs*, Vol 82, No. 4, 2006, The Royal Institute of International Affairs.

197 Ibid.

deterrent... will not be taken from the already under-funded future equipment programme? Were that to happen, another major programme would have to be cancelled to compensate. That in turn would seriously compromise, if not derail, the viability of our defence policy.”<sup>198</sup>

Similarly Lord Garden, a former Assistant Chief of the Defence Staff, questioned, “what assumptions have been made about the funding profile beyond 2010? Has the Ministry of Defence already allowed for the Trident replacement, or must this be found at the expense of other capabilities?”<sup>199</sup>

Answers to these questions from Defence Ministers were not forthcoming, but such concerns need to be properly addressed before any irrevocable decision is taken. If the price of maintaining a Trident submarine in the Atlantic Ocean is the avoidable loss of service personnel in theatre, we can expect to see more senior and retired officers openly questioning the government’s defence priorities.

## Why the rush?

The question of Britain’s nuclear future has come to the fore because Trident’s procurement cycle was 14 years, following a decision in 1980 to replace the Polaris system. The first submarine, HMS Vanguard, became operational in 1994, and the fourth, HMS Vengeance, entered operational service in February 2001. Without service life extension the government is acting on the basis that Trident will begin to be decommissioned around 2019-2026. It is on this basis – and to allow for a like-for-like renewal to be chosen – that the replacement decision was put onto the political agenda for this parliament. Other options may not require such a long ‘lead time’.

As noted earlier, though the Ministry of Defence cited the operational life of the present submarines as 25 years, a life expectancy of 30 years had previously been given, and even this is open to question. The Defence Committee suggested a timetable in which a decision on extending Trident’s service life might be required by 2010, with “a binding decision” on a nuclear follow-on by 2014.<sup>200</sup>

Extending the service life of the existing submarines could take up to ten years. The currently available estimates vary too much to be of use in decision-making, so it will be important to ascertain what the options for extension would entail and how many additional years of service might be expected. Note must also be taken of the Defence Committee’s warning that this option should not be used merely as a means of deferring the real decision.<sup>201</sup>

If, as Tim Hare suggests, all that needs to be done now is the commissioning of concept studies to prepare for decisions that may not need to be taken before 2014, then the British parliament should not be bounced into taking a premature decision, particularly if they are denied access to the relevant facts and figures.<sup>202</sup> In this event, however, it would not be acceptable for the government to continue with developments at AWE Aldermaston to equip it to design a nuclear warhead for a follow-on to Trident. This work should be suspended until an accountable political decision has been properly made.

## Take time for informed, public debate

The decision to replace the Polaris-Chevaline system with Trident was made in secret by a small Cabinet Committee comprising the Prime Minister, Mrs Thatcher, the Chancellor of the Exchequer, and the three Secretaries of State for Defence, Home Affairs, and Foreign and Commonwealth Affairs.

198 House of Lords, Hansard, June 29, 2006, column 1349.

199 House of Lords, Hansard, June 29, 2006, column 1368.

200 House of Commons Defence Committee, HC 986, op. cit., para 140.

201 Ibid., para 110.

202 See, for example, Hare, in *The Future of Britain’s Nuclear Weapons*, op. cit. pp 64-68.

The decision was then rubber stamped by the full Cabinet in July 1980. Mrs Thatcher ignored opposition from the navy, which considered Trident irrelevant to its operations and objected to being saddled with the costs.<sup>203</sup> At the time, acquiring Trident appeared to be Mrs Thatcher's personal crusade. According to the naval expert, Eric Grove, "Whatever the cost, the [Trident] system was so central to Prime Minister Thatcher's views of defence policy that it would stand or fall with her".<sup>204</sup>

More recently, in the early 2000s, whilst the government promised a public debate on American plans to upgrade the Fylingdales facility to provide tracking and targeting support for the controversial US missile defence programme, in practice it did everything that it could to circumvent democracy. Although the importance of Fylingdales for missile defence was apparent to all, for several years ministers dodged questions from the public and MPs, claiming that it was "premature"<sup>205</sup> to answer such questions as the government had not yet received a "specific proposal from the United States".<sup>206</sup>

The request from Washington was finally made public on December 17, 2002, just two days before the House of Commons rose for its Christmas recess. Within days of MPs returning, on January 15, 2003, Secretary of State for Defence Geoff Hoon announced that the government had already "come to the preliminary conclusion that the answer to the US request must be yes".<sup>207</sup>

All requests from MPs for a debate on missile defence and Fylingdales were refused, leading the Defence Committee to express its concerns thus:

*"[W]e deplore the manner in which the public debate on the issue of the upgrade has been handled by the Ministry of Defence. It has shown no respect for either the views of those affected locally by the decision or for the arguments of those opposed to the upgrade in principle. Despite the Secretary of State's unequivocal statement that he wanted the decision to be informed by public and parliamentary discussion, he has acted in a way that has effectively prevented such discussions. And he has offered no good reason for doing so."*<sup>208</sup>

The government exhibited a similar avoidance of public debate over the 2004 decision to renew the US-UK Mutual Defence Agreement, despite well-supported parliamentary motions raising concern about the nuclear cooperation pact. In rushing through this decision late in the year, the government ignored calls from MPs for a parliamentary debate, as well as legal advice from Matrix Chambers that questioned the legality of renewing the nuclear cooperation pact.

Even more is at stake with the decision over Britain's future nuclear policy, and once again there are fears that Mr Blair may try to push through a decision to replace Trident before there has been an informed public debate, and without a proper democratic decision-making process.

In view of expenditure already committed to up-grading the design capabilities at AWE Aldermaston, there is legitimate concern that the decision has in effect already been taken, in secret. The Defence Committee is right to warn that a series of decisions being taken now under the rubric of 'keeping options open' may amount – by default or intention – to a decision to hold on to nuclear weapons.

## The need for accountable decision-making

As the Defence Committee stated, "It is important that a decision of this magnitude is not taken by default. It should be made only after a full public debate. It must not be made by the government in secret."<sup>209</sup>

203 The First Sea Lord, Sir Henry Leach, famously dismissed Trident as "a cuckoo in the [naval] nest". See Eric J. Grove, *Vanguard to Trident: British Naval Policy since World War Two*, Bodley Head, 1987, especially pp 347-354.

204 *Ibid.* p 394.

205 House of Commons, Hansard, April 26, 2002, column 482W.

206 House of Commons, Hansard, October 24, 2001, column 273.

207 "Ministry of Defence updates Parliament on Missile Defence", Ministry of Defence Press Notice, January 15, 2003.

208 House of Commons Defence Committee, Report on Missile Defence, HC 290-I, January 29, 2003, emphasis in the original.

209 House of Commons Defence Committee HC 986, *op. cit.*, para 106

Furthermore, “a genuine and meaningful debate is only possible with the active participation of the Ministry of Defence. The public should know what decisions will be required, when they must be taken and implemented, and what factors are driving consideration of the issue now.”<sup>210</sup> We would go further: a decision of this importance requires the active participation not only of the MoD, but other ministries, particularly the Foreign and Commonwealth Office and Treasury.

It is axiomatic in a democracy that the relevant policymaking bodies should make available their assumptions, costings for various options under consideration, and any planning and costs already committed.

It is neither necessary nor desirable to rush the Trident decision through in haste. Instead, the government needs to undertake a comprehensive security and defence review that combines the perspectives of foreign affairs, defence, non-proliferation and international law. The review should analyse the roles assigned to nuclear weapons and the efficacy of concepts of nuclear deterrence and use in the post-9/11 security environment. It should include consideration of wider concepts of human security, as well as questions relating to safety and security of nuclear materials, components and facilities.

It is also important to recognise that effective decision-making on this issue requires not only the expertise of military, political, technical or financial practitioners, but also civil society. At the heart of the debate about British nuclear weapons is the question of Britain’s role in the world. This is a pre-eminently political question, and for this reason, the decision about the future of UK nuclear weapons needs to follow an open and well-informed public debate, encompassing all sections of our democracy.

## Public opinion

Public opinion polls are notoriously tricky instruments on which to base policy. The interpretations can be highly subjective and the results often depend on the emphasis or wording of the questions being asked.

In November 2005, John Reid claimed that two-thirds of the public consistently supported the proposition that Britain should “retain” nuclear weapons.<sup>211</sup> One week later, MORI conducted an opinion poll in which it posed a series of questions originally asked in an October 1955 Gallup poll about when UK nuclear weapons should be used. The results revealed that:

- Seven out of eight respondents – 87% – of the public (up from 77% in 1955) oppose “using the nuclear bomb against an enemy that does not possess it themselves”.
- Three in four – 77% – (up from 64% in 1955) oppose “using the nuclear bomb against an enemy that does possess it but is not using it”.
- Even if a country launched a nuclear strike against the UK only a slim majority (55%) of people today approve of the “use of the nuclear bomb” in response (down from 76% in 1955).<sup>212</sup>

When asked a simple question about whether the UK should replace its nuclear weapons or not, the results were close: 44% said they were in favour, with 46% against and 10% undecided. However, when the question was expanded to include information on the likely cost of replacing nuclear weapons, the number willing to support Trident replacement fell significantly, with only 33% now in favour; a majority of 54% opposed, with 13% left undecided.<sup>213</sup>

The essential point here is that public support for retaining nuclear weapons during the Cold War cannot necessarily be translated into support for procuring a replacement for Trident for future

210 See *Ibid.*, p 3.

211 House of Commons Defence Committee, General Evidence Session with the Secretary of State for Defence, Uncorrected transcript of oral evidence taken on November 18, 2005, published as HC 556-i of Session 2005-2006, January 17, 2006.

212 ‘Poll reveals majority oppose building of new UK nuclear weapon’, *Greenpeace Press Release*, October 25, 2005, <http://www.greenpeace.org.uk/>.

213 *Ibid.*



years. In addition, the MoD's own opinion polls have found that younger people are more likely to support nuclear disarmament.<sup>214</sup> This is not surprising, since for the younger generation, climate change is the most serious threat to their security, and Britain's possession of nuclear weapons just looks like an anachronism.

The findings of the MORI poll cited above contrast strongly with the government position that Britain must retain nuclear weapons as long as others continue to possess them, as well as its refusal to rule out the first use of nuclear weapons. The findings indicate that public opinion is gradually moving towards greater support for nuclear disarmament. This suggests that the Labour leadership's fear that a decision not to replace Trident would prove unpopular with the electorate may be misplaced. The key will be how such a decision is represented and undertaken.

## Old assumptions need to be re-examined

The question comes down to this: will Britain unilaterally acquire a new generation of nuclear weapons or become a more effective leader in multilateral efforts to devalue nuclear weapons and strengthen the non-proliferation regime?

In June 2005, the Secretary of State for Defence John Reid assured MPs that concerning the question of Trident replacement, "anything we do in future will be fully consistent with our obligations under the NPT."<sup>215</sup> He then elucidated: "if we replace the existing system with a massive increase in our capability, that may not be compatible; if we reduce capability, that may well be compatible."<sup>216</sup>

This either misunderstands or misrepresents Britain's commitments under the NPT, and flies in the face of the expectations of the non-nuclear weapon States Parties, comprising more than 180 countries. Britain's obligations and undertakings under the NPT are not just to pursue nuclear *reductions*, but to achieve the total elimination of the nuclear arsenal. Hence, as Matrix Chambers advised, a decision to commit to a new generation and a further fifty years or more of nuclear weapons would be in breach of the NPT.<sup>217</sup>

Underlying the case for retaining nuclear weapons is the old fear of Britain being left "naked" in international relations and vulnerable in defence. One does not need to share these images to recognise their potency. But how real is the risk that Britain would become more isolated or vulnerable if it gave up nuclear weapons and focussed resources on other means of providing security and deterrence?

South Africa's decision to get rid of its nuclear weapons and become a non-nuclear state in 1992 was part of a process of moving away from its isolation. Significantly, the post-apartheid government and South African diplomats used their unilateral decision to renounce nuclear weapons to strengthen and influence the multilateral non-proliferation regime. It was South Africa that put on the table a set of principles and objectives for nuclear disarmament and non-proliferation to be adopted at the same time as the NPT was indefinitely extended in 1995. South Africa also took the initiative as part of the New Agenda Coalition to pressure the nuclear weapon states at the NPT Review Conference in 2000 to agree to more explicit nuclear disarmament undertakings, the 'thirteen steps', described earlier.

New thinking is needed for how Britain can contribute to diminishing proliferation incentives and strengthening the non-proliferation regime. For this reason, we advocate that a comprehensive security and defence review be undertaken. This needs to go further than the 1998 strategic defence review, with recognition that the question of Trident replacement impinges on foreign relations, non-proliferation and international law, as well as defence. As before, it should include consultations with civil society experts and representatives, as well as with government ministries, officials and the armed forces.

214 BMRB International, 'Strategic Defence Review: Omnibus Survey Report', Prepared for the Central Office of Information on behalf of the Ministry of Defence, July 1998.

215 House of Commons, *Hansard*, June 6, 2005, column 986.

216 *Ibid.* column 987.

217 Rabiner Singh QC and Professor Christine Chinkin, *The Maintenance and Possible Replacement of the Trident Nuclear Missile System*, op. cit..

## Conclusion

The Trident decision embodies both an opportunity and a responsibility to examine Britain's security needs and debate our role in the world for the 21st century. At a time when the non-proliferation regime is under heavy pressure, Britain has a historic chance to provide leadership and promote more effective strategies to enhance the non-proliferation regime's credibility and reduce nuclear threats worldwide.

In this report, we have analysed the changes in the security and legal environment since Britain initially decided to procure Trident back in 1980. We have considered the assumptions underpinning the current debate on nuclear policy and outlined the options for replacing Trident.

Whilst sharing the government's concerns about proliferation, we take a different view of the relative emphasis that should be placed on the various elements of the threats facing Britain, and specifically in relation to the nuclear threat. We argue that more needs to be done to support and develop the multilateral treaties and instruments that exist to prevent the acquisition and spread of nuclear weapons, and conclude that preventing the development of any further nuclear weapons is an integral part of a successful non-proliferation policy.

If managed effectively, denuclearising our defence policy will make Britain more secure rather than less. But the conditions for sustainable non-proliferation will not materialise by themselves, particularly if some states continue to advertise nuclear weapons as valuable assets. Instead of carrying on nuclear business as usual, Britain should seize the opportunity to show the way and help to *create* the conditions for the global elimination of nuclear weapons, thereby reducing nuclear dangers and influencing the future direction of the nuclear non-proliferation regime.

## Appendix 1 | Nuclear Doctrine: Some Considerations

Questions are frequently raised concerning the role played by Britain's nuclear weapons, where they are targeted and who they are intended to deter. The British government maintains a long tradition of secrecy in this area, stating only that its current operating posture is that the submarines' missiles "will not be targeted".<sup>218</sup> Nonetheless targets can be quickly restored if the government decides that this has become necessary.

### Harmonising with US and NATO nuclear doctrine

Britain's Trident submarines are assigned to NATO to be used for the defence of the Alliance "except where the UK government may decide that supreme national interests are at stake".<sup>219</sup> The Alliance's nuclear plans are maintained by NATO's Supreme Allied Commander Europe (SACEUR). The Alliance's strategic nuclear forces include US and British submarine-launched ballistic missiles (SLBM) assigned to NATO. In addition, US-owned tactical nuclear weapons are still deployed at US bases in several European countries, including Britain.

The UK's Trident patrols are co-ordinated with Trident-armed submarines from the US Atlantic Fleet. US submarines armed with Trident SLBMs and cruise missiles visit Britain's Faslane base, and the UK uses America's naval base at Kings Bay, Georgia, including for Trident missile tests. Although British Trident missiles (identical to US missiles and held in a common pool at Kings Bay) have onboard guidance systems, Britain is also believed to make use of the US satellite-based global positioning system, GPS, for greater precision in navigation. Britain also uses US intelligence data for targeting purposes, and closely co-ordinates with the United States, bilaterally and through NATO's Nuclear Planning Group.

With this high level of collaboration, it comes as no surprise that UK nuclear policy is closely harmonised with that of the US and NATO. There is far greater openness of sources and information in the United States concerning nuclear doctrine and policy, which in Britain are considered restricted information under the Official Secrets legislation. Although there are differences of emphasis, US nuclear doctrine therefore provides the best clues as to the direction of British nuclear doctrine.

### Bush doctrine blurs the nuclear-conventional threshold

The Bush Administration published a Nuclear Posture Review (NPR) in 2001 that revamped the US strategic triad. During the Cold War, this traditionally covered nuclear forces based on land, at sea and in the air. The new strategic triad envisaged:

- Offensive strike systems (both nuclear and non-nuclear)
- Defences (both 'active' – missile defences – and 'passive' i.e. homeland defence)
- Capability-based planning, described as "a revitalised defence infrastructure that will provide new capabilities in a timely fashion to meet emerging threats"<sup>220</sup>

218 The Strategic Defence Review, Ministry of Defence, Cm 3999, July 1998.

219 "...the United Kingdom Trident II force will be assigned to the North Atlantic Treaty Organisation; and except where the United Kingdom Government may decide that supreme national interests are at stake, this... force will be used for the purposes of international defence of the Western alliance in all circumstance." Prime Minister Margaret Thatcher, cited in Freedom of Information request about the UK Nuclear Deterrent, answered by Directorate of Chemical, Biological, Radiological and Nuclear Policy – Assistant Director (Deterrence Policy), MoD, Reference 21-06-2005-094719-001, 19 July 2005. Can be found at: [http://64.233.179.104/search?q=cache:IJi5z7sn\\_7wj:www.mod.uk/linked\\_files/publications/foi/rr/nuclear190705.pdf+UK+nuclear+weapons+assigned+to+nato&hl=en&gl=be&ct=clnk&cd=2](http://64.233.179.104/search?q=cache:IJi5z7sn_7wj:www.mod.uk/linked_files/publications/foi/rr/nuclear190705.pdf+UK+nuclear+weapons+assigned+to+nato&hl=en&gl=be&ct=clnk&cd=2)

220 Donald Rumsfeld, in his cover letter accompanying transmission of the classified NPR to Congress, January 8, 2002.

The new approach was reaffirmed in the 2006 Quadrennial Defense Review (QDR), which underlines that,

*“consistent with the New Triad priorities developed during the 2001 Nuclear Posture Review the force will include a wider range of non-kinetic and conventional strike capabilities, while maintaining a robust nuclear deterrent, which remains a keystone of U.S. national power.”*<sup>221</sup>

Similarly, the 2006 National Security Strategy, states,

*“Safe, credible, and reliable nuclear forces continue to play a critical role. We are strengthening deterrence by developing a New Triad composed of offensive strike systems (both nuclear and improved conventional capabilities); active and passive defenses, including missile defenses; and a responsive infrastructure, all bound together by enhanced command and control, planning, and intelligence systems.”*<sup>222</sup>

The National Security Strategy envisages a role for this new triad against both states and non-state actors, noting:

*“Both offenses and defenses are necessary to deter state and non-state actors, through denial of the objectives of their attacks and, if necessary, responding with overwhelming force.”*<sup>223</sup>

The QDR advocates a more flexible approach to deterrence aimed at advanced military competitors, regional WMD states, as well as non-state terrorist networks:

*“The future force will provide a fully balanced, tailored capability to deter both state and non-state threats – including WMD employment, terrorist attacks in the physical and information domains, and opportunistic aggression – while assuring allies and dissuading potential competitors.”*<sup>224</sup>

In accordance with the new approach, strategic forces are no longer to be regarded as solely nuclear. The Bush administration has presented this upgrading of the strategic role of non-nuclear weapons as a downgrading of the role of nuclear weapons. It has therefore listed this policy change among the actions undertaken in compliance with its NPT commitments under Article VI.

Concerns have been raised, however, that whilst one objective according to the QDR is “the evolution to a smaller” nuclear infrastructure, the stated aim of that infrastructure is to be more “responsive” in future. The danger of this shift is that the threshold between the use of nuclear and non-nuclear weapons is being blurred and lowered, paving the way for the possible use of ‘smaller’ nuclear weapons in a ‘tactical’ role.

One way in which the nuclear/conventional threshold may be blurred is the Prompt Global Strike (PGS) capability emphasised in the QDR, with the stated objective of attacking “fixed, hard and deeply buried, mobile and re-locatable targets with improved accuracy anywhere in the world”.<sup>225</sup> PGS is envisaged as a conventional missile-delivered capability, entailing the conversion of previously nuclear-armed US Trident SLBMs to deliver precision-guided conventional warheads anywhere in the world within 60 minutes, utilising the speed, accuracy and survivability of the Trident systems.<sup>226</sup>

The initial phase of the ‘Global Strike’ project was intended to include a \$500 million programme to modify 24 of the US Navy’s Trident II missiles to carry up to four conventional warheads. The Pentagon wanted some conventionally-armed missiles to be carried on all Trident submarines, but it has run into political and strategic difficulties. Concerns were raised in Congress, which

221 *Quadrennial Defense Review Report*, US Department of Defense, February 6, 2006.

222 *The National Security Strategy*, Chapter V, The White House, released March 16, 2006.

223 NSS, *Ibid.*

224 QDR, *op. cit.*

225 QDR, *Ibid.*

226 Matt Bille and Major Rusty Lorenz, *Requirements for a Conventional Prompt Global Strike Capability*, presentation to conference, May 2001, <http://www.dtic.mil/ndia/2001missiles/bille.pdf>

subsequently cut the funding request in Bush's 2007 budget to enable only concept studies to be undertaken at this stage. While some welcomed the idea of substituting conventional warheads for nuclear, others raised the spectre of confused signals, risking "inadvertent nuclear confrontation". Concerns were also expressed about the implications of increasing the utility and attractiveness of ballistic missiles for conventional warfare, likely to cause "other nations [to] adopt the same logic".<sup>227</sup>

The targeting policy envisaged in the NPR would further erode distinctions between nuclear and conventional doctrine. In this, nuclear weapons are intended to be employed:

- Against targets able to withstand non-nuclear attack;
- In retaliation for the use of nuclear, biological, or chemical weapons; or
- "In the event of surprising military developments", which is understood to extend to preventive or pre-emptive strikes.<sup>228</sup>

Despite US Security Assurances to non-nuclear states, represented in UN Security Council resolution 984 (1995), the 2006 National Security Strategy underlines the possibility of pre-emption, stating, "If necessary, however, under long-standing principles of self defense, we do not rule out the use of force before attacks occur, even if uncertainty remains as to the time and place of the enemy's attack."<sup>229</sup>

First there is the question of who could be justifiably targeted and by what. If it is a country that harbours terrorist cells, then Finsbury Park in London or the port of Hamburg would appear as rational targets as Kabul, Tehran or Baghdad. Such pre-emptive strikes may be carried out with sophisticated RMA precision armaments: as Israel's recent war on Lebanon has demonstrated, these will not necessarily destroy a militia, guerrilla or terrorist force, but will disproportionately kill civilians. Recent experience indicates that pre-emptive attacks that harm civilians will prove counter-productive. Any proposed use of nuclear weapons for this purpose would likewise be self-defeating in broader security and political terms.

## Targeting nuclear weapons

NATO nuclear strategy is based on deterrence and includes as part of nuclear strike planning a range of "high value targets". These are civilian and commercial, as well as military assets, which planners assess that a potential adversary would not want to risk. Other targets may include "war fighting" targets such as military forces and command and control facilities that NATO would seek to destroy to achieve a certain military effect in a war.

Though most of the relevant documents relating to British and NATO nuclear targeting are classified, documentation has been obtained through the US Freedom of Information Act which show a wide range of nuclear targets on the territory of potential enemies. Since the targeting for Trident will be integrated with that of the United States, consideration of the US Doctrine for Joint Nuclear Operations, which was in effect until a controversial revision was disclosed in September 2005,<sup>230</sup> gives some insight into the kind of targets Trident might be expected to destroy if required.

US and NATO nuclear doctrine are now based on "adaptive planning" – the "ability to respond to new targets and changing priorities before or during the execution of strategic nuclear

227 Michael Gordon, "Pentagon Seeks Nonnuclear Tip for Sub Missiles", *New York Times*, May 29, 2006.

228 'Nuclear Posture Review: Excerpts', submitted to Congress on December 31, 2001, January 8, 2002, <http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm>.

229 NSS, op. cit.

230 *Doctrine for Joint Nuclear Operations*, US Joint Chiefs of Staff, Joint Publication 3-12, March 15, 2005. Available at: <http://www.acronym.org.uk/docs/0503/usdoctrine.pdf>. This draft US nuclear doctrine is the fourth in a series of similar documents that were first published in 1993. The draft Doctrine was withdrawn after an article by Hans M. Kristensen published in *Arms Control Today* revealed that the revised doctrine included options for preemptive nuclear strikes. Text of the draft revision and all the other Joint Doctrine documents, along with descriptions of their significance can be found at <http://www.nukestrat.com/us/jcs/jp.htm>.



operations.”<sup>231</sup> Targets are not necessarily military installations, but may also include “political” targets. As the draft US nuclear doctrine states, “The net result of target development is to produce a target nomination list that identifies appropriate elements within an adversary’s power base (e.g., forces, infrastructure, and political support) for attack.”<sup>232</sup>

The draft US nuclear doctrine envisages four main roles for nuclear weapons:

- Assuring allies and friends of the US steadfastness of purpose and its capability to fulfil its security commitment;
- Dissuading adversaries from undertaking programmes or operations that could threaten US interests or those of allies and friends;
- Deterring aggression and coercion by deploying forward the capacity to swiftly defeat attacks and imposing severe penalties for aggression on an adversary’s military capability and supporting infrastructure; and
- Decisively defeating an adversary if deterrence fails.<sup>233</sup>

In order to fulfil these roles the draft doctrine identifies a number of envisaged uses, including:

- (a) An adversary using or intending to use WMD against US, multinational, or alliance forces or civilian populations.
- (b) Imminent attack from adversary biological weapons requiring nuclear weapons effects to safely destroy.
- (c) Attacks on adversary installations including WMD, deep, hardened bunkers containing chemical or biological weapons or the C2 [command and control] infrastructure required for the adversary to execute a WMD attack against the United States or its friends and allies.
- (d) To counter potentially overwhelming adversary conventional forces, including mobile and area targets (troop concentration).
- (e) For rapid and favourable war termination on US terms.
- (f) To ensure success of US and multinational operations.
- (g) To demonstrate US intent and capability to use nuclear weapons to deter adversary use of WMD.
- (h) To respond to adversary-supplied WMD use by surrogates against US and multinational forces or civilian populations.<sup>234</sup>

Potential targets include:

1. WMD, associated delivery systems, C2, production, and logistic support units.
2. Ground combat units, associated C2, and support units.
3. Air defence facilities and support installations.
4. Naval installations, combat vessels, associated support facilities, and C2 capabilities.
5. Non-state actors (their facilities and operation centers that possess WMD).
6. Nuclear storage, non-nuclear storage, and hardened ICBM launch facilities.
7. Political and military C2.<sup>235</sup>

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<sup>231</sup> JNO, *Ibid.*

<sup>232</sup> JNO, *Ibid.*

<sup>233</sup> JNO, *Ibid.*

<sup>234</sup> JNO, *Ibid.*

<sup>235</sup> JNO, *Ibid.*

The draft nuclear doctrine states that “no customary or conventional international law prohibits nations from employing nuclear weapons in armed conflict”. However, nuclear weapons used against almost all the identified targets would result in devastation and loss of life for large numbers of non-combatants and significant environmental and health damage for many more. In almost all cases it would be impossible to distinguish between civilian and military targets and even relatively small-sized nuclear explosions would result in considerable areas becoming radioactively contaminated. It would be impossible to have such targets and comply with international law, which prohibits the indiscriminate killing and maiming of civilians.

Documentation from US Strategic Command refers to nuclear weapons as the “capability to create a fear of ‘national extinction’”.<sup>236</sup> Moreover, referring explicitly to Iraq and North Korea:

*“should we ever fail to deter such an aggressor, we must make good on our deterrent statement in such a convincing way that the message to others will be so immediately discernible as to bolster deterrence thereafter”*.<sup>237</sup>

This policy amounts to punishment in order to deter others, which is also contrary to international law and well outside the only possible use the ICJ advisory opinion did not rule out i.e. when the very survival of a state is at stake. Considered altogether, it is clear that US doctrine, strategy and targeting go well beyond deterrence into the area of nuclear war fighting.

Any use of nuclear weapons for pre-emption or even in response to a terrorist attack – however bad – would almost certainly be counterproductive. Whatever the actual size and yield of the warhead, crossing the nuclear threshold for pre-emption or retaliation would surely destroy the user’s moral authority and fragment any international anti-terrorist coalition. It would no doubt result in the deaths of many more innocent people, and so transfer international opprobrium from the original perpetrators to the nuclear weapon user. Since the consequences of a policy of retaliation are indefensible and highly counter-productive – not least by creating many new converts to the terrorists’ cause – the threat to do so lacks rationality. Indeed, provoking a disproportionate or nuclear response may well be calculated as part of a terrorist game plan. Such targeting doctrine therefore lacks the credibility necessary for the nuclear weapon threat to work effectively as a deterrent.

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236 US Strategic Command, ‘Essentials of Post-Cold War Deterrence,’ [n.d.] probably April 1995, pp. 3, 4. Partially declassified and released under the Freedom of Information Act, cited in Hans M. Kristensen, ‘Nuclear Futures: Proliferation of Weapons of Mass Destruction and US Nuclear Strategy’, BASIC Research Report 98.2, 1998. The study was published by the Strategic Advisory Group (SAG), a Federal Advisory Committee that advises the leadership of STRATCOM on all major issues related to its mission. SAG plays a central role in defining the threat for STRATCOM and what capabilities it should deploy in response.

237 Ibid.



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All photos are courtesy of David Rumsey or Rebecca Johnson.

# Glossary of Acronyms and Abbreviations

<b>ALCM</b>	Air-Launched Cruise Missile
<b>ASMP</b>	Air-Sol Moyenne Portée
<b>AWE</b>	Atomic Weapons Establishment (Aldermaston and Burghfield)
<b>BDI</b>	Battle Damage Indication
<b>BMD</b>	Ballistic Missile Defence
<b>BTWC/BWC</b>	Biological and Toxin Weapons Convention
<b>C2</b>	Command and Control
<b>CBW</b>	Chemical and Biological Weapons/Warfare
<b>CCW</b>	Convention on Certain [Inhumane] Conventional Weapons
<b>CD</b>	Conference on Disarmament
<b>CSB</b>	Clyde Submarine Base
<b>CTBT</b>	Comprehensive Test Ban Treaty
<b>CTR</b>	Cooperative Threat Reduction
<b>CWC</b>	Chemical Weapons Convention
<b>DDA</b>	UN Department for Disarmament Affairs
<b>DOD</b>	US Department of Defense
<b>DOE</b>	US Department of Energy
<b>DSMAC</b>	Digital Scene Matching Area Correlation
<b>FASM</b>	Future Attack Submarine
<b>FCO</b>	Foreign and Commonwealth Office
<b>FM(C)T/Fissban</b>	Fissile Material (Cut-Off) Treaty/Fissile Materials Ban
<b>GSE</b>	Group of Scientific Experts (seismic verification of CTBT)
<b>GPS</b>	Global Positioning System
<b>IAEA</b>	International Atomic Energy Agency
<b>ICBM</b>	Intercontinental Ballistic Missile
<b>ICJ</b>	International Court of Justice
<b>INF Treaty</b>	Intermediate Nuclear Forces Treaty
<b>MIRV</b>	Multiple Independently Targetable Re-entry Vehicle
<b>MoD</b>	UK Ministry of Defence
<b>MP/MSP</b>	Member of Parliament/Member of the Scottish Parliament
<b>MTCR</b>	Missile Technology Control Regime
<b>MUFC</b>	Maritime Underwater Future Capability
<b>NAC</b>	New Agenda Coalition
<b>NATO</b>	North Atlantic Treaty Organisation
<b>NGO</b>	Non-Governmental Organisation
<b>NPR</b>	Nuclear Posture Review (US)
<b>NWFZ</b>	Nuclear-Weapon-Free Zone
<b>NPT</b>	Treaty on the Non-Proliferation of Nuclear Weapons
<b>NWS</b>	Nuclear Weapon State
<b>NNWS</b>	Non-Nuclear Weapon State
<b>OPCW</b>	Organisation for the Prohibition of Chemical Weapons
<b>P-5</b>	Permanent Five (members of the UN Security Council)
<b>PGS</b>	Prompt Global Strike
<b>PWR</b>	Pressurised Water Reactor
<b>QDR</b>	Quadrennial Defence Review
<b>RNAD</b>	Royal Navy Armaments Depot
<b>SLBM</b>	Submarine-Launched Ballistic Missile
<b>SLCM</b>	Submarine-Launched Cruise Missile
<b>SSBN</b>	Strategic Ballistic-Missile-carrying Nuclear-Powered Submarine
<b>SLIRBM</b>	Submarine-Launched Intermediate-Range Ballistic Missile
<b>SSN</b>	Nuclear Powered Attack Submarine
<b>TERCOM</b>	Terrain Contour Mapping Assisted Inertial Navigation System
<b>UN</b>	United Nations
<b>UNDC</b>	UN Disarmament Commission
<b>UNGA</b>	UN General Assembly
<b>UNMOVIC</b>	UN Monitoring, Verification and Inspection Commission (Iraq)
<b>UNSCOM</b>	UN Special Commission on Iraq
<b>WMD</b>	Weapons of Mass Destruction





“The threat of using nuclear weapons is not only illogical but incredible... the need for genuinely independent alternative and flexible non-nuclear deterrence is if anything greater.”

MICHAEL ANCRAM, FORMER SHADOW DEFENCE SECRETARY

“I firmly believe that our generation can build a world of ever-expanding development, security and human rights – a world ‘in larger freedom’. But I am equally aware that such a world could be put irrevocably beyond our reach by a nuclear catastrophe... As shock gave way to anger and despair, the leaders of every nation... would have to ask: How did it come to this? Is my conscience clear? Could I have done more to reduce the risk by strengthening the regime designed to do so?”

KOFI ANNAN, UN SECRETARY-GENERAL

“I do not think that anyone pretends that the independent nuclear deterrent is a defence against terrorism.”

TONY BLAIR, PRIME MINISTER

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