BASIC Trident Commission

Options for
the United Kingdom's
Nuclear Weapons Programme

Deterrence, Disarmament, Non-Proliferation and UK Trident

John Simpson

Discussion Paper 4 of the
BASIC Trident Commission

*An independent, cross-party commission
to examine UK nuclear weapons policy*

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BASIC is a small, transatlantic non-profit organization, working to build confidence in a shared, sustainable security agenda. We seek to test traditional concepts of nuclear deterrence as a security safeguard, and to bring policy-shapers together to focus on the collective security interests of non-proliferation and disarmament.

BASIC works in both nuclear weapon and non-nuclear weapon states, with a specific expert focus on the United Kingdom, United States, Europe and the Middle East. By bridging political and geographical divides, creating links between different perspectives in the nuclear weapons policy debate, and improving processes of negotiation and decision-making over nuclear weapons, we aim to address some of the strategic challenges posed by the changing global nuclear landscape.

BASIC is not a conventional advocacy organization. Nor is it a traditional think tank. What distinguishes BASIC from other organizations is our uniquely non-partisan, dialogue-based approach. We provide a discreet forum for constructive engagement between individuals from different geographical, political or cultural backgrounds on traditionally sensitive or complex issues. Our aim is to break through existing barriers, rather than reinforce entrenched thinking; to build understanding of different perspectives and identify commonalities; to use this to encourage fresh or alternative approaches; and to feed these findings back in to existing policy debate.

Our work aims to complement that of policy-makers, think-tanks, research organizations and advocacy groups.

For more information please visit our website: www.basicint.org

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Foreword from the Commission Co-Chairs

The last Labour Government reaffirmed its commitment to Britain's independent nuclear deterrent, based on Trident, at the end of 2006. The current coalition government, in its October 2010 Strategic Defence and Security Review (SDSR), maintained a commitment to this decision in principle but also announced some changes to UK nuclear doctrine, a reduction in the number of warheads and missiles possessed by the United Kingdom, and a delay to the timetable for the construction of the replacement submarines on which the Trident system depends.

The decision to delay the final judgment on replacing the submarines until after the next election has created a window of opportunity for further deliberation on UK nuclear weapons policy. The starting point for the BASIC Trident Commission is a belief that it is important to make the most of this opportunity.

We are living through a period of enormous change in international affairs with new powers and security threats emerging, increased nuclear proliferation risks, and growing pressure on economies and defence budgets in the West. Since the original 2006-07 decision on Trident renewal modest arms control progress has also been made by the United States and Russia and President Obama has set out a vision of a world free of nuclear weapons. The current government, more recently, has also initiated a further review of possible alternatives to Trident.

In our view, there is a strong case in this context for a fundamental, independent, review of UK nuclear weapons policy.

There is also a case, in the national interest, for lifting the issue of the United Kingdom's possession of nuclear weapons out of the day to day party political context and for thinking about it in a cross party forum. The BASIC Trident Commission is doing this by facilitating, hosting, and delivering a credible cross-party expert Commission to examine the issue in depth.

The Commission is focusing on three questions in particular, namely:

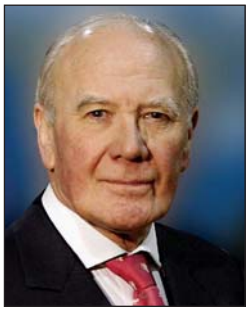
- Should the United Kingdom continue to be a nuclear weapons state?
- If so, is Trident the only or best option for delivering the deterrent?
- What more can and should the United Kingdom do to facilitate faster progress on global nuclear disarmament?

This discussion paper is the fourth in a series and outlines the emergence of Britain's nuclear deterrence posture and thinking over the last seventy years and how successive governments have sought to balance this with effective non-proliferation diplomacy. This goes to the heart of the challenge that the Trident Commission is seeking to address - how Britain can secure its own national security whilst strengthening global security through multilateral nuclear disarmament.

Professor Simpson's paper outlines the evolution of Britain's twin-track approach and asks whether it has a sustained future ahead.

The report is published in the name of the author, rather than in the name of the Commission as a whole, but it will feed into the Commission's deliberations and we hope it will stimulate wider discussions.

Malcolm Rifkind



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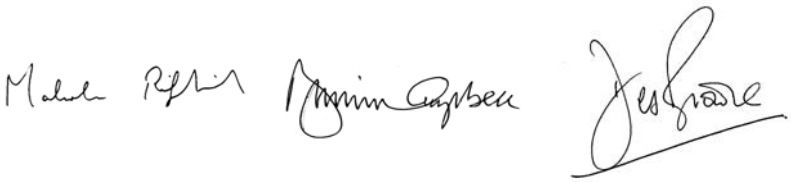

BASIC Trident Commission

Executive Summary

In 2016 the United Kingdom government is expected to take final decisions on building a new generation of nuclear missile submarines. These will impact on its nuclear deterrent postures, including their relationships with the United States and its commitments to NATO; the global efforts to achieve nuclear disarmament; and the nuclear non-proliferation regime. This briefing paper seeks to map out the historical evolution of UK policies in these issue areas; identify the legacy arrangements sustaining current policies and some of the transformative developments which challenge them; and discuss the apparent contradictory linkages between them.

In the deterrence areas, the paper highlights both the inertia underpinning current policy decisions and the conflicting role of uncertainty in both challenging their sustainability and justifying their continued relevance. There exists no "clear and present" nuclear threat comparable to the pre-1991 period; yet to withdraw from the current nuclear relationship with the United States and to change Britain's role within NATO would break from the past and move the country into unknown political and military territory. While the current plans to replace UK submarines have been characterised as "like-for-like", they involve reductions in the numbers of operational UK nuclear warheads and missiles. These reductions will not be completed until the mid-2020s, and any replacement ballistic missile force would already be operating close to a minimal nuclear deterrent capability.

The UK's current two-track deterrence / disarmament strategy may prove difficult to sustain.

While some will regard these reductions as shallow and dysfunctional, harming the goals of global nuclear disarmament and non-proliferation, others will see recent UK reduction policies to have been supportive of these two objectives. Its possession of nuclear weapons has traditionally made the UK a target for non-nuclear weapon states and NGOs, yet its status as a nuclear weapon state has given it a distinctive voice within that elite group to argue the case for a more positive collective attitude towards the need for nuclear disarmament and for global nuclear non-proliferation.

Maintaining this position beyond the next Non-Proliferation Treaty Review Conference in May 2015 has its challenges. The number of nuclear weapon states outside the Treaty has slowly increased, significant non-proliferation challenges are arising within the scope of the NPT, and many states lack faith in the nuclear weapon states' intentions to disarm. Moreover, the UK now has only a limited ability to make further significant numerical reductions to its "minimum deterrent" without changing its nuclear doctrine. Thus, unless it can develop and then persuade other states to accept additional metrics for showing good will and measuring progress towards global nuclear disarmament, its current two-track deterrence /disarmament strategy may prove difficult to sustain.

Prologue

Deterrence, Disarmament, Non-Proliferation and UK Trident [1]

In August 1945 the global political and military landscape changed, seemingly in a permanent manner. The atomic bombs dropped on Hiroshima and Nagasaki demonstrated that cities could henceforth be destroyed and mass casualties created by a single weapon. A year later Bernard Brodie cogently described the impact of this change in these terms: "Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them."[2] How to achieve this objective has been a focus of international debate throughout the seven decades since these words were published.

In simple terms, two sets of ideas have dominated the search. One has been founded on the assumption that while technological developments cannot be reversed or knowledge unlearned, the bulk of countries can be actively deterred from using (and acquiring) nuclear weapons through a small number of states possessing a nuclear deterrent capability. The second is that all nuclear weapons should be outlawed through global political action and states prevented from developing nuclear weapons through military enforcement, leaving the peaceful use of atomic technology to be regulated by international governance structures.

...in Europe at present, the willingness to invest in a nuclear deterrent force, particularly one at permanent readiness, comes under considerable strain.

More recently, the global importance of nuclear weapons has diminished in both the military thought and political relationships of some, if not all, of the five original nuclear powers: China, France, the Russian Federation, the United Kingdom and the United States. Major shifts have been taking place in their perceptions of the threats they pose to one another; their political and military priorities; their development and deployment of highly accurate and lethal conventional weaponry; and the emergence of new and diverse means of mass disruption in the hands of both states and non-state actors. One consequence has been the growth of new conceptual schisms as to the means of averting nuclear war, between on the one hand adherents to the old ways and technologies, and on the other the visionary proponents of transformative ideas and capabilities.

When there is no clear and present nuclear danger from either near or distant neighbours, as in Europe at present, the willingness to invest in a nuclear deterrent force, particularly one at permanent readiness, comes under considerable strain. As a consequence, UK nuclear policymakers now find themselves in the middle of a "battle of the paradigms" over the replacement of the country's Trident ballistic missile submarines. Above all, there seems to be no agreement on the key question(s) that they should be asking.

1 Throughout this paper, unreferenced information comes from informal conversations with diplomats and government officials, as well as from personal recollections.

2 Bernard Brodie, *The Absolute Weapon: Atomic Power and World Order,* New York: Harcourt, Brace and Company, 1946. This book laid down the fundamental elements for strategic thinking in the nuclear age.

As summed up by the late Jonathan Alford at the time of the first UK Trident debate 30 years ago, the traditional mode of thinking in this context has been to ignore the question "why replace?" and instead ask "why not?"[3] One reason that UK policymakers find it difficult to address the question "why replace?" is that replacement sustains a position and set of behaviours that are familiar and non-threatening, while non-replacement would lead them into unknown territory. Yet if the UK was a non-nuclear weapons state, it is inconceivable that it would now seek to become one.

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To appreciate the significance of the legacy generated by past actions, one has to first understand the strength of the bureaucratic inertia that leads to the question "why not?" being prioritised over the question "why replace?". This situation originated in the UK being one of the two states who were responsible for the original development of nuclear weapons.[4] Since then, the UK has slowly declined from being an imperial superpower with global defence commitments and responsibilities to its current position as a regional medium-sized power. One driver of this change has been economic: the need to reduce defence expenditure to balance the overall state budget.

Economic forces have not, however, prevented a key element of continuity during these seven decades: the UK's continued possession and deployment of a "minimum" nuclear deterrent force. However, this has been conceived in a very different way from that of its European neighbour France.[5] Despite the domestic political rhetoric of the UK having an "independent" nuclear deterrent, in practice the country's nuclear posture has been made possible through a range of collaborative nuclear weapon relationships with the US and is conditioned by the UK's related commitment to provide the European component of a US-led NATO strategic nuclear force.[6]

On a more mundane and practical level, the current debate over how to sustain the UK's SLBM capability arises not from its political context but from engineering realities. Nuclear missile submarines age, as do their propulsion systems, delivery systems and ordnance. Even if they are maintained to high standards, it becomes progressively more expensive and technically difficult to sustain those standards. The spare-part inventory runs down; materials needed to replace it are no longer easily available; the knowledge required to reproduce parts is lost; and risk assessments become increasingly problematic. At some point in time replacement, rather than maintenance and refurbishment, becomes the logical course of action for a range of compelling technical reasons. The current UK SLBM platforms and their equipment are inexorably moving towards this position, not least because its current operational mode, continuous at-sea deterrence (CASD), will become ever harder to sustain technically as refit schedules lengthen and refurbishment becomes more challenging

This study will focus upon three of the historical factors central to UK decision-making on nuclear issues since 1945: the evolution of the UK nuclear arsenal and its relationship with that of the US; the development of UK thinking on nuclear deterrence, including both its UK national and NATO aspects; and the UK's role in global nuclear arms control and disarmament negotiations and activities. Using its analysis of these factors, it will conclude by examining the policy options confronting the UK in the period through to the 2015 Non-Proliferation Treaty (NPT) Review Conference, and will consider how the UK might seek to resolve the logical contradictions some see as inherent in its traditional dual-track policy of maintaining and sustaining its current Trident nuclear arsenal, while seeking to persuade other nations not to acquire their own.

3 SURVIVAL, (London: IISS) July/August 1981,p 188.

4 The authoritative account of this period remains Margaret Gowing's Britain and Atomic Energy, 1939-1945 (London, Macmillan, 1964).

5 For an analysis of some of these differences, see Bruno Tertrais, Entente Nucléaire: Options for UK-French Nuclear Cooperation, Discussion Paper 3 of the BASIC Trident Commission, (London, BASIC:2012.)

6 For a wide-ranging assessment of this relationship, see Jenifer Mackby and Paul Cornish (eds) US-UK Nuclear Cooperation After 50 Years, (Washington: Center for Strategic and International Studies, 2008).

Part 1

The UK nuclear arsenal: a legacy from the past?

UK nuclear arsenal before Trident

The origins of the UK's entanglement with nuclear weapons go back over 70 years. At that point UK laboratory work on both nuclear energy and radioactive gases started to be integrated into ideas for a radioactive gas weapon, and then for an explosive super-bomb.[7] Wartime prioritisation and the benefits of pooling resources, alongside other factors, led to this knowledge and its implementation being passed to the US, with UK engineers and chemical explosives experts playing a supporting role in its Manhattan Project.[8] As a consequence the decisions to use the bombs dropped on Nagasaki and Hiroshima were, formally at least, joint US/UK ones.[9]

As the midwife of the bomb and a party to the decisions to use it, the UK expected that its nuclear collaboration with the US would continue into the post-war period. However, largely in ignorance of the history of wartime involvement and collaboration, in 1946 the US Congress passed its first Atomic Energy Act, which made further joint development illegal.[10] Despite this rebuff, a key political objective during the next 12 years of independent nuclear weapons research in the UK remained the restoration of the wartime working relationship.[11] Among other actions contributing to this objective, the government permitted operational US nuclear weapons and their delivery systems to be based in the UK from 1952 onwards.[12]

In addition, an expanding array of bilateral nuclear-related operational planning activities and exchanges of non-nuclear technology, including missile delivery systems, was implemented.[13] By 1957 the UK had also produced and deployed initial versions of its first nuclear weapon design for delivery by its own bomber force. This accelerated US–UK negotiations on joint strategic and tactical nuclear targeting of Warsaw Pact countries in the event of an all-out war.[14]

The detonations in May 1957 of the first UK megaton-class fission and thermonuclear devices, and the USSR's Sputnik satellite launch in October 1957, provided a final push to convince Congress that the US had a strategic interest in restarting nuclear weapons collaboration with the UK. In August 1958 and April 1959 new Mutual Defence Agreements (MDAs) were signed between the two countries, the latter expanding the scope of the former.[15] These were justified to Congress as a means of strengthening the two states' common defence through NATO, and helping the UK to sustain its conventional military capabilities. Information exchanges between the two states on nuclear weapon designs were again legitimised, as was trading in military-relevant nuclear materials and components. Purchases or transfers of complete nuclear bombs or missile warheads remained illegal under US legislation, but until the UK could manufacture its own thermonuclear weapons it was to have access to US nuclear bombs and warheads stored in the UK in the event of an all-out war.[16]

7 Gowing, *op cit* pp33-111.

8 *Ibid,* pp115- 199 and pp217-296. Also Richard G. Hewlett and Oscar E. Anderson, *The New World, 1939/1946, A History of the United States Atomic Energy Commission, Volume 1,*(Pennsylvania: Pennsylvania State University Press,1962) pp255-288.

9 Jacques E.C.Hymans, "Britain and Hiroshima", *Journal of Strategic Studies,* vol.35, no.5 (October 2009) pp 769-797.

10 Margaret Gowing, *Independence and Deterrence: Britain and Atomic Energy 1945-1952, Volume 1, Policy Making* (London: Macmillan, 1974) pp 87-123 and Hewlett and Anderson *op cit*. pp 477-481.

11 Gowing *Ibid* pp 241-450.

12 Ken Young, 'US "atomic capability" and the British forward bases in the early Cold War', Journal of Contemporary History, 42 (1), January 2007 pp 117-136.

13 "The Nuclear Dimensions" in Alan P. Dobson and Steve Marsh (Eds), *Anglo-American Relations: Contemporary Perspectives,* (Abingdon: Routledge, 2013) pp241-262

14 Ken Young, "A Most Special Relationship: The Origins of Anglo-American Nuclear Strike Planning", *Journal of Cold War Studies,* Vol,9, No 2, Spring 2007, pp 5-31.

15 Brian P. Jamison, "Completing the Transatlantic Nuclear Bridge: A UK View" in Jenifer Mackby and Paul Cornish (eds) *op cit* pp 48-59; John Simpson, *The Independent Nuclear State: The United States, Britain and the Military Atom,* (London: Macmillan, 1983) pp 111-141.

16 Richard Moore, Nuclear Illusion, *Nuclear Reality: Britain, the United States and Nuclear Weapons, 1958-1964* (Basingstoke: Palgrave, 2010) pp 95-116.

Initial aspirations to build US nuclear warhead designs in the UK ran into technical complications, and after the early 1960s all UK nuclear warheads were independent designs, albeit benefiting from access to US design information.[17] Some thought was given at Cabinet level to forgoing UK nuclear weapon production in favour of research collaboration and ongoing access to US weapons. Among other factors, UK defence commitments outside the NATO area, including decisions to station UK nuclear weapons in Cyprus and Malaya, precluded this.[18]

In 1962 the existing multi-faceted US/UK nuclear co-operation agreements were further expanded. The roots of this expansion lay in a 1960 agreement that the UK would purchase US Skybolt air-launched strategic missiles for carriage by its own Vulcan bombers, and equipped with British designed and manufactured nuclear warheads. When the Pentagon abandoned Skybolt development, purchase of US Polaris submarine-launched strategic missiles was offered as a replacement by US President John F. Kennedy and accepted by UK Prime Minister Harold Macmillan.[19] This enabled the UK to deploy a strategic nuclear deterrent system with much greater immunity to the effects of a pre-emptive nuclear strike than land- or air-based delivery systems.

"The lesson learned by the Royal Navy was that its deterrent force had to stay technically compatible with that of the US Navy"

The negotiation of this high-level political arrangement, known as the Nassau Agreement, in December 1962 was followed by the more technical April 1963 Polaris Sales Agreement. Nassau placed constraints on the UK's existing freedom to use its strategic forces independently, as henceforth a large number of its delivery systems and warheads were to be assigned for use in the first instance by NATO's Supreme Allied Commander Europe (SACEUR), a US officer.

However, when the UK Ministry of Defence (MoD) came to negotiate the details of the "assignment" of its future Polaris force to SACEUR in the later 1960s it was realised that the submarines, as opposed to the missiles, would have to be under the command of the Supreme Allied Commander Atlantic (SACLANT), a US Navy officer, as SACEUR had no direct authority over NATO naval forces and operating areas.[20]

The outcome was an arrangement whereby orders for use of the missiles were to be transmitted by SACEUR (after consulting the US president) to SACLANT's regional deputy. That person was always a UK naval officer, who would consult the UK Prime Minister before allowing any order to be given to the submarines to launch their missiles. These arrangements for a specific number of UK missiles and warheads to be assigned to SACEUR have continued to this day and enable a UK Prime Minister to block action demanded of him by SACEUR, though in practice the differences between SACEUR's targeting plans and any UK national ones remain obscure.

The operation of the MDA's nuclear information exchanges began to run into difficulties after 1963. Harold Macmillan had originally expected them to operate on the basis of US/UK technical interdependence. However new information to trade with the US was becoming scarce as the number of planned UK nuclear weapon types shrank from double figures in 1957 to a mere two designs by 1963. These were the Polaris missile warhead and the WE 177A and B gravity bombs.[21] This situation was exacerbated by the incoming Labour Government deciding in 1965 to suspend both UK development of new nuclear weapon designs and nuclear weapons testing in Nevada, and further aggravated by its 1967 decision to withdraw the UK's armed forces, including its nuclear ones, from all its land bases east of Suez.[22]

17 Richard Moore, "British Nuclear Warhead design 1958-66: How Much American help?", *Defence Studies*, vol.4, no.2 (Summer 2004).

18 Richard Moore, "Where Her Majesty's Nuclear Weapons Were", *Bulletin of the Atomic Scientists,* Jan/Feb 2001, Vol. 57, Issue 1,pp 58-61.

19 Richard Moore, *Nuclear Illusion, Nuclear Reality: Britain, the United States and Nuclear Weapons, 1958-1964,* (Basingstoke: Palgrave, 2010) pp166-193 and 227-239.

20 Kristan Stoddart, *Losing an Empire and Finding a Role: Britain, the USA, NATO and Nuclear weapons, 1964-70,* (Basingstoke: Palgrave 2012) pp121-128.

21 Frank Panton, "Governments, Scientists and the UK Nuclear Weapons Programme", in Jenifer Mackby and Paul Cornish (eds), *op cit,* p238-245.

22 Kristan Stoddart, *op cit,* pp130-131.

In parallel, US/UK intelligence operations were indicating that the USSR was moving ahead with the development and deployment of nuclear-armed missile defence systems that would pose a future threat to the technical credibility of the UK's Polaris strategic missiles, which re-entered the atmosphere at relatively slow speeds and low trajectories. This threat would only be relevant if the UK force was operating in a nominally independent national role: the numerically larger US force could saturate such defences, as could a joint US/UK one. Differing views on this technical issue emerged within government. The Royal Navy argued that so long as a missile submarine remained undetected and its missiles could be launched it would constitute an effective deterrent. Others in the MoD, however, held that a submarine-based deterrent could only be considered effective if the missiles were demonstratively capable of penetrating Soviet defences. For them, upgrading the penetrative capabilities of UK Polaris missile warheads and re-entry systems seemed the only way of sustaining Polaris's technical credibility in the national deterrent role, given that the UK Government had publicly rejected the option of purchasing the US successor missile, Poseidon, with its multiple independently targeted re-entry vehicles (MIRVs).[23]

Bolstered by Lord Kings Norton's report on the future of the then Atomic Weapons Research Establishment at Aldermaston, which had concluded that terminating future nuclear weapon development would offer few short-term financial advantages, design work slowly started on new UK warheads and penetration aids for the country's Polaris missiles.[24]8 The UK also built up a stockpile of advanced WE177 gravity bombs from 1966 onwards.[25] These actions ensured the continued operation of the MDA into the next decade, and opened the door to the decision in 1975 to develop and deploy the UK's new Chevaline re-entry system on its Polaris missiles to assist penetration of the continually evolving Soviet anti-missile defences. However, this came at a significant financial cost and occasioned considerable parliamentary criticism. The lesson learned by the Royal Navy was that its deterrent force had to stay technically compatible with that of the US Navy, even if this resulted in the UK's nuclear destructive capacity and operational warhead numbers increasing beyond the levels originally regarded as sufficient for deterrence purposes.[26]

Trident and UK reductions after the end of the Cold War

One result of this lesson was that in 1980, some years before Chevaline came into service, the US Government agreed that the UK could acquire new US missiles to carry in the four Vanguard-class submarines that the UK planned to have in service by the mid-1990s. These were to be significantly larger than their Polaris-equipped predecessors, to enable them to carry US Navy Trident C4 missiles. Two years later the model to be purchased was changed to the D5 to keep the Royal Navy in step with the US Navy. In a new interdependence arrangement, the UK's non-operational missiles were to be housed and upgraded in a common US/UK store on the US east coast.[27]

The decision to order the Trident D5 meant that concerns about the future ability of the UK deterrent force to penetrate Soviet missile defences were much reduced. The new missiles had a steeper flight path and higher re-entry speed than Polaris, as well as the ability for each to deliver its warheads on up to 12 different targets. This increased the number of warheads that could be carried by each UK ballistic missile submarine from the Polaris Chevaline system's 32 to a theoretical 192; the number of targets each submarine could hit from 16 to 192; and the potential stockpile of UK strategic missile warheads from about 140 to 576. Given that during the 1980s the UK appears to have possessed a stockpile of about 270 non-strategic WE177 gravity bombs, the switch to Trident implied a significant percentage increase in stockpile numbers and a related demand for new supplies of fissile and fusion materials. However, it was initially planned to carry no more than half the theoretical maximum load of live warheads in each operational Trident submarine. This would have meant procuring a total of 320 warheads if the UK was to continue to have one submarine continually at sea and be able to fulfil the national deterrence criterion of its complement of missiles being able to penetrate the emerging Moscow anti-missile defences.[28]

23 *Ibid,* pp 128-136.

24 *Ibid,* pp136-141.

25 John R.Walker, "British Nuclear weapon Stockpiles, 1953-1978", *RUSI Journal,* Oct 2011, Vol. 156, No. 5 , pp 66-72.

26 John Simpson, "British Nuclear Weapon Stockpiles, 1953-1978: A Commentary on technical and Political Drivers", *RUSI Journal,* October 2011, Vol.156, No5. pp74-83.

27 Tara Callahan and Mark Jansson, "UK Independence or Dependence", in Jenifer Mackby and Paul Cornish (eds), *op cit,* pp126-140.

28 John Simpson, "British Nuclear Weapon Stockpiles, 1953-1978" *op cit.* p81.

The end of the Cold War in 1989–91 led to unilateral decisions by both US and Russian Presidents to withdraw and dismantle many of their countries' "non-strategic" nuclear weapons. An agreement to reduce the two countries' active strategic nuclear stockpiles was also negotiated (Strategic Arms Reduction Treaty (START) I), and negotiations began on a follow-up treaty (START II). The termination of active arrangements for the UK to access US nuclear weapons (maritime depth bombs, atomic demolition mines, short-range nuclear missiles, and nuclear artillery) in the event of a major European war led to the withdrawal of those weapons earmarked for use by the UK from bases in the UK and West Germany, though US gravity bombs remained in store at US airbases in the UK until about 2006 and remain stationed elsewhere in Western Europe.[29]

By 1996, the UK had retired about four fifths of its WE177s. It had also decided on an immediate decommissioning of all its Polaris submarines in response to the Russian Federation activating its new Moscow-based nuclear anti-ballistic missile (ABM) system.[30] By then two new Vanguard-class submarines were operational, with their ordnance loads limited to 48 warheads each. In the 1998 Strategic Defence Review it was announced that the remaining stock of about 50 RAF 10 kiloton WE177A gravity bombs would be decommissioned and dismantled, the 43 Royal Navy WE177As having been deactivated in 1991 and the 53 400 kiloton WE177Bs and around 125 200 kiloton WE177Cs in 1995. Their NATO "non-strategic" roles were nominally transferred to the UK Trident submarine force, which was now declared to have access to "less than 200 operationally available warheads".[31]

"The aim seems to be... a UK force of 4 ballistic missile submarines, each carrying 40 warheads and using only 8 of their 16 missile tubes."

The MDA was renewed in 2004 for a further ten years, and by July 2009 it had became apparent that both the US and the UK had significant "hedge" warhead stocks, the UK having a total stockpile of 265 missile warheads, of which up to 160 were deemed operational at any one time.[32] By contrast France claimed to possess a total of 300 warheads.[33] By October 2010, the UK Strategic Defence and Security Review was reporting that UK total warhead stockpile numbers had declined to "not more than 225", enabling a reduction to "not more than 180" to occur by the mid-2020s. In parallel, the intention was to reduce the requirement for operationally available warheads from "fewer than 160" to "no more than 120".[34] The aim seems to be to achieve by the mid-2020s a UK force of 4 Vanguard Class ballistic missile submarines, each carrying 40 warheads and using only 8 of their 16 missile tubes. The UK government is engaged in a project to replace the current Vanguard class with a new generation of submarines equipped with only eight operational missile tubes. In parallel, the number of US Trident submarines stationed on the Atlantic seaboard has decreased to six out of a total of 14, as a consequence both of START I and of a shift in the focus of US military attention to the Pacific. US/UK joint nuclear targeting through NATO or bilaterally continues at the planning level, though a statement by the NPT nuclear weapon states at the 2000 NPT Review Conference committed all five to de-target their nuclear weapons.[35]

29 Hans M. Kristensen, "US nuclear weapons withdrawn from the United Kingdom", *Federation of American Scientists Strategic Security Blog,* 26 June 2008, www.fas.org/blog/ssp/2008/06/is-nuclear-weapon-withdrawn-from-the-united-kingdom.php

30 Peter Jones, "Overview of the history of UK strategic weapons", *Symposium on the History of the UK Strategic Deterrent,* (London: Royal Aeronautical Society, March 1999).

31 Ministry of Defence, *The Strategic Defence Review,* Cm3999, (London, The Stationary Office:1998) paras 67-68.

32 Cabinet Office, *The Road to 2010: Addressing the nuclear question in the twenty first century,* Cm7675, July 2009 p5, 1.6.

33 Bruno Tertrais, *op cit* p13

34 The Times, 27 May 2010.

35 NPT/CONF/2000/21. Letter dated 1 May 2000 from the ... (P5) ... to the President of the 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons.

The relationship with the United States

One final observation should be made about the UK/US relationship. The lesson from the early 1960s was that for the MDA and the Polaris Sales Agreement to be sustained, the UK had to make a contribution to US security that saved the US money and effort, and offered it technical options that it would otherwise have needed to expend resources effort to explore. That the MDA has been sustained indicates that both sides regard themselves as benefiting from the ongoing network of nuclear-related activities. However, the wide-ranging nature of that networking makes evaluations of both its current value to each state and how their interdependency has evolved over time difficult to assess. For example, in 1989 it would have been unlikely that a former US officer would have observed then that, "We probably won't go to nuclear war without [the UK] ... So what difference does it make where you're stationed?" as one is reported to have done recently in the context of options for basing UK Trident outside of Scotland.[36]

What emerges... is the degree to which the country's future nuclear procurement options are constrained by its past actions and its agreements with the US.

What emerges from this short history of the UK's nuclear weapons capabilities is the degree to which the country's future nuclear procurement options are constrained by its past actions and its agreements with the US. Four factors stand out: the dependence upon the US for the credible delivery systems deemed necessary for deterrence; the MoD/Royal Navy insistence on keeping UK missile capabilities in line technically with those of the US Navy, irrespective of differing UK perceptions of threats to national security; the insistence on sustaining CASD; and the continuing significance of the 1962 assignment of the UK force to the NATO SACEUR as part of the US/UK "common defence" arrangements. Without these policy elements the current UK nuclear deterrent force would not exist.

Of these four elements, the one that may acquire a much higher profile is the UK nuclear force's ongoing role in providing strategic nuclear guarantees to non-nuclear NATO states. The performance of this function could be made difficult by Scottish independence, in terms not only of the costs of relocating the existing Trident force if an independent Scotland were to insist on its removal, but also the practical ability of the rest of the UK to sustain its NATO collective defence nuclear role. The ongoing significance of the development of missile defence capabilities is also worth highlighting, both in challenging the credibility of future UK (and US) deterrence capabilities, especially if it spreads beyond existing technology holders, and in providing an alternative to deterrence as a means of combating missile threats to NATO states. Above all, current UK debates over policy choices for reducing defence expenditure, the future of the country's nuclear deterrent, nuclear disarmament and non-proliferation are not unique: they bear an uncanny resemblance to attempts to wrestle with these issues in the past, not least in the latter half of the 1960s.

36 'UK Lawmakers Eye Basing Submarines at US Port, if Expelled by Scots', *NTI/Global Security Newswire,* Oct.31, 2012. www.nti.rsvp1.com/gsn/article/uk-lawmakers-eye-basing-submarines-us-port-if-expelled-scots/?mgh=http%3A%2F%2Fwww.nti.org&mgf=1

Part 2

Nuclear deterrence, deterrent threats and UK nuclear deterrent activities

The early years of UK nuclear deterrence and the relationship with NATO

Nuclear deterrence and a nuclear deterrent are two different phenomena: one is based on communication and the other on physical capabilities. The idea that specific types of military weapons can have both deterrent and war-fighting roles has deep historical roots in strategic thinking and behavioural research. Deterrence involves communicating to a potential enemy the physical consequences of a deterrent threat being implemented, with the aim of dissuading (or terrifying) the state or group from taking specific actions.[37] Deterrence will fail either if the threat posed to the potential enemy is not or cannot be communicated effectively, or if domestic or international political or other considerations (including religious ones) outweigh the potential consequences of the implementation of the deterrent threat.[38]

Deterrence is not unique to the nuclear age. After the Battle of Jutland during the First World War, the Royal Navy's "fleet in being" based at Scapa Flow served to deter the Imperial German surface navy from challenging the UK's supremacy of the seas.[39] In the Second World War in Europe, chemical weapons were stockpiled by all combatants but never used. It was therefore a natural development that nuclear weapons should be regarded as having a deterrent role, as well as war-fighting and war-ending ones, after their first use by the US against Japan in 1945.

Ten years later the situation was significantly different. The Cold War had developed and Europe was divided. Nuclear weapon use had been narrowly avoided in Korea, and the UK had exploded its first nuclear devices, following in the footsteps of the US and USSR. The thermonuclear weapons then starting to be deployed by the US and Soviet Union had yields hundreds of times more powerful than the weapons used against Japan. UK experts calculated that if the USSR exploded ten of these new weapons over the UK, it would destroy it as a functioning state.[40]

The emerging threat to the UK was that such nuclear warheads would be delivered by medium-range missiles in a surprise attack with just minutes' warning, against which there was no defence. This prospect suggested that a nuclear war could no longer be fought in any meaningful way and, in a wider context, were one to start the threat would be one to all humankind rather than merely to the population of the UK alone. The overall strategic situation was now an unstable one, as striking first would offer significant theoretical advantages by limiting the effects of any retaliatory strike. In the light of this, it seemed as if the only practical solution for all nuclear weapon states was an offensive one: prevention of aggression through nuclear deterrence generated either by the uncertain threats arising from a country's demonstrated ownership of such weapons (existential deterrence) or by the certain threats arising from a demonstrable technical second-strike ability to deliver a nuclear response against enemy targets.

37 Sir Michael Quinlan, "Deterrence and Deterrability" in Ian R. Kenyon and John Simpson (Eds), *Deterrence and the New Security Environment,* (Abingdon, Routledge, 2006), pp3-9.

38 For an extended discussion of deterrent concepts see Therese Delpech, *Nuclear Deterrence in the 21st century: Lessons from the Cold War for a New Era of Strategic Piracy,* (Santa Monica: Rand Corporation, 2012), pp 23-60

39 A fleet in being can be defined as a naval force that extends a controlling influence without ever leaving port.

40 DEFE13/45 Report, *'The Defence Implications of Fall-Out from a Hydrogen Bomb'* 8 December 1954 (known as the Strath Report after the name of the chairman of the group of experts which produced it). Robin Woolven, *UK Civil Defence and Nuclear Weapons,* UK Nuclear History Working Paper No 2, Mountbatten Centre for International Studies, University of Southampton, pp12-17. http://www.mcis.soton.ac.uk/Site_Files/pdf/nuclear_history/Working_Paper_No_2.pdf

UK nuclear defence planning remained focused at this time on situations where the UK would face the USSR on its own. However, defending against a nuclear attack and rapidly recovering from it were no longer regarded as realistic options. As a result the UK's civil defence organisation was run down[41] and its air defences focused on protecting the airfields from which UK-based nuclear retaliatory forces could respond to a surprise first strike. For the RAF's newly deploying nuclear bomber force to pose a credible threat to the USSR in these circumstances, it was deemed necessary for it to be demonstrably capable of being airborne in four minutes. In parallel with this development, UK target planning moved from counter-force attacks against military capabilities, such as submarine pens, to counter-value ones (against Soviet cities).[42]

As joint UK/US nuclear target planning progressed from 1958 onwards, UK planners realised that so long as US nuclear forces were stationed in the UK, geographical reasons made a Pearl Harbour-type surprise attack by the USSR on the UK or US highly unlikely. The assumed enemy would not be able to execute a surprise attack on the UK without triggering an overwhelming nuclear response from the US mainland, and a surprise attack on the US mainland would trigger a strike from the UK. UK policymakers, however, continued to differentiate between two scenarios for nuclear use. One, increasingly deployed for domestic consumption, was that an independent UK strategic nuclear force was essential to safeguard against situations where UK interests were directly threatened, but not those of the US. The second, largely for US and NATO (and Soviet) consumption, was that the UK strategic nuclear forces formed a unique European contribution to collective deterrence through their 1962 assignment in peacetime to the NATO SACEUR.

Linking the two scenarios, especially after the UK Polaris force deployed, was an implicit argument that the UK force, being technically identical to the US one, could "trigger" a Soviet attack on the US and a US retaliatory attack on the USSR. This "catalytic" potential was argued by some to enhance deterrence against a Soviet ground invasion of Western Europe.

41 Woolven, *UK Civil Defence and Nuclear Weapons, op cit.*

42 John Baylis, *Ambiguity and Deterrence: British Nuclear Strategy, 1945-1964* (Oxford: Clarendon Press, 1995)pp178-240.

major disagreements emerged within the MoD from 1964 onwards over what constituted a credible UK deterrent force

Moreover, the UK's 1967 decision to withdraw its nuclear weapons from east of Suez and from its Southeast Asia Treaty Organization and Central Treaty Organization nuclear roles within that area led to a widening of these arguments about the "catalytic" potential of the UK's nuclear forces. As the WE177 gravity bombs intended originally for non-NATO war-fighting roles were switched to supporting the potential land battle in Europe (replacing some of the previous arrangements for UK access to US bombs), the argument developed that these weapons would now serve to enhance deterrence of a conventional attack on NATO territory. The specific deterrent roles of both the UK's strategic and tactical nuclear forces when acting as a second European centre to Washington for NATO nuclear decision-making started to be discussed openly during the 1980s, despite the implication that they could give a UK Prime Minister the ability to override any reluctance on the part of a US President to use its nuclear weapons if Western Europe was invaded.[43]

Commitment to the dependence on the sea deterrent

Under these circumstances, it is not surprising that major disagreements emerged within the MoD from 1964 onwards over what constituted a credible UK deterrent force when viewed from the perspective of the USSR. The immediate trigger for this was intelligence information that the USSR was conducting development work on nuclear-armed defensive missiles, and concerns that at a future date the Soviets would be able to mount a nuclear surprise attack on the UK, and then use their defensive missiles to destroy the UK's CASD strategic retaliatory force of a maximum of 16 missiles launched by the one submarine guaranteed to be on patrol. This scenario assumed a situation where the UK was forced to act independently of the US, and that the UK target set would be a counter-value one, focused on Moscow.

43 This concept was first discussed in print in a 1980 UK 'open government' paper justifying the purchase of Trident, *The future United Kingdom strategic nuclear deterrent force,* Defence Open Government Document 80/23 (London: MoD, 1980). However, those involved in defence planning were discussing privately the catalytic possibilities of the future Polaris force as early as the mid-1960s. See Martin A Smith, "British nuclear weapons and NATO in the Cold War and beyond", *International Affairs,* (London: Royal Institute for International Affairs, 2011)pp1391-1398.

Such an approach to targeting appears to have arisen out of the belief that the most effective deterrent threat was the political one of decapitating the Soviet governmental system by targeting Moscow, and also from the majority of the most significant military targets being either in the Moscow area or downrange of it.[44]

The short-term consequence of this UK policy planning scenario was a decision to move ahead with Polaris Chevaline and its array of penetration aids. The longer-term consequence was the decision to procure the Trident missile, whose greater range, multiple warheads and greater re-entry speed served to remove most of the existing technical concerns about the ability of the UK's Polaris missile force to pass through the Moscow defences unscathed. As already noted, however, these concerns were not applicable if the UK was acting alongside the US in a NATO context, as their combined capabilities would saturate any Soviet defences. Neither would they be relevant if the USSR ignored the effectiveness of the UK deterrent in evaluating the threat from it (i.e. it was existential).

The most effective deterrent threat was [believed to be] decapitating the Soviet governmental system by targeting Moscow

The last 26 years of the Cold War, from 1963 to 1989, can be seen as a period when concepts of nuclear deterrence reigned supreme, in particular the idea that nuclear stability could be sustained through the threat of mutual assured destruction (MAD). On that basis, the US and USSR commenced negotiations on limiting their strategic nuclear arms in the belief (at least on the Soviet side) that their relationship was now one of nuclear stability. The principles of the strategic relationship were simple (a nuclear war could not be won, and therefore should not be fought), and they were reinforced by agreed rules arising from the limitations on both states' nuclear defensive weapons negotiated through the ABM Treaty of 1972.[45] This treaty and the brake it placed on such defensive developments also simplified considerably UK calculations as to what constituted sufficient national deterrence capabilities. This was highlighted by the UK's premature decision to withdraw its Polaris deterrent force from service in 1996 following the eventual commissioning of the Russian Federation's nuclear ABM system around Moscow.

But over the course of the Cold War the increases in accuracy of both ballistic and cruise missile systems, and events such as the capture of the USS Pueblo by North Korean forces and the US hostage crisis in Iran, demonstrated that nuclear weapons had an increasingly limited role to play in both inter-state deterrence and enforcement situations.[46]

Legacies beyond the end of the Cold War

The period since the end of the Cold War has arguably been one where legacy concepts and hardware have persisted in the face of evolving (and in some cases diminishing) sets of strategic and military threats. Although the post-Cold War world is regarded by many as a globalised one, particularly from a trade and economic perspective, it is also one where new threats to states have emerged, with their origins in regional geography, belief systems, and the acquisition or indigenous national development of latent nuclear capabilities.[47] The UK Government recognised at an early stage in this new era that both nuclear and conventional threats to the UK itself and its western European neighbourhood had radically declined, and by the end of the century it had reduced its nuclear delivery systems to Trident alone, and reoriented its military activities and equipment to engage initially in conventional peace-keeping operations and then in operations publicly characterised as anti-nuclear proliferation operations (e.g. Iraq in 2003) and intervention operations against non-state terrorism, such as in Afghanistan.

The UK did not, however, mirror France in articulating concerns over how to plan the future of its nuclear forces in circumstances where there was no clear and present nuclear threat. No UK academic author produced a paper arguing that the country's nuclear missiles and submarines should be mothballed and placed in reserve.[48] This was in part because the UK's new Trident submarines and the remaining WE177 gravity bombs were committed to NATO, while after 2000 and the decommissioning of all its gravity bombs its Trident missiles were declared to be de-targeted.

44 Kristan Stoddart, 'Maintaining the "Moscow Criteria": British Nuclear targeting 1974-1979', *Journal of Strategic Studies,* 31:6, Dec.2008, pp 897-924.

45 www.state.gov/www/global/arms/treaties/abm/abm2.html

46 For a discussion of some of the reasons for this, see James J.Wirtz, "Deterring the weak: Problems and Prospects", *Proliferation Papers,* IFRI Security Studies Center, Issue No.43, Fall 2012, http://ultimaratio-blog.org/download/pp43wirtz.pdf.

47 This is a term used to describe a situation where a state is known to have the knowledge, materials and equipment to make nuclear weapons, but there is no hard evidence to prove this.

48 In France there was such a paper describing the benefits and process of such a move.

Thus by default NATO declarations on its nuclear policy were also UK policy.[49] It was the threats to Europe as a whole, rather than those specific to the UK, that sustained the country's nuclear force, along with the wide-ranging uncertainties that would be created if the UK pulled out of the core of the existing US/UK nuclear military networks.

It was also implicit in the UK's 1998 Strategic Defence Review that the nuclear deterrent force was now valued more as an insurance and a technology-sustaining vehicle than as a force to be deployed against immediate military or political threats. This view was further developed in the 2006 Defence White Paper.[50] This contained a detailed listing and exposition of the generic future threats that justified retaining a nuclear deterrent through to 2050 and building a new fleet of ballistic missile submarines. It also supported the argument that continued opaqueness about the circumstances under which UK nuclear weapons might be used, and about their detailed technical attributes, was necessary if their deterrent effect was to be sustained. For while de-targeting, holding missiles at an (unverifiable) number of days' notice to fire, and reducing UK operational warhead numbers to 120 might assist the UK's non-proliferation and trust-building policies, these steps could also weaken Britain's deterrence position if they encouraged future enemies to engage in an incapacitating first strike. These contradictions pointed to four questions that could only be resolved by political judgements: how many operationally deployed and immediately available warheads were sufficient for the UK's general deterrence purposes; how many would deter specific potential enemies; how low can numbers go without risking "nuclear stability" as understood by other nuclear weapons states; and how might a transition be brought about from stability at low warhead numbers to stability at zero warheads (and how might the latter be characterised)?[51]

Challenges to the deterrence legacy

The quantitative changes to the UK's nuclear deterrent posture and the reduction of the country's nuclear arsenal to a single weapon design have taken place in parallel to the procurement of advanced conventional military systems capable of being used to conduct policies of direct dissuasion and intervention. The UK has acquired from the US conventionally armed cruise missiles for anti-weapon of mass destruction (WMD) proliferation and anti-terrorist purposes, and is now using drones from the same source for similar purposes. The US has also been engaged in developing conventionally armed missile defence systems, nominally to defeat, and hence to deter, nuclear threats previously addressed though legacy nuclear systems. However, these conventional developments have opened up a major conceptual and perceptual schism between NATO and the Russian Federation (and between, on the one hand, China and, on the other, Japan and the US) over their impact upon strategic nuclear stability. The Obama administration's decision to work towards nuclear disarmament in parallel with developing such new systems has arguably served to reinforce these differences.

Russia in particular has interpreted the development of new conventional anti-missile systems for use by NATO in Europe and elsewhere as challenging the future credibility of its legacy nuclear intercontinental ballistic missile (ICBM) delivery systems, despite technical assessments which suggest that these fears are baseless. The strategic nuclear stability that Russia continues to regard as being generated through the existence of these systems will in practice continue to operate. However, although the NATO states appear to be moving towards a new version of "gunboat diplomacy" through intervention operations at an individual and group level which carry no inherent threat of the first use of nuclear weapons, states such as Russia and China may interpret the situation very differently. NATO's out-of-area military intervention activities appear to threaten the intellectual and practical basis of their sense of security,[52] even if the political fears that the new conventional anti-missile systems generate have little realistic technical foundation. This has added to the difficulties encountered by Russia and the US in moving their bilateral nuclear arms control negotiations beyond the New START arrangements.[53]

A further challenge to legacy deterrence thinking is provided by the increase in the number of non-signatories to the NPT that are self-declared nuclear weapons states (or that are believed to be moving in that direction).

49 For an interesting discussion of this issue, see Smith *op cit* pp1397-9.

50 Cmd 6994, *The Future of the United Kingdom's Nuclear Deterrent,* December 2006

51 Malcolm Chalmers, "Less is Better: Nuclear Restraint at Low Numbers", *Whitehall Paper 78* (London: RUSI October 2012)

52 Aaron Karp, "The New Indeterminacy of Deterrence and Missile Defence", in Kenyon and Simpson (eds), *op cit,* pp 63-79.

53 New START Follow-Up Talks Seen Addressing All U.S., Russian Nuclear Arms" *NTI/Global Security Newswire,* February 13, 2012.

At the start of 1998 there were no states in this category, though Israel was confidently believed to have nuclear weapons. Since that date, three states (India, North Korea and Pakistan) have tested nuclear weapons and declared themselves to have operational capabilities. Israel has yet to declare itself to be in this category; Iran is an NPT party but is believed by many states to be moving actively towards an operational capability. The implication is that there could soon be as many states with nuclear weapons outside the treaty as there are within it – states which, unlike the five nuclear weapons states recognised by the NPT, have made no international legal commitment to nuclear disarmament. Moreover, their nuclear weapon doctrines and views on nuclear deterrence often lack transparency. What is clear, however, is that for a significant period of time each has maintained a stockpile of relatively few nuclear weapons. This suggests that despite being vulnerable to a first nuclear strike by another state, they continue to believe that such possession enhances their security.[54]

despite being vulnerable to a first nuclear strike by another state, the [non-NPT states with nuclear weapons] continue to believe that such possession enhances their security.

Deterrence in today's global nuclear world is therefore very problematic. States other than the five nuclear weapons states recognised by the NPT have demonstrated that effective deterrence is possible at very low numerical levels of nuclear capability, or even on the basis of a latent capability.[55] Moreover the military tools available for the purposes of threatening and deterring other states are changing, with nuclear ones being exchanged by Euro-Atlantic states for more usable advanced conventional ones. The status of nuclear deterrence in the UK has gradually moved from its Cold War dominance of strategic thinking and defence policy to a recessed position (indeed one might argue that politically, via NATO doctrine, it now occupies a last-resort reserve position).

As a result of the rise of new nuclear weapons states, the development of highly accurate advanced delivery systems, and the conceptual schisms over nuclear and conventional deterrence, the key question for UK nuclear policymakers has become "How many of what type, and in which circumstances, is enough?"

In parallel, the UK's operational nuclear capabilities have provided it with the diplomatic standing and political leverage to play a significant role in international nuclear arms control and disarmament discourses. However, the fact that the UK has no identified nuclear enemy generates an understandable negative political response from non-nuclear states within the NPT that perceive themselves to be threatened by one or more nuclear weapons states. Why should they be denied nuclear deterrent capabilities if the UK has them yet faces no immediate threat to counter – and would acquiring such capabilities act as an "equaliser" and deter nuclear weapons states such as the United States from using the new conventional technologies against them? One response, of course, is that existing nuclear weapons states can and do provide indirect deterrent capabilities through nuclear "umbrellas" offering security guarantees and assurances.[56] And in the UK domestic debate over nuclear weapons the issue of its privileged nuclear status focuses on two related issues: has it a need for a replacement nuclear weapon system as a continuing contribution to UK and NATO Euro-Atlantic security; and, if has, how can this perceived need be reconciled with the UK's role in sustaining global non-proliferation policies and encouraging all the nuclear weapon states towards nuclear disarmament?

54 For an example of the way the new nuclear states view deterrence, see P.K. Ghosh, "Deterrence Asymmetry and Other Challenges to Small Nuclear Forces", in Kenyon and Simpson (eds), *op cit,* pp 29-45.

55 Latency refers to the capability to construct a nuclear arsenal in a defined period of time. On latency, see Garry J. George, "Integrated Nuclear Security in the 21st Century", *Sandia Report,* SAND2009-5641, October 2009.

56 For an extensive discussion of these issues, see Jeffrey W. Knopf (Ed), *Security Assurances and Nuclear Nonproliferation,* (Stanford: Stanford University Press, 2012)

Part 3

UK policies on nuclear disarmament and nuclear non-proliferation

Early approaches to disarmament: sowing the seeds

The UK has consistently regarded nuclear disarmament as a long-term objective, albeit one only achievable when politically circumstances were ripe. For many years prior to 1989, successive governments decided not to engage in unilateral nuclear disarmament, despite very visible pressure from civil society organisations. Indeed, until the end of the Cold War the UK had been gradually expanding its stockpile of nuclear missile warheads, rather than reducing it.[57] In 1985 the country's position on multilateral nuclear disarmament was that as its nuclear force amounted to only 3% of the combined US and Soviet strategic arsenals, these would have "to be very substantially reduced" with "no significant change ... in super-Power defensive capabilities" before "the United Kingdom would want to review her position ... in the light of the reduced threat".[58] By contrast, the UK engaged in both unilateral biological and chemical disarmament and multilateral negotiations on these WMDs without preconditions. The UK had concluded either that nuclear weapons would deter the use of biological and chemical weapons and made UK possession of them unnecessary, or that once a general war in Europe started it would rapidly become nuclear and other WMDs would be irrelevant in determining its outcome.

57 John Simpson, "British Nuclear Weapon Stockpiles, 1953-1978", *op.cit.*

58 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, Final Document, Part II, NPT /CONF.III/64/NPT/CONF/III/17, Information Provided by the United Kingdom, Para 11.

59 John R. Walker, *British Nuclear Weapons and the Test Ban,* 1954-1973, (Farnham: Ashgate, 2010) pp 167-262.

During the 1950s and early 1960s, the threat of nuclear war using multi-megaton weapons drove the existing triumvirate of nuclear weapons states to discuss limiting their weapons through a three-step process: first, halting further development of warhead technology through a testing ban (which would become the Comprehensive Nuclear-Test-Ban Treaty (CTBT)); then limiting the numbers of weapons by a fissile material production ban (a Fissile Material Cutoff Treaty (FMCT)); and finally reducing the numbers of deployed weapons by means of international inspection and control to build trust within an evolving disarmament process. The MDA with the US facilitated the UK's engagement in discussions on a CTBT after 1958, although by 1962 these had become deadlocked over on-site inspections. They did, however, lead in 1963 to agreement on an atmospheric testing ban (the Partial Test Ban Treaty (PTBT)), signed initially by the UK, the US and the USSR. This could be effectively policed by remote atmospheric and seismic monitoring.[59]

Non-aligned Movement states saw nuclear disarmament... as a means of removing many of the inequalities in state power that its members faced.

The situation in Europe led to wider international discussions during the early 1960s on a process for general and complete disarmament (GCD), involving conventional as well as nuclear arsenals.[60] This was driven on the Warsaw Treaty Organisation (WTO) side by the NATO states' plans to deploy and use nuclear weapons for war-fighting in the event of aggression by the perceived superior conventional forces of the WTO. In addition, the creation of many new states as a result of decolonisation led to an expanding membership of the Non-Aligned Movement (NAM) in the UN. NAM states saw nuclear disarmament and GCD as a means of removing many of the inequalities in state power that its members faced.

60 This concept was submitted to the UN General Assembly by the UK in September 1959. See Jozef Goldblat, *Arms Control: A New Guide to Negotiations and Agreements,* (London: Sage, Second Edition, 2002) pp44-46.

Multilateral discussions on nuclear disarmament and non-proliferation take place in three forums: the UN General Assembly and Security Council; the Conference on Disarmament (CD) in Geneva (an independent body which has changed its name over time, having started life in the 1950s as a small UN subcommittee); and since 1975 meetings of the parties to the NPT (which have been organised by the UN and taken place in UN facilities but are not UN meetings). The UN General Assembly's First Committee on Disarmament and International Security meets in October of each year, can forward resolutions to be voted upon by the General Assembly, but the latter has itself no executive powers: implementation of all resolutions that emerge is voluntary. The UN Security Council, in contrast, is able to pass resolutions that are mandatory on all members under certain circumstances. The CD and its predecessors base their work on the Decalogue, a negotiating framework agreed in the early 1960s. This lists steps that would contribute to nuclear disarmament, but has left their priority for negotiation when the states in the CD regard political conditions as favourable.[61] Agreement on the Decalogue had the effect of moving the contemporary disarmament debate away from its existing focus on GCD (i.e. negotiating on conventional and nuclear disarmament in an integrated manner), towards a focus on a CTBT.[62]

During this transformative period, a major schism started to become visible in debates on nuclear disarmament in the UN General Assembly. The emerging NAM states regarded nuclear disarmament as the only effective way of preventing the destruction of humankind in a nuclear war, and viewed this objective as achievable though the exercise of political will within a time-limited framework. Others, including the majority of the nuclear weapons states, regarded this process as incapable of implementation in the near future, and sought to mitigate the consequences of nuclear war by more limited and incremental measures, such as negotiations between the US and USSR to put a cap on the number of weapons available for use.

The situation was further complicated by the US and Soviet (and, through NATO, UK) policy of seeking to prevent states facing nuclear threats from acquiring nuclear weapons by providing them with nuclear security guarantees (or "umbrellas"). This included stationing their nuclear weapons and delivery systems on allies' territory. This "nuclear sharing" created a group of states in Europe and East Asia (such as Germany and Japan) which leaned towards nuclear disarmament politically, but were dependent for their security on the continued existence of these nuclear security guarantees. Membership of the NAM was effectively confined to states without such guarantees, who sought nuclear security assurances through the CD's predecessor bodies.[63]

The NPT emerges as the cornerstone

In the early 1960s a consensus emerged in the Eighteen-Nation Committee on Disarmament (ENDC), a CD predecessor, on the need to prevent further dissemination and proliferation of nuclear weapons. Negotiations co-chaired by the US and USSR led in July 1968 to agreement on a Treaty on the Non-Proliferation of Nuclear Weapons (known as the Non-Proliferation Treaty (NPT)). This recognised the realities of the existing nuclear situation by placing different commitments on nuclear weapons and non-nuclear weapons states, and defining a nuclear weapons state as one that had tested a weapon prior to 1 January 1967.[64] To balance this, its Article VI talked about pursuing "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".

Article VIII (3) of the NPT had provided for a Review Conference five years after the Treaty had entered into force. This took place in 1975 and was specifically tasked to "review [the Treaty's] operation". One result was that it became clear that two radically different priorities were being pursued by the parties. The existing declared nuclear weapons states and their allies prioritised preventing additional states from acquiring nuclear weapons by encouraging as many states as possible to ratify the NPT. By contrast, the states of the NAM and others, operating as a "neutral and non-aligned" group, saw the meeting as a rare opportunity to criticise the three nuclear-weapons states then parties to the Treaty (who were also its depositaries), the UK, USA and USSR, for not fulfilling their Article VI commitments by engaging in negotiations on nuclear disarmament.[65]

61 *Ibid,* pp14-17

62 For an account of the handling of the CTBT by this body, see Rebecca Johnson, *Unfinished Business: The Negotiation of the CTBT and the End of Nuclear Testing,* (Geneva: UNIDIR, 2009) pp 9-56.

63 For a detailed discussion of this distinction and its implications, see John Simpson, "The Role of Security Assurances in the Nuclear Non-Proliferation Regime" in Jeffrey W. Knopf, *op cit.* pp57-85.

64 Article IX.3

65 France and China were not at that point members of the Treaty, though they were recognised nuclear weapon states. For a short account of this meeting and the different priorities see *Reaching Critical Will,* History of the NPT, 1975-1995, www.reachingcriticalwill.org/disarmament-fora/npt/history-of-the-npt-1975-1995

At this time, the UK Government's two-track policy over nuclear disarmament was being pursued by opposing any proposals (especially those originating from other nuclear weapons states) which would threaten the credibility of its nuclear deterrent capabilities while at the same time seeking both to expand the membership of the NPT and to strengthen export controls over dual-use nuclear items. Work towards the latter objective involved voluntarist groupings such as the Nuclear Suppliers Group (NSG), initially known as the "London Group" after the venue and organiser of the initial meetings among existing nuclear supplier states in the mid-1970s.[66]

The UK approach to disarmament also involved seeking positive outcomes from the five-yearly NPT Review Conferences by facilitating a consensus on their main product, initially a final declaration and after 1995 a final document. At the 1975 Review Conference there were concerns that the momentum to expand the membership of the NPT to all states would stall if the conference failed to produce such a result. However, the NAM states ultimately decided to support the NPT as the only treaty committing the nuclear weapons states to negotiating on nuclear disarmament. The UK engaged in successful drafting activities behind the scenes at this conference, and assisted the chairperson to offer states parties the text of an acceptable final declaration.

By the 1980 Review Conference, many of the allies of the UK and US who had been the potential proliferators in the 1970s had been persuaded to ratify the NPT. The lack of a positive outcome to the conference was a product of both north–south disagreements over wording of a CTBT and frictions within the Western group over the Carter Administration's attempts to impose on its European allies US domestic nuclear energy restrictions proscribing reprocessing and fast breeder reactors.[67]

66 For a description of its work see IAEA INFCIRC/539/Rev.4, 5 November 2009.

67 The Second NPT Review Conference', *SIPRI, World Armaments and Disarmament: SIPRI Yearbook 1981* (London: Taylor & Francis, 1981), pp.297-338.

68 Jozef Goldblat,, 'The third review of the NPT Treaty', *SIPRI, World Armaments and Disarmament: SIPRI Yearbook 1986* (Oxford: Oxford University Press, 1986), pp.469-80.

69 David Fischer and Harald Müller, 'The fourth review of the Non-Proliferation Treaty', *SIPRI, World Armaments and Disarmament: SIPRI Yearbook 1991* (Oxford: Oxford University Press, 1991), pp.555-584 and John Simpson, 'The 1990 Review Conference of the Nuclear Non-Proliferation Treaty: Pointer to the Future or Diplomatic Accident?', *The Round Table,* April 1991, No. 318, pp.139-154.

In 1985 a consensus was achieved after acceptance by all parties of a procedural device, despite deep divisions over nuclear disarmament.[68] Disarmament was by then being handled in surrogate form by the NAM through its demands for the nuclear weapons states to agree a CTBT. In 1990, however, these divisions over negotiating a CTBT proved too deep to resolve by procedural means, and no consensus was possible.[69]

The NPT after 1995: extended indefinitely

The 1995 Review and Extension Conference changed the NPT process in a number of major ways. Both China and France were present for the first time, thus placing all the recognised nuclear weapons states within the Treaty structure. The fragmentation of the USSR, the emergence of the Russian Federation as its successor nuclear state and the retirement by it and the US of large numbers of nuclear warheads enabled both states to take very positive positions on nuclear disarmament. Some of the reductions were taking place through the formal START process and some through parallel unilateral actions. Although Cold War perceptions still lingered, not only had what the creators of the NPT text understood to be "the nuclear arms race" (the cumulative stockpiling of more and more nuclear weapons) ceased, but global numbers were decreasing rapidly on a year-by-year basis. Also, negotiations in Geneva on the CTBT that had been long sought by the NAM states were well advanced, with the Treaty itself being opened for signature in September 1996.

"the nuclear arms race" (the cumulative stockpiling of more and more nuclear weapons) had ceased, and global numbers were decreasing rapidly year-by-year

The third change was in the NPT review process itself, triggered by the Treaty's stipulation that in 1995 a decision had to be taken on its future duration. The options under discussion were either to make it permanent or extend it for successive periods of time. Some NAM members argued for the latter option on the basis that periodic decisions would allow political pressure to disarm to be brought to bear on the nuclear weapons states every decade. The majority of the parties, however, favoured the lower-risk option of a permanent treaty coupled with procedural changes designed to strengthen the review process and focus it on the implementation of a range of "Principles and Objectives for Nuclear Non-Proliferation and Disarmament".[70]

70 John Simpson, 'The nuclear non-proliferation regime after the NPT Review and Extension Conference', SIPRI, World Armaments and Disarmament: SIPRI Yearbook 1996 (Oxford: Oxford University Press, 1996), pp. 561

They were led in this by the post-apartheid and nuclear-disarmed South African Government, which favoured the creation of an incremental process for achieving nuclear disarmament, and Canada, which advocated new procedures to make the nuclear weapons states more accountable for their nuclear actions under the slogan of "permanence with accountability". Such procedures included a revised set of preparatory arrangements for each five-year review cycle, involved preparatory meetings in each of the three years leading up to a conference. These meetings were tasked with discussing substantive issues (ie "principles, objectives and means to promote the full implementation of the Treaty"), unlike the previous arrangements under which only administrative and procedural issues were discussed ahead of a conference.[71]

Decisions on the Treaty's duration and the linked procedural arrangements could only be agreed by consensus after the three NPT depositary states agreed to sponsor a "Resolution on the Middle East". This committed all NPT parties to working towards a Middle East "zone free of nuclear and all other weapons of mass destruction and their delivery systems".[72] The linkages (if any) existing between this resolution and the duration decisions remain contentious.[73]

The NPT review process agreed in 1995 placed the nuclear weapons states under ongoing and continuous pressure to demonstrate they were moving forward towards nuclear disarmament. Disarmament debates ceased to be dominated by the exchange of political rhetoric about the past failures of the nuclear weapons states to disarm. Rather, the focus was on evaluating progress towards specific disarmament steps and actions agreed by consensus at review conferences. The initial yardsticks for measuring movement were contained in the 1995 decision on "Principles and Objectives".[74]

The NPT review process agreed in 1995 placed the nuclear weapons states under ongoing and continuous pressure to demonstrate they were moving forward towards nuclear disarmament.

In this, the five nuclear weapons states recognised by the NPT agreed to four measures: completing a CTBT by 1996; exercising "utmost restraint" over testing until it entered into force; the "immediate commencement and early conclusion of negotiations" on a Fissile Material Cut Off Treaty (FMCT); and undertaking systematic efforts to "reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons".[75]

When the new NPT process was initiated under Finnish chairmanship in 1997, the main function of the new preparatory meetings was envisaged as the collation, and possibly adoption, of texts to be used in the 2000 Final Document. Nuclear disarmament was to have a special focus within these preparatory meetings, but in 1998 disagreements emerged as to whether their sole purpose was preparation of material relevant to the 2000 Review Conference, or whether more immediate, though transient, issues should also be addressed (and resolutions or decisions taken on them).[76] As a result no agreed written product came out of this meeting, and the 1999 meeting was equally unable to agree any of the recommendations it had been tasked to make to the 2000 Review Conference.[77]

Other events in the run-up to the 2000 Review Conference also cast doubt on its ability to move forward with the process agreed in 1995. The NPT's credibility as a global non-proliferation instrument had been challenged by the nuclear tests conducted in 1998 by India and Pakistan. These were NAM states which had not signed the Treaty, and had acted contrary to the language in the Treaty.[78] Also, negotiations on an FMCT were frozen and the CD was stalemated. Yet the latter events gave the NPT review process an even greater significance, as it had become the only functioning global nuclear disarmament negotiating forum. Balancing this situation, however, was the emergence of a new cross-cutting group of states operating within both the NPT and UN General Assembly forums. Called the New Agenda Coalition (NAC), this grouping of Brazil, Egypt, Ireland, New Zealand, Mexico, South Africa and Sweden sought to develop further the 1995 disarmament action plan at the 2000 conference.

71 NPT/CONF.1995/32 DEC.1,2 & 3.

72 NPT/CONF.1995/32/RES.1.

73 In part the uncertainty arises from the procedure used: the three decision documents were agreed separately, with the extension document last, followed by the resolution, and then the three decision documents were agreed as a single package. This appears to have been done intentionally to infuse the process with both political and legal symbolism.

74 NPT/CONF.1995/32/DEC.2.

75 *Ibid,* para.4

76 Tariq Rauf, 'The April 1998 NPT PrepCom' *Nonproliferation Review,* Vol 5, No 2, July 1998, pp121-131.

77 Tariq Rauf and John Simpson, 'The 1999 NPT PrepCom', *Nonproliferation Review,* Vol 6, No 2, July 1999, pp118-133.

78 NPT Article IX.3 defines a nuclear weapons state as one that "exploded a nuclear explosive device prior to 1 January 1967". The treaty has therefore no provision for states that first did so after that date.

It was partly as a result of the NAC's activities, and the ability of both the nuclear weapons states and EU members to agree their own joint working documents on disarmament, that the 2000 Review Conference was able to build upon the existing NPT disarmament action plan and set of principles and objectives.[79] The result was an amended and expanded set of disarmament principles and commitment which became known as the "13 Steps" (though there were actually 18).[80] Key among these 13 Steps was the "unequivocal undertaking by the nuclear weapon States to accomplish the total elimination of their nuclear arsenals leading to nuclear disarmament". This was the commitment that underpinned the process of reaching agreement on the final document.[81] This was regarded as a major advance, as all five NPT nuclear weapons states were providing the non-nuclear weapons states parties with a much stronger commitment to nuclear disarmament than that contained in Article VI of the NPT, which NWS had interpreted as merely committing them to "pursue negotiations in good faith". Other steps included applying the "principle of irreversibility" to "nuclear disarmament, nuclear and other related arms control and reduction measures"; "increased transparency " as a "confidence-building measure"; "concrete agreed measures to further reduce the operational status of nuclear weapon systems"; a "diminishing role of nuclear weapons in security policies ... to facilitate their elimination"; "regular reports ... on the implementation of Article VI"; and further development of " verification capabilities ... to provide assurance of compliance with nuclear disarmament agreements".[82]

The last-mentioned step was promoted by the UK in line with the commitment in its 1998 Strategic Defence Review to withdraw from service all its nuclear gravity bombs and to task the Atomic Weapons Establishment at Aldermaston to use them to conduct practical studies into how processes of nuclear disarmament might be verified. The UK also played a significant role behind the scenes in ensuring a positive outcome from the conference, including helping France to draft a P5 joint statement committing all five NPT nuclear weapons states to de-targeting their nuclear weapons.[83]

However, this conference also diluted the potential negotiating role of future preparatory meetings by agreeing that "the issues" at each of the first two preparatory sessions "should be factually summarized" and their results "transmitted in a report to the next session for further discussion".[84]

The Bush years

In the period through to the next NPT Review Conference in 2005, a new bilateral strategic nuclear reductions agreement (Treaty on Strategic Offensive Reductions (SORT)) was negotiated between Russia and the US, based in part on US acceptance that the Russian Federation should no longer be regarded as an enemy state. However, the enhanced threat of nuclear terrorism following 9/11 and of nuclear weapons being acquired by "rogue" states (North Korea, Iraq and Iran), among other factors, led the Bush Administration to withdraw from the 1972 ABM Treaty and to refuse to negotiate further bilateral nuclear reduction treaties. This led in turn to Russian perceptions that the US was eager to develop conventionally armed missile defence systems that would gradually neutralise Russia's strategic ICBM deterrent capabilities based at Tatischevo and Dombarovsky in its south west regions.

One new non-proliferation initiative being developed by the Netherlands and the UK during this period was to try to create a set of consensual international control and governance arrangement for missile technology. A set of Guidelines for Sensitive Missile-Relevant Transfers had been produced in 1992 by a group of supplier states, including the UK and US, who called their activity the Missile Technology Control Regime (MTCR).[85] Its aim was to prevent members facilitating the further proliferation of nuclear missile delivery systems. By contrast, the new Hague or International Code of Conduct Against Ballistic Missile Proliferation (ICoC) was an instrument intended for universal membership. 93 states subscribed to it during a conference in the Hague in 2002, with its members meeting annually thereafter.[86]

79 Rebecca Johnson, 'The 2000 NPT Review Conference: A Delicate, Hard-Won Compromise,' *Disarmament Diplomacy 46,* May 2000, p. 4; Tariq Rauf, 'An Unequivocal Success? Implications of the NPT Review Conference,' *Arms Control Today 2000* vol. 30, no. 6, pp. 9-16; John Simpson, 'The 2000 NPT Review Conference', *World Armaments and Disarmament: SIPRI Yearbook 2001* (Oxford: Oxford University Press, 2001), pp487-502.

80 NPT/CONF.2000/28(Part1) Article VI and preambular paragraphs 8 to 12, para 15.

81 *Ibid,* para 15.6

82 *Ibid,* paras 15.5;15.9(2)&(4)15.12 and 15.13.

83 NPT/CONF/2000/21. Letter dated 1 May 2000 from the ... (P5) ... to ... the President of the 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons.

84 *Ibid,* Improving the effectiveness of the strengthened review process for the NPT. para.7

85 www.mtcr.info/english/index.html

86 www.hcoc.at and www.nti.org/treaties-and-regimes/hague-code-conduct-against-ballistic-missile-proliferation-hcoc/

Its founder's aim was to supplement, not supplant, the MTCR and to bolster efforts to curb and delegitimise ballistic missile proliferation worldwide. However, most of the states whose activities it sought to limit refused to join. One of their core arguments against it was that it would threaten their future development of national satellite launch vehicles. Another was that it was discriminatory as it did not address transfers between existing technology holders, in particular the transfer of Trident missiles between the US and the UK.

The agreement that only "factual summaries" would be produced by the first two Preparatory Committees in any NPT review cycle removed the need in 2002 and 2003 to negotiate any recommendations to the 2004 Preparatory Committee. The Iraq War and other international developments prevented consensual recommendations arising from the 2004 meeting for the 2005 Review Conference, nor was it possible to agree in advance key elements of its agenda.[87] Also, a major difference had become visible between the positions of the NAM states on the one hand and France and the US on the other over the status of the 2000 disarmament commitments. The NAM states interpreted Article VI to mean that nuclear disarmament should be negotiated, and could be achieved, independently of general and complete disarmament, but France and the US (with the support of the Russian Federation) claimed that it could only be achieved in the context of a more comprehensive GCD-type disarmament agreement.[88]

a positive outcome to the 2010 Review Conference was necessary to sustain collective belief in the value of the Treaty

The outcome of the 2005 Review Conference hinged primarily on its inability to agree an agenda until day 14 of the 20-day conference, resulting in insufficient time being available to resolve disagreements in the main committees. The situation was not helped by the lack of a joint P5 statement (which the UK had sought to facilitate); Egyptian intransigence because there had been no movement on a Middle East WMD-free zone; the NAM's refusal to agree to any document that in its view did not advance the disarmament process beyond the 13 Steps; and the unwillingness of the US and France in particular to accept that commitments in the 2000 document should extend beyond 2005.[89]

However, the concerned reaction to this failure, plus the filibustering tactics of Iran over the agenda, did result in the 2007 preparatory meeting ending on a more positive note, which was carried forward in 2008 and 2009.[90] The parties therefore went into 2010 believing that, given the challenges to the credibility of the NPT posed by North Korea and Iran, a positive outcome to the 2010 Review Conference was necessary to sustain collective belief in the value of the Treaty and prevent the treaty system degrading (and, some argued, collapsing[91]).

UK juggle between Trident renewal and disarmament diplomacy

The UK Government for its part had been pursuing transparent policies of being "forward leaning" on nuclear disarmament from the 1998 Strategic Defence Review onwards.[92] The most visible signs of this were the incremental steps it had been taking to be transparent about the alert status of its missile submarines, its military fissile material stocks, and the decreasing numbers of "operationally deployed" nuclear warheads it possessed. It had also promoted the tabling of joint P5 working papers at NPT meetings as part of the process of creating the necessary conditions for future nuclear disarmament negotiations.

87 Rebecca Johnson,'Report on the 2004 NPT PrepCom', *Disarmament Diplomacy*, 77 (May/June) 2004); John Simpson and Jenny Nielsen, 'Fiddling While Rome Burns? The 2004 Session of the PrepCom for the 2005 Review Conference', *Nonproliferation Review,* July 2004: Vol 11(2) pp1-26.

88 This argument hinged in part on the significance of the position of a comma within the NPT Article VI text! This led to major frictions over whether the three actions cited were to occur concurrently or consecutively, and thus whether nuclear disarmament should be negotiated on its own, or could only take place in the context of a successful treaty on GCD.

89 Rebecca Johnson, 'Why the 2005 NPT Review Conference Failed', *Disarmament Diplomacy,* 80 (Autumn 2005); John Simpson and Jenny Nielsen, 'The 2005 NPT Review Conference: Mission Impossible? *Nonproliferation Review,* July 2005: Vol 12, No 2.

90 See Rebecca Johnson, "Back from the Brink? The 2007 NPT PrepCom Report", *Disarmament Diplomacy,* 85 (Summer 2007), pp3-17; Rebecca Johnson, "The 2008 NPT PrepCom: Good Meeting, but was it Relevant?"; *Disarmament Diplomacy,* 88 (Summer 2008),pp3-26; Rebecca Johnson, "Laying a Substantive Groundwork for 2010: Report on the 2009 PrepCom, *Disarmament Diplomacy,* 91 (Summer 2009).

91 The NPT cannot "collapse" as since 1995 it has had no collective means of doing so. Under its Article X.1 individual states can withdraw from it, but legally it will remain in being until its last member withdraws.

92 John Simpson, The "Forward Leaning" Nuclear State: The UK and Nuclear weapons in an Era of Strategic Uncertainties" *International Symposium on Security Affairs 2009,* (Tokyo: National Institute for Defence Studies, 2010), pp115-138.

It had been transparent about its future nuclear intentions through its December 2006 White Paper "The Future of the United Kingdom's Nuclear Deterrent"[93];its public decisions to encourage the construction of new nuclear power plants in the UK by commercial operators; and its plans for disposal of its large civil stockpile of separated plutonium.[94] These actions resulted from the recognition that strategic initiatives would be required by the UK in both the civil and military areas of nuclear policy if the 2010 conference was to be productive, especially given the negative attitude of the Bush Administration towards multilateral diplomacy.

The initial product of this UK policy decision was a speech on nuclear disarmament given by UK Foreign Secretary Margaret Beckett in Washington in June 2007.[95] This sought to bridge the conceptual gap between "our genuine commitment to abolition and our considered judgement that now was not the time to take a unilateral step to disarm", and proposed the convening of a P5 meeting on the practical issues that would have to be overcome to achieve this goal. This speech was followed in February 2008 by a speech by Defence Secretary Des Browne to a CD plenary meeting in Geneva on a "transparent, sustainable and credible plan for nuclear disarmament",[96] which proposed that the UK convene "a technical conference of P5 nuclear laboratories on the verification of nuclear disarmament before the next NPT Review Conference". It also indicated that the UK "hoped to engage with other P5 states in other confidence-building measures on nuclear disarmament".

In March 2009, with a new US administration under President Barack Obama in place, UK Prime Minister Gordon Brown indicated at a global conference on nuclear energy and proliferation in London that the UK would "host a Recognised Nuclear Weapon States Conference on nuclear disarmament issues and on confidence building measures, including the verification of disarmament".[97]

This announcement was followed in July 2009 by the publication of "The Road to 2010", which sought to address the twin themes of how "to ensure expanded access to nuclear power without risking further proliferation of nuclear weapons ... [and] how we move forward on global nuclear disarmament in respect of existing nuclear weapons".[98] Finally, in September 2009 a UK-hosted informal P5 conference on "Confidence Measures Towards Nuclear Disarmament" took place at the senior official level.[99] This enabled an exchange of views to take place on a range of nuclear issues, including nuclear confidence-building measures; political and technical challenges associated with verification of nuclear disarmament; current nuclear doctrines, capabilities and accident response arrangements; development of a common language for use in future discussions on arms control; and national concepts of strategic stability. The latter focused on the relationships between nuclear and conventional weapons and between the effectiveness of nuclear deterrence and moves towards reducing numbers of nuclear weapons. There were also discussions on approaches to the upcoming review conference and associated issues.

Review Conference in 2010

This 2010 NPT Review Conference was assisted by the new Obama Administration taking a much more positive stance on nuclear disarmament than its predecessor; launching a global initiative to address the physical security of nuclear materials;[100] and making a concerted effort to provide Egypt and its Arab allies with positive movement on a regional WMD-free zone. The UK's active participation was hindered by the lack of an operative UK Government during the first part of the conference, which preceded the arrival in office of the new Coalition Government.

93 Cm 6994.

94 For a contemporary analysis of the issues involved, see Royal Society, "Strategy options for the UK's separated plutonium", Policy Document 24/07 (London, 2007).

95 *"A World Free of Nuclear Weapons?"* Keynote address by Margaret Beckett, Secretary of State for Foreign and Commonwealth Affairs, United Kingdom, Carnegie International Non-proliferation Conference, June 25, 2007; available: www.carnegieendowment.org/2007/06/25/keynote-address-world-free-of-nuclear-weapons/e15

96 *"Laying the Foundations for Multilateral Disarmament",* Speech given to the Conference on Disarmament, Geneva, 5 February, 2008.

97 Speech on Nuclear Energy and Proliferation by Prime Minister Gordon Brown, 17 March 2009, *International Nuclear Fuel Cycle Conference,* London, http://news.bbc.co.uk/go/pr/fr/-/1/hi/uk_politics/7948367.stm

98 *The Road to 2010: Addressing the nuclear question in the twenty first century,* Cabinet Office, July 2009.

99 *P5 London 2009 Statement on disarmament and non proliferation issues:* www.fco.gov.uk/en/news/latestnews/?view=News&id=20804873

100 For an overview of the summit and its outcome see www.nti.org/analysis/articles/april-2010-nuclear-security-summit/

The outcome of the 2010 Review Conference was three equally balanced "plans of action" for nuclear disarmament, nuclear non-proliferation and peaceful uses of nuclear energy. In addition, all parties accepted the procedural change proposed by the President of the Conference to separate out the backward-looking from the forward-looking elements of the Final Document, and accept that only the forward-looking ones needed to be agreed by consensus.[101]

The 2010 nuclear disarmament plan of action[102] contained several commitments with strong links to UK policies and actions towards nuclear disarmament. Action 5 committed individual P5 states to engage with each other on disarmament issues and collectively to "accelerate concrete progress on the [13] steps leading to nuclear disarmament" and "promptly engage" in a further seven practical steps. The latter included addressing the issue of nuclear weapons "regardless of their type and location", thus including non-strategic weapons for the first time (Action 5b); further diminishing "the role and significance of nuclear weapons in all military and security concepts, doctrines and policies" (Action 5c); discussing policies that could "prevent the use of nuclear weapons and eventually lead to their elimination" (Action 5d); and considering "reducing the operational status of nuclear weapons systems" (Action 5e).

Previously the NAM had insisted that all states had to be involved in disarmament negotiations, but through these new steps the nuclear weapons states were encouraged to negotiate among themselves on nuclear disarmament measures (as they had done informally in London in September 2009). Moreover, Action 23 encouraged them to agree a standard voluntary reporting form to provide information on nuclear disarmament and invited the UN Secretary General to establish a publicly accessible repository for these forms. These commitments effectively legitimised further discussions among the P5 states on nuclear disarmament-related matters, as did an exhortation calling upon the P5 to "report on their actions to the Preparatory Committee at 2014".[103]

101 Owen Green, "2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons", UK-UNA, July 2010; Rebecca Johnson, "Assessing the 2010 NPT Review Conference", *Bulletin of the Atomic Scientists,* July 2010.

102 NPT/CONF.2010/50 (Vol 1) Conclusions and recommendations for follow-on actions.

UK within the P5 agenda

The P5 states, led by the three depositary states, are therefore committed to moving forward by 2014/15 with an agreed framework for reporting the practical actions they have taken and will take in the disarmament field and to reporting to the other NPT parties on the progress they have made towards implementing those actions. The visible progress to date has been the holding of further P5 exchanges in Paris in June 2011[104] and Washington in 2012.[105] Press releases from these informal meetings suggest that work is continuing on a broad front to address specific issues relating to all three sets of actions identified in the 2010 Final Document, with the 2012 NPT preparatory meeting outcome document including a working paper from the P5 states. New work areas beyond those addressed in London in 2009 include abuse of the NPT withdrawal provisions in Article X of the NPT and the strengthening of International Atomic Energy Agency (IAEA) safeguards.

The P5 states... are committed to moving forward by 2014/15 with an agreed framework for reporting the practical actions they have taken and will take in the disarmament field

Through the UK's initiatives in 2007–09, made possible by its status as both an NPT nuclear weapons state and a depositary state, the country has been able to play a central role in creating an informal P5 multi-focused framework to progress disarmament and other objectives identified in the 2010 action plans. The UK's nuclear weapons status has therefore made it a major player in the global nuclear disarmament debate. The UK can also claim that its deterrent capacity has played a major role in nuclear non-proliferation through its contribution to the NATO nuclear umbrella over its non-nuclear weapons states. However, in committing to this "forward leaning" role, it has generated expectations within the NAM and other non-nuclear weapons states that positive progress will be forthcoming within the time-limited framework of 2014/15. While these commitments were seen to have strengthened the prospects for continued non-proliferation on a global basis, they have also made the NPT process a hostage to fortune. This could have unfortunate consequences if these commitments, and others such as the holding of a conference on commitments made through the1995 Middle East resolution, are not delivered upon by 2015.

103 *Ibid,* Action 21.

104 US Department of State, Press release, July 2011. *Joint Statement on First P5 Follow-UP meeting to the NPT Review Conference.*

105 US Department of State, Press release, June 2013. *Third P5 Conference: Implementing the NPT.*

It is in this context that the UK decision to sustain a nuclear deterrent capability into the indefinite future may run into international difficulties, due to a lack of consensus among both the P5 and the wider NPT membership on the relevant criteria for evaluating disarmament progress (and what constitutes nuclear disarmament). For those states and interest groups committed to an incremental process of disarmament, the criteria for acceptability of the UK's actions to replace its deterrent will be that they do not enhance, and preferably reduce, its nuclear capabilities as measured by statistical and other quantitative evidence. Numerical criteria will presumably be part of the evaluative framework that the nuclear weapons states collectively will be expected to present to the 2014 Preparatory Committee session as proof that they have been taking positive actions on nuclear disarmament. Their consultations in 2013 and early 2014 will probably focus on the quantitative criteria to be used (e.g. numbers of "live" or reserve (hedge) warheads; types and numbers of missiles and nuclear-capable bombers; nominal yields of warheads, etc) and the chronological baselines for assessment. Using these criteria the UK will have a positive story to tell in 2015 and beyond: numbers of warheads and operational missile tubes all decreasing. However, this will also raise, domestically and within NATO, the issues of "how much is enough": how far down the minimum deterrence ladder the UK should go if it is to retain a technically credible national deterrent capability and what level of nuclear capability would constitute a politically meaningful contribution to the collective NATO nuclear deterrent? At the same time, the UK could use its falling totals to argue that its replacement policy is not, as it has been labelled, one of like for like replacement in numerical terms, but is rather one of ongoing disarmament.

For those in the NAM-led time-limited framework camp, however, any definitive Trident replacement decision will be criticised as a golden opportunity lost to lead other states towards nuclear disarmament and sustain non-proliferation through the precedent set by the UK's independent actions.

if the UK is to make further unilateral moves towards nuclear zero, how can it generate maximum international security (and by implication nuclear disarmament) advantages from this process?

This, however, raises two significant questions. One was last addressed seriously in 1967 by the UK Government under Harold Wilson: if the UK is to make further unilateral moves towards nuclear zero, how can it generate maximum international security (and by implication nuclear disarmament) advantages from this process? One suggestion made at the time was to link such a move to the UK's ratification of the non-proliferation treaty then under negotiation. How might a similar positive and globally beneficial linkage between nuclear disarmament and non-proliferation be made 45 years later? For, as South Africa found in the 1990s, any leverage over global nuclear disarmament resulting from national decisions to dismantle nuclear weapons and their production capabilities may be short-lived.

The second question is: why are the NAM states not prepared to address positively and seriously in the NPT context the elephant in their room – the states within the NAM who since 1998 have declared themselves to be nuclear weapons states? Admittedly the NAM is not an alliance, and its decisions are not taken by consensus. However, while it is prepared to put pressure on the P5 to act against Israel, which still persists in its claim not to possess nuclear weapons, its member countries do not seem prepared to take a similar position against the declared nuclear weapon states within their midst (i.e. India, Pakistan and North Korea), even though it is NAM neighbours who are most challenged by these nuclear capabilities.[106] Unless the non-nuclear NAM states are prepared to put pressure upon their nuclear-armed members to disarm, it is difficult to see how the P5 collectively, and in particular states such as Russia and China, will agree to disarm. If the UK is in the business of promoting global nuclear disarmament, one future issue should be how a Trident replacement decision would impact upon the members of the NAM, and more particularly upon the willingness of its members to act against India, Pakistan and North Korea (and potentially current NAM chair, Iran).

106 For a discussion of the nature of the NAM and its relationship with the NPT see William Potter and Gaukhar Mukhatzhanova, *Nuclear Politics and the Non-Aligned Movement,* (London: International Institute for International Studies, 2012) pp9-35.

Part 4

Trident and the UK's nuclear policy options

Twin track: deterrence and disarmament

For almost 60 years the UK has sustained a two-track nuclear policy of seeking nuclear disarmament while sustaining a "minimum deterrent" national nuclear weapon capability (now only 25% numerically of the warhead stockpile originally planned for in 1989). Its current (and future) advanced delivery system and submarine platform have been made possible by its network of nuclear-related relationships with the US, which over the last 20 years has moved closer to becoming a joint programme. From a US Congressional perspective, moreover, the UK's nuclear weapons are seen as a unique contribution to, and an integral part of, the US-led NATO nuclear common defence arrangements, rather than an "independent" deterrent. These bi-lateral arrangements provide nuclear security guarantees to the other members of NATO, and in so doing arguably make it unnecessary for the other members to acquire their own nuclear deterrent forces. Moreover, the UK has managed to sustain its two-track policy without the apparent contradictions between the two tracks generating major frictions, either domestically or internationally.

Recently the UK has chosen to take a "forward leaning" policy towards nuclear disarmament, rather than some of its previous positions of simply ignoring or actively blocking progress on this issue. In particular, it has been able to use its nuclear weapons status to play a visible leadership and facilitating role in moving forward P5 discussions on disarmament. Sustaining these activities into the 2015 NPT Review Conference and beyond will play a crucial part in demonstrating to NPT states that the P5 states collectively are actively pursuing the goals they committed themselves to achieving in 2010.

Sustaining these activities... will play a crucial part in demonstrating to NPT states that the P5 states collectively are actively pursuing the goals they committed to... in 2010.

At the same time it cannot be denied that the complaints of non-nuclear weapons states, and in particular those within the NAM, have some merit. The cost of embarking on a nuclear power programme usually discourages developing states from claiming their "right" to nuclear technology under the NPT, irrespective of the activities of the NSG states in controlling nuclear supplies. This has led to political demands for the IAEA to allocate equal levels of funding to nuclear safeguards and technical assistance. The discriminatory nature of both the MTCR and the ICoC has been highlighted by the US–UK relationship over nuclear delivery systems and platforms, and criticism of both states may become stronger if they increase their collaboration to confront common economic problems. Also, joining other P5 states in arguing for the necessity of engaging in incremental steps when "the time is ripe" rather than immediate nuclear disarmament lays the UK open to the charge of "do as I say, not as I do" in the non-proliferation context.

This criticism is further buttressed by the arguments deployed for replacing the Trident submarines in the UK's 2006 Defence White Paper and subsequent speeches in the House of Commons. Some would interpret these as admitting that that there exist few, if any, immediate specific threats to UK nuclear security, and thus that the current security case for sustaining the UK nuclear deterrent is weak. In particular, arguments around possible future instabilities could apply to any state.

This point, however, leads the discussion into the complex area of clarifying the current role, if any, of nuclear deterrence in both the Euro-Atlantic region and globally.

Such a discussion would have to include issues such as the UK's nuclear deterrence role in NATO; its nuclear relationship with the US; the impact of US–Russian arms control discussions on the UK's technical options for a Trident replacement system; the relevance of global moves to limit ballistic missile transfers; the impact and technical credibility of the development of conventionally armed anti-missile systems; and how these anti-missile systems fit into any analysis of future nuclear deterrent systems. Legacy thinking regards nuclear weapons as a necessary last-resort guarantee for those who have them, or have allies that have, against nuclear attack. A core justification is that they are not intended for use, but to prevent the use of similar weapons by others, and are therefore ethically legitimate. Linked to this are arguments that the only way to sustain nuclear deterrence is to rely on the strategic stability that arises from MAD, and that nuclear weapons states providing nuclear guarantees continue to play a significant global and regional non-proliferation role.

While these arguments for the necessity of engaging in nuclear deterrence were largely accepted in the Euro-Atlantic area during the Cold War, by 2009 the key domestic argument offered by the UK Government had become that "It is premature to judge that a nuclear threat to UK national security will not arise in the future."[107] This leaves open the question of what capabilities should be sustained into the future if no current and immediate threat to the UK exists: and whether the response should be based on Alford's proposition that the "why?" question should be answered head-on, rather than adopting the default position of "why not?".

Options for further reductions

The UK Government's answer in 2006 of engaging in a "like-for-like" replacement, while politically appealing, was not what it seemed. In practice it entailed reducing UK nuclear capabilities significantly in numerical terms. There will probably be a reduction in the number of submarine platforms from four to three and the 2010 Strategic Defence and Security Review has already stated that in future there will only be eight missiles carried by each. This would facilitate the UK going into the 2030s without purchasing additional missiles from the US, despite the existing stock acquired in the 1990s slowly diminishing from the original 58 through seven test firings on initial commissioning of each of the Vanguard submarines and after each major refit.

Moreover, in both the 2000 and 2010 NPT Review Conferences the UK committed itself to the principle of "irreversibility ... in relation to [its] treaty obligations",[108] something which is open to a range of interpretations. However, UK holdings of "live" missiles are unlikely to be allowed to reduce indefinitely. This suggests that thought may now need to be given to exploring other metrics for measuring movement towards nuclear disarmament in the NPT context, as the largely numerical criteria used by the UK since 1998 offer few future options for demonstrating disarmament progress. Such an exploration could involve examining a number of strategic questions about the consequences of the current UK nuclear deterrent situation. For example, what might be these other metrics? Might one be a decision to sustain or abandon CASD or, beyond that, to abandon an active nuclear delivery system altogether but retain a nuclear warhead capability? Is there a middle course between these two? What would be the implications for NATO and the relationships with the US of the UK not possessing an operational delivery system? Would a default "existential deterrent" (i.e. possession of warheads or the knowledge to make them, but not the demonstrable ability to deliver a weapon to a target) be sufficient for the UK's (and NATO's) deterrent needs or, on the contrary, make the state more vulnerable to a surprise nuclear attack? Indeed, will the UK always be regarded by potential aggressors as a nuclear weapon state and thus always vulnerable to pre-emptive nuclear attacks? Can the results of the work that Aldermaston has been undertaking since 1998 on verifying nuclear disarmament be used to escape from this situation?

On a more political level, to what extent would existing arms control agreements constrain replacing the existing Trident deterrent force with an alternative delivery system? Such arms control arrangements are currently only operative between the Russian Federation and the US. It would require a major change in the political environment for the UK to undermine this bilateral activity by procuring a UK alternative to Trident that undermined its principles. These include drawing clear technical distinctions between nuclear and conventionally armed platforms and delivery systems. This has precluded mixed deployments of nuclear and non-nuclear ordnance in stealthy "arsenal ships", an idea mooted in the US at the turn of the century. It has also generated frictions with Russia over whether the US can convert its treaty-limited Ohio-class submarines to carry conventional cruise missiles in their vertical launch tubes, or use them and their Trident missiles in a "global reach" posture with conventional warheads.

107 *The Road to 2010, op cit,* para.1.8.

108 NPT/CONF.2010/50,Conclusions and recommendations for follow-on actions, Action 2.

It is difficult to see how a UK Government could move easily towards such mixed deployments and at the same time support further moves towards nuclear reductions and disarmament. Such an approach could also generate complications for the UK's membership of the MTCR and ICoC missile non-proliferation arrangements. Moreover, the US and the Russian Federation are unlikely to favour such a development, given long-standing concerns in the USSR and latterly in the Russian Federation over the ability of UK strategic nuclear forces to circumvent the ceilings in their current bilateral treaty agreements with the US. This would seem to rule out any idea of using current and future UK nuclear-powered attack submarines armed with cruise missiles in a transparent and declared nuclear weapon delivery role. Equally, it seems impossible to contemplate regular deployments of nuclear weapons on aircraft or aircraft carriers, if only because of the dual-use arms control issues that might arise and the large percentage of future combat aircraft that would have to be reserved for this role rather than being used for expeditionary warfare.

Arms control considerations therefore generate added constraints on future options for a UK nuclear deterrent force. Indeed, the choice seems limited to submarine-based ballistic missiles, existential deterrence (with or without a reserve store of nuclear devices) or unilateral nuclear disarmament. Moreover, there is no knowledge in the public domain about the design of the UK's existing warhead (and to distribute such knowledge would be contrary to the UK's commitments under the NPT), and it is highly unlikely that information about operational systems, as opposed to retired ones, will ever be released. Only such releases would enable judgements to be made as to whether changes have occurred to capabilities such as yield. Using yield as an indicator of like-for-like replacement of individual ballistic missile submarine lethality also seems a non-starter for similar reasons.

While nuclear disarmament within a time-limited framework is a political objective for many NAM states, the criteria for determining whether there is progress towards it, and the range of pathways to achieve this, remains underexplored. The time-limited framework route is direct and politically attractive. Their demand is for a legally binding and unambiguous commitment to rapid but unspecified political action to destroy existing weapons, rather than the creation and implementation of any overt and technically realistic plan of action (though some now argue that the mid-ground in this process is a commitment to negotiate a nuclear weapons convention).[109] However, the NAM states lack the means to force the nuclear weapons states to accept these demands. For ultimately the only threat NAM states can deploy is to give notice of withdrawing from the NPT, despite it providing them with their only current forum for negotiations with the nuclear weapons states. Moreover, the NAM leadership appears unable or unwilling to bring pressure to bear on those of its members that are self-declared nuclear weapons states outside the NPT, something which seems necessary for them to assist in achieving global nuclear disarmament.

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The future of nuclear disarmament may therefore reside in the current attempts to create a more purposeful process whereby the P5 states can engage with each other on nuclear disarmament at both a technical and a political level, by building on the commitments they accepted in 2010 through the informal discussion forum initiated in London the previous year, and built upon in Paris in 2011 and Washington in 2012. For ultimately only the nuclear weapons states acting collectively can move the nuclear disarmament process forward or decide how progress in disarmament can be evaluated in technical terms and translated into the actions demanded by NAM members. This will require both transparency and trust-building among the nuclear weapons states, and collective reaching out to NAM and other states that do not have nuclear weapons, including taking forward the experimental work on the verification of nuclear disarmament undertaken by the UK since 1998.

109 A model text for such a convention was submitted by Costa Rica to the 2007 meeting of the Preparatory Committee for the 2010 Review Conference in Vienna, NPT/CONF.2010/PC.I/WP.17.

Notes

Appendix

Previous reports in the BASIC Trident Commission series

Beyond the UK: Trends in the Other Nuclear Armed States

Ian Kearns

Discussion Paper 1
October 2011

The Commission's first briefing paper examines stockpile numbers, force modernisation trends, declaratory policy and nuclear doctrine, and the security drivers that underpin nuclear weapons possession outside the United Kingdom. The main conclusions are:

1. There has been a major reduction in the global nuclear weapons stockpile since the mid-1980s but since then, the number of nuclear weapon states has gone up.
2. Long-term nuclear force modernisation or upgrade programmes are underway in all nuclear armed states.
3. In all of these states nuclear weapons are currently seen as essential to national security and in several of them, nuclear weapons are assigned roles in national security strategy that go well beyond deterring a nuclear attack.
4. A common justification for the modernisation and upgrade programmes underway is perceived strategic vulnerability, or potential vulnerability, in the face of nuclear and conventional force developments taking place elsewhere.
5. In some states, non-strategic nuclear weapons are seen to have a particular value as compensators for conventional force weakness relative to perceived or potential adversaries.
6. Although the New Strategic Arms Reduction Treaty (START) between the United States and Russia arguably represents the most significant arms control advance in two decades, the Treaty contains significant gaps that mean it will not necessarily lead to significant reductions in the number of nuclear weapons held by both parties.
7. Whatever the current rhetoric about global nuclear disarmament from the nuclear armed states and others, in the absence of any further major disarmament or arms control breakthroughs, the evidence points to a new era of global nuclear force modernisation and growth.

Defence-Industrial Issues: Employment, Skills, Technology and Regional Impacts

Keith Hartley

Discussion Paper 2
March 2012

This study reports on the employment, skills, regional and industrial impacts of the Trident replacement decision (the Successor Deterrent Programme). The replacement decision should be dominated by these considerations, but policy-makers need to be aware of the impacts of their decisions.

The UK submarine industry has a single customer, monopoly suppliers and small production numbers. Gaps in design and construction work present major problems in retaining the specialist design and construction worker skills, especially the skills needed for nuclear work. However, more analysis and evidence is needed on the costs and benefits of production gaps of different magnitudes, including their cost and employment implications, before conclusions can be drawn.

Trident replacement will cost some £87 billion over the period 2007 to 2062, equivalent to annual average costs of £1.6 billion. It will support some 26,000 jobs some of which are located in high unemployment areas (e.g. Barrow-in-Furness), but only in the construction years.

There are undoubtedly more cost-effective methods of creating UK jobs. Cancellation of the project would produce substantial cost savings of up to £83.5 billion over the period 2016 to 2062, equivalent to an annual average saving of £1.86 billion. The worst case scenario for submarine-related job losses assumes that after 2052, the United Kingdom will withdraw completely from the operation of nuclear-powered submarines, with the loss of 9,200 jobs after 2037 followed by the loss of a further 21,700 jobs after 2052. Some of the high unemployment areas at risk have submarine work which will continue to about 2025, so there would be a substantial adjustment period allowing Government to decide on the future of the UK submarine industry and to introduce appropriate public policies to allow a smooth local economic adjustment to cancellation.

Entente Nucleaire: Options for UK-French Nuclear Cooperation

Bruno Tertrais

Discussion Paper 3
June 2012

There are opportunities for nuclear weapon cooperation between Britain and France in one or several of the following areas: science and technology; industrial programs and procurement; operations and crisis management; and political-military and strategic affairs. Incentives for cooperation may include scientific, financial, diplomatic or strategic benefits. Possible constraints include divergent policy preferences, legal or political obstacles, incompatible technical requirements or modernization timelines. All previous cooperation attempts on one aspect or another in military nuclear matters over the past fifty years have failed.

Lessons from these attempts include the following:

- There must be political will on both sides;
- the convergence of timelines and requirements is an imperative for concrete cooperation; and
- the US-UK relationship can be a serious impediment to such cooperation.

Regardless of the obstacles, there are building blocks for a more solid nuclear relationship between the two countries, including financial incentives. Further work on stockpile stewardship and the question of the robustness of warheads could almost certainly be considered, if only in the form of peer reviewing. However, London has a different conception of independence from that of Paris; the UK deterrent is available to NATO; and its doctrine and technology has always been in sync with that of the United States. There is also a stronger nuclear consensus in France. Finally, the more the two countries tie the future of their respective nuclear futures with one another, the more it may be difficult for them to make unilateral decisions on concrete disarmament steps.

The two countries could consider making a joint commitment protecting the vital interests of the European Union. They could also increase cooperation on nuclear planning. A different option would be to consider the pooling of the two countries' forces by accepting that each country could exercise deterrence on behalf of both. Trilateral nuclear cooperation (with the US) could happen in the area of safety, security and reliability of warheads; and separately on issues of deterrence and crisis management.

Options for the United Kingdom's Nuclear Weapons Programme

Deterrence, Disarmament, Non-Proliferation and UK Trident

Professor John Simpson

Discussion Paper 4 of the BASIC Trident Commission

An independent, cross-party commission to examine UK nuclear weapons policy

The BASIC Trident Commission

BASIC has set up an independent, cross-party commission to examine the United Kingdom's nuclear weapons policy and the issue of Trident renewal. The Commission is operating under the chairmanship of:

Lord Browne of Ladyton (Des Browne), former Labour Secretary of State for Defence;

Sir Malcolm Rifkind, former Conservative Defence and Foreign Secretary; and

Sir Menzies Campbell, former leader of the Liberal Democrats and Shadow Foreign Secretary.

Other members of the Trident Commission are:

Professor Alyson Bailes, Former Head of the Security Policy Department at the Foreign and Commonwealth Office

Sir Jeremy Greenstock, former UK Ambassador to the UN

Lord Guthrie of Craigiebank, former Chief of the Defence Staff

Professor Lord Hennessy of Nympsfield, Queen Mary, University College London

Lord Rees of Ludlow, Astronomer Royal and recent President of the Royal Society

Dr Ian Kearns, Chief Executive of the European Leadership Network.

It was launched on 9 February 2011 in Parliament. The Commission is:

- Examining the international context within which the decision on Trident renewal now sits;
- Assessing current UK nuclear weapons policy and the policy of the United Kingdom in efforts to promote multilateral nuclear disarmament and non-proliferation;
- Examining the costs associated with Trident renewal and any potential consequences for non-nuclear portions of the defence budget;
- Considering all possible future policy options with the potential to maintain UK national security while further strengthening efforts at multilateral nuclear disarmament and non-proliferation.

The Commission will report in 2013.

Why the Commission is sitting

The last Labour Government committed to renewing Britain's nuclear deterrent in 2006-07. The current coalition government recommitted to this decision in principle in its October 2010 Strategic Defence and Security Review (SDSR), but also decided to delay the timetable for the construction of the replacement submarines until after the next election (which must take place by May 2015). This has created a window of opportunity for further deliberation. The Commission was convened to make the most of this opportunity.

BASIC Trident Commission

We are living through a period of dramatic change in international affairs with new powers emerging, increasing nuclear proliferation risks within both the community of states and terrorist groups, and growing financial pressure on western defence budgets. There is a strong case, in the national context as well the international, for conducting a fundamental review of UK nuclear weapons policy. BASIC Trident Commission is filling the gap left by Government, by facilitating, hosting and delivering a credible cross-party expert Commission to examine this issue in depth.