ASSURING DESTRUCTION FOREVER: 2020 EDITION

UK CHAPTER

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United Kingdom

Janet Fenton

Technical co-operation with the United States (US) and the development of its nuclear weapons has been considered an imperative by successive United Kingdom (UK) governments since the beginning of the UK's atomic bomb programme.

The UK government initiated the MAUD Committee in 1940[1] with the remit of giving the highest priority to obtain nuclear weapons in the shortest possible time. In 1945, Conservative Prime Minister Churchill approved of the US attacks on Hiroshima and Nagasaki, after which Atlee's Labour government stated, "The answer to an atomic bomb on London is an atomic bomb on another great city."[2] By 1948 the Labour government told the House of Commons that UK weapons were in development.[3] Two years later, the Conservatives were back, led by Churchill authorising the tests which commenced at Monte Bello off the coast of Australia in 1952.[4] By 1957, US President Eisenhower was enabling US-UK exchange of nuclear weapon information. In response, plans were also being put into place for the formation of the Campaign for Nuclear Disarmament (CND) and the first Aldermaston march.[5]

A decade later, as the negotiations leading to the nuclear Non-Proliferation Treaty (NPT) were starting, the UK tested its first US supplied Polaris missiles off the coast of Florida and the carrying fleet was commissioned.[6] Then-UK Prime Minister Harold Macmillan had already agreed to allow the US to establish a ballistic missile submarine base in Scotland in return for access to US missiles. This was despite concerns about the proposed site's proximity to Scotland's largest city, Glasgow. Former UK Prime Minister Thatcher and then-US President Reagan's continued commitment to the new Trident system in the early 1980s is well documented[7] as is the protest movement that led to the serious reductions in the number of nuclear weapons held by the US and Russia. These reductions were undertaken by Reagan and Gorbachev[8] albeit not to the extent of fulfilling their NPT disarmament obligations to end the arms race and eliminate their arsenals.

Meanwhile, the history of UK nuclear-armed policy and its nuclear alliance with the US does not offer any evidence of any real intention by the UK government to disarm or to fulfil its obligations under Article VI of the NPT. Scotland's deep-water fjord coast and cloud cover, as well as the comparative remoteness of its west coast, provided a strategic location for occupation by the Ministry of Defence (MoD) and establishment of its nuclear submarine base at Faslane and adjacent weapons store at Coulport.[9] In 1998, The Scotland Act allowed devolution and a degree of autonomy to the Scottish Parliament, but the Act has separate articles, naming *International Relations and Co-operation*, *Defence of the Realm, and Implementing Obligations under the Human Rights Convention* as firmly reserved to the UK government at Westminster. The opposition to nuclear weapons in Scotland expressed by its government is not considered to be an issue of democracy by the UK government.[10]

John Ainslie of the Scottish Campaign for Nuclear Disarmament meticulously researched MoD and government publications. He persistently questioned parliament and statutory agencies as well as observed and analysed military activities in the UK, which informed scientifically robust and reliable earlier editions of this publication. Many of us are indebted to him for that and are still utilising work that he undertook and questions that he raised while exploring the developments since his death. In collating this account of developments since then, the author has relied on John's work and that of many others who have built on, expanded, or added to his reports and questions. They include but are not limited to David Cullin, Peter Burt, Jane Tallents, David Mackenzie, Lynn Jamieson, and Stuart Parkinson.

Current Status

The United Kingdom (UK) has 120 operationally available nuclear warheads. This is part of a larger stockpile of between 180 and 225 warheads. The Ministry of Defence (MoD) has indicated that it will reduce the overall stockpile to 180 warheads by the mid-2020s. There are four Vanguard class submarines, three of which are normally armed. Each armed submarine carries eight US-built Trident D5 missiles and a total of 40 nuclear warheads.[11] Observations of warhead convoy movements undertaken by the citizen activist group Nukewatch UK suggest that warheads have gradually been removed from service at a rate of around three warheads per year to meet this stockpile reduction target with around 60 warheads which are not operationally available.[12]

The UK Trident warhead contains a mixture of UK and US elements. The high explosive in the warhead is British. Three key components, which are part of the US W76 warhead, are supplied from the United States. The final design could be described

as a W76 variant, i.e. around 100 kilotons.[13] The Atomic Weapons Establishment (AWE) warheads are manufactured and serviced at two sites in Berkshire: at Aldermaston, which includes research into warhead design and the manufacture of plutonium components, and at Burghfield where the warheads are assembled and disassembled. They are routinely transported on public roads between the HM Clyde Naval Base at Faslane, 25 miles from Glasgow, Scotland's largest city, and AWE in Berkshire for maintenance or replacement. Nuclear warheads in these convoys consist of nuclear materials surrounded by high explosives, a combination that is prohibited by regulations governing civil transportation of radioactive materials.[14]

The base includes a submarine facility, Faslane, and a nuclear weapons depot, Coulport. Submarines are built at Barrow in Furness. The fuel cores for naval reactors are manufactured by Rolls Royce in Derby. There is normally one Vanguard class submarine in refit at Devonport dockyard.

The MoD has restructured its internal arrangements for management of the Defence Nuclear Enterprise. An internal body called the Defence Nuclear Organisation (DNO) oversees the Enterprise and acts as a customer to another internal body, the Submarine Delivery Agency (SDA), which is in charge of building and supporting the submarine fleet. The DNO also acts as customer in the contract managing the Atomic Weapons Establishment. The SDA manages 52 procurement and support projects within the Enterprise. The Navy, as operator of the submarine fleet, also acts as a customer of the SDA.[15]

Twenty decommissioned Royal Navy nuclear powered submarines are floating in nuclear licensed dockyards at Rosyth (Scotland) or Devonport (England). The Submarine Dismantling Project was established in 2000 following a study by the MoD, which concluded that the radioactive waste should be stored on land. In 2011 the MoD conducted a consultation on how this waste should be removed from the submarines, where this process should be conducted, and the type of sites where waste should be stored. Following the public consultation, it was decided that initial dismantling will take place at both dockyards and that the Reactor Pressure Vessel (RPV) from each submarine will be removed and stored whole at Capenhurst Nuclear Services (CNS) in the interim.[16] The MoD has not yet approved the technical processes and is paying an estimated £1.5 million a year for storage at the Cheshire site. Initial dismantling on HMS Swiftsure began in December 2016 at Rosyth. On 1 April 2019 the National Audit Office (NAO) published a report which detailed many delays to the project and associated cost increases, stating that the [DNO] is responsible for all disposal-related projects, including those previously within the Royal Navy's remit. It continues to recognise as a high risk the failure to manage its nuclear liabilities coherently.[17]

Modernisation

Submarines

The UK continues to drive forward its Defence Nuclear Enterprise (DNE) programme to replace its Vanguard class submarines with new Dreadnought class vessels.[18] It is also proposed that from 2020, all of the UK's submarine fleet will be based at the upgraded Faslane naval base, located in Scotland.[19]

The UK began the process of replacing the Vanguard class submarines following the publication of a White Paper in 2006[20] and parliamentary votes which took place in 2007 and 2016. Contracts for the second phase of the Dreadnought submarine build programme were signed by the MoD in May 2018. The majority of the UK's nuclear-powered submarines have been constructed at Barrow-in-Furness at the BAE Systems Marine site, with deep maintenance taking place at Devonport Royal Dockyard in Plymouth by Babcock Marine Systems. The Dreadnought submarines will also be built by BAE at Barrow-in-Furness.

The Scottish Environment Protection Agency (SEPA) works within a framework drawn up by the Scottish Government subject to approval by the Minister for Environment, Climate Change and Land Reform.[21] The MoD has applied to licence the Nuclear Support Hub (NSH) which it is building at Faslane and which is intended to centralise the existing radioactive waste handling facilities and radiochemistry laboratories there. The key legislation governing radioactive substances and SEPA's responsibilities, the Environmental Authorisations (Scotland) Regulations 2018 (EASR), makes the MoD exempt from many its provisions as in this case. The Hub is situated in a new location within the Faslane site, with a new effluent discharge point into the middle of the Gare Loch.[22] With the increased number of nuclear submarines, radioactive discharges into the Gare Loch are expected to increase and could cause radioactive contamination of the entire Gare Loch, including its flora and fauna, and result in increased radiation doses to people living in the vicinity of the Loch.

Submarine reactors

At Rolls Royce's privately owned Raynesway factory in Derby the MoD is overseeing its Core Production Capability programme to produce reactor cores for Astute Class attack submarines, and building new facilities that will produce cores for Dreadnought submarines. The new PWR3 Dreadnought reactor is

based on a US design and runs on highly enriched uranium fuel.[23] The Astute class submarines carry conventional weapons but will use the same reactor cores as Dreadnought and there are complex dependencies and mechanisms that mean they are deeply integrated in the UK's nuclear weapons programme.

Missiles

D5 missiles were developed and produced at Kings Bay, Georgia in the United States. The UK has rights to a total of 58 missiles from a common pool shared with the US. The US Strategic Systems Program (SSP) is extending the life of the D5 Trident weapon system. They are updating all the Trident subsystems: launcher, navigation, fire control, guidance, missile, and re-entry.[24] All of these modernisation measures apply to the system deployed on British submarines. The missile compartments on Dreadnought submarines will accommodate D5 missiles and will be identical to the missile compartments on the US Colombia-class submarines. The UK has paid towards the cost of the Common Missile Compartment and towards the US-run Life Extension Programme, primarily being carried out by US firm Lockheed Martin, to extend the life of the D5 so that it can remain in service until the 2040s. Since the intention is that Dreadnought will be in service until the late 2060s and the Life Extension Programme for D5 will only sustain this missile until the early 2040s, D5 will not be available for most of the intended lives of the new submarines. The UK government has stated that "investment in a replacement ballistic missile would eventually be needed."[25] The Life Extension version may already have been introduced on some submarines, though there is no information in the public domain to confirm this, and the US may be working on a further life extension rather than a new missile.

Warheads

Work under the Nuclear Warhead Capability Sustainment Programme (NWCSP) is funded through a contract between the MoD and AWE Management which has a predicted end date of 3 April 2025. The NWCSP is an ongoing rolling programme with no defined end date, that aims to ensure that the UK retains the infrastructure, skills, and capability to develop and manufacture nuclear warheads. This includes increasing the likelihood that each of the separately targeted warheads carried by a D 5 missile will explode close enough to its target to completely destroy it. This means that the reduction in the number of warheads referenced in the previous section on the UK's current status is not intended to reduce the number of sites targeted in the UK's nuclear attack plan, merely that the sites can be completely destroyed while using a smaller number of warheads.[26]

Collaboration

UK parliamentarians and experts learned through a Pentagon announcement in early February 2020 that billions of UK pounds will be spent on a new generation of warheads based on US technology. The Pentagon announcement stated that the W93 or Mk 7 warhead "will support a parallel replacement warhead programme in the UK." This expenditure had not been reported to them in the House of Commons or by the MoD.[27]

From December 2006, when correspondence between former US President George W. Bush and then UK Prime Minister Tony Blair referenced the latter in stressing the need to "maintain and modernise the UK's capability in the longer term," close work between AWE Aldermaston and US research laboratories has been evident, despite the major gaps in the UK's transparency. In 2007, the senior official responsible for defence procurement had reported that the plan was "to replace the entire Vanguard submarine system, including the warhead and missile".[28] The linking of US nuclear weapons laboratories and AWE is a crucial element of the US-UK nuclear special relationship.

Dating from 2013, the Teutates warhead science programme is a UK collaboration with France, covering three areas of support for their independent nuclear weapons capabilities: safety and security, stockpiles, and counter-nuclear terrorism. Funds have been invested in regenerating the infrastructure at AWE sites.[29] This is part of a joint construction with a new hydrodynamics facility at Epure in France and a technology department and interim firing point at AWE Aldermaston, which is purposed with enabling performance checks without nuclear explosive tests. In 2019, the MoD Investment Approval Committee (IAC) approved rising costs as in line with the programme within the context of the NWCSP,s though delivery of the programme is challenging and technically demanding. The instrument that dictates this collaboration is a binding treaty that commits the UK to ten years' notice of intent to withdraw, well beyond the timescale of the present NWCSP.[30] The IAC will continue to assess the possible impact of Brexit on the costs.[31]

Infrastructure

The problems in the UK's nuclear weapons programme are considerable. Burgeoning costs, delays of several years, and the impact of these factors on each other has escalated to the point where it is unlikely that the new submarines will be

available by the end of the already over-extended lifetime of the outgoing vessels. Building projects that began ten years before the 2016 Parliamentary vote are still incomplete or have been delayed, leaving retired submarines occupying docks instead of being dismantled. Leaks, accidents, and neglect add to the dangers that the public and those working on the project face, aside from the squandering of resources vital for addressing a climate change situation, thus increasing the likelihood of a nuclear incident at the same time as reducing the capacity to survive it.[32]

Deployment of a fully armed submarine at sea on patrol at all times will be impossible to maintain if there is a lack of submarine availability before the current system is replaced. The current submarines are already at the end of their projected functional lifetimes. An overall equipment plan that underestimated the costings, radioactive leaks, limited dock space, shortage of staff, poor contractor performance, and fluctuating currency each put the nuclear weapons programme at risk.

The expenditure is failing to keep pace with the demands of the programme, delays exacerbate the escalating costs, and secrecy surrounds the projections of completion dates. Efforts to reign in escalating costs, included moving the Dreadnought delivery back from 2024 to 20, may reduce expenditure during that budget period but does not reduce the overall cost of the Dreadnought programme. In fact, delays of this sort increase the costs in the longer term.[33]

Amongst the early lead-in items purchased before the 2016 vote, Common Missile Compartments (CMCs) were produced for the Dreadnought programme and US Columbia-class submarines. When it became apparent that these were affected by faulty welds, the schedule for the project was in question and as well as safety being severely compromised and there were, again, major cost implications.[34]

Since 1980 every decommissioned Royal Navy nuclear-powered submarine has been floating in a nuclear licensed dockyard at either Rosyth in Scotland or Devonport in England. Pressure on dock operations are likely to lead to further delays in dismantling the twenty submarines, nine of which still carry fuel.[35] Their presence in turn adds pressure on any major upgrade to address dock capacity. Extending the lifetime of the Vanguard class will put pressure on the limited dock space at Devonport, where the life extension work would be carried out. Defuelling Vanguard-class submarines when they come out of service will create bottlenecks arising when deep maintenance is being done on the Dreadnought submarines in the 2040s. Babcock may be unable or unwilling to manage the building projects at Devonport needed to mitigate the bottleneck issues.

Since the initial plans for the upgrade, maintaining and developing a workforce in conjunction with the civil nuclear industry has been seen as critical.[36] Government and the nuclear industry both continue to have concerns in this regard, added to which the Navy is struggling to recruit submariners.[37] In August 2018, 15 per cent of MoD civilian positions for Nuclear Suitably Qualified and Experienced Personnel (NSQEP) were unfilled and the MoD was unwilling to disclose the number of unfilled military NSQEP posts, on the grounds that doing so would be "detrimental to the armed forces".[38]

The MoD is expected to play a part in maintaining the expectations of contractors and ensuring the competence of their workforce. Components that are commissioned may require service for the duration of another aspect of the programme, while the contractors need the workforce to be fully and profitably occupied at all times. Meantime they have to maintain their own workforce against diminishing enthusiasm for life on board a submarine without access to social media.[39] The lived experience of the COVID-19 pandemic is unlikely to create an appetite for this work. In 2018, Rolls Royce restructured internally with thousands of job losses, while conducting a public campaign for government support to develop SMR technology. Another significant contractor, Babcock, announced the intended closure of its shipyard in North Devon against a background of public criticism and falling share prices.

With ongoing problems for Babcock[40] and Rolls Royce[41], the government and the MoD may be on the horns of a dilemma in which maintaining the capacity of these firms is one priority, and maintaining the lowest prices is the other. Babcock's current diversification into manufacturing ventilators for COVID-19 may impact on this balance in the future, and the UK government may consider the company's ongoing arms manufacturing as 'essential work' that is allowed to continue during the lock down.[42]

Even without the impact of coronavirus on next year's market, purchases from the US means that currency value differences will affect the cost of components and services purchased, and the MoD works with the Treasury to ensure that a proportion of fluctuations are hedged. This may no longer be possible at all, and in any case the arrangement applies for three years, which is unsustainable for maintenance of the decades-long dollar purchases for Dreadnought. Fluctuations for exchange costs beyond this proportion need to be paid for from MoD contingency funds, which are already over-stretched. Brexit scenarios remain likely to cause long term currency depreciation and drive up the overall project costs. This is not addressed in the most recent Government briefings available, and neither is the potential impact of COVID 19 on the economy.[43]

The replacement uranium facility known as Pegasus was suspended because of safety concerns. Previously, similar concerns have been the cause of regulatory action when corrosion was discovered in the steel columns supporting the building, involving expenditure of £150 million.[44]

Devonport has been under enhanced regulatory attention since 2013 and there is a Nuclear Safety Improvement Plan in place to try and improve safety standards at the site. These included problems with the fire alarm detection and emergency lighting systems. Crane lifting operations were carried out that "fell short of the required standard" and two further crane incidents occurred at Devonport in September 2018, resulting in another halt to crane work on site and an investigation by the ONR.[45]

If the HMS Vanguard is retired as soon as deep maintenance on all the Vanguard submarines has been completed in 2030, several years before the first Dreadnought comes into service, it will be 37 years old, a service life almost 50 per cent longer than that for which it was designed. Admiral Lord West, previously Chief of Naval Staff, called the plan "bloody dangerous" and "very high risk," saying that it was contrary to the advice he had been given when he was in post.[46] There exists a significant question mark over the capacity of the UK to continuously keep one nuclear weapon submarine deployed at sea during the transition to the Dreadnought submarines. In the 1980s, the Thatcher government kept Polaris on continuous deployment against the advice of safety regulators about known problems with the reactor pipework.[47] As the programme proceeds, pressure from regulators, parliamentarians, or the public could force action to be taken at a time that is not of the MoD's choosing. The MoD may be forced to prioritise sustaining its contractors over keeping costs low if it wishes to retain a nuclear weapon programme.

Economics

The upgrading of the UK's nuclear weapons programme is now entering a critical phase. Although the building of the Dreadnought submarines is underway, there appear to be mounting problems and escalating costs that cast doubt on any possibility that the project will be delivered on time or within the projected costs. The lack of public awareness of this state of affairs is matched by lack of capacity or willingness by the MoD or the UK government to be subjected to scrutiny.

Procurement and maintenance within the nuclear weapon programme are paid by the MoD equipment budget, which updates costs annually including projections for the following nine years. In the past, an annual update for the MoD's large value projects was published by the National Audit Office (NAO), and since 2015 it has been published by the government's Infrastructure and Projects Authority, which offers less detailed information.[48] The obfuscation of the difficulties is facilitated by the highly technical nature of much of the documentation. Changed procedures for budgeting and accounting further obscure what is happening from the public, thus reducing opposition to the government's plans.[49]

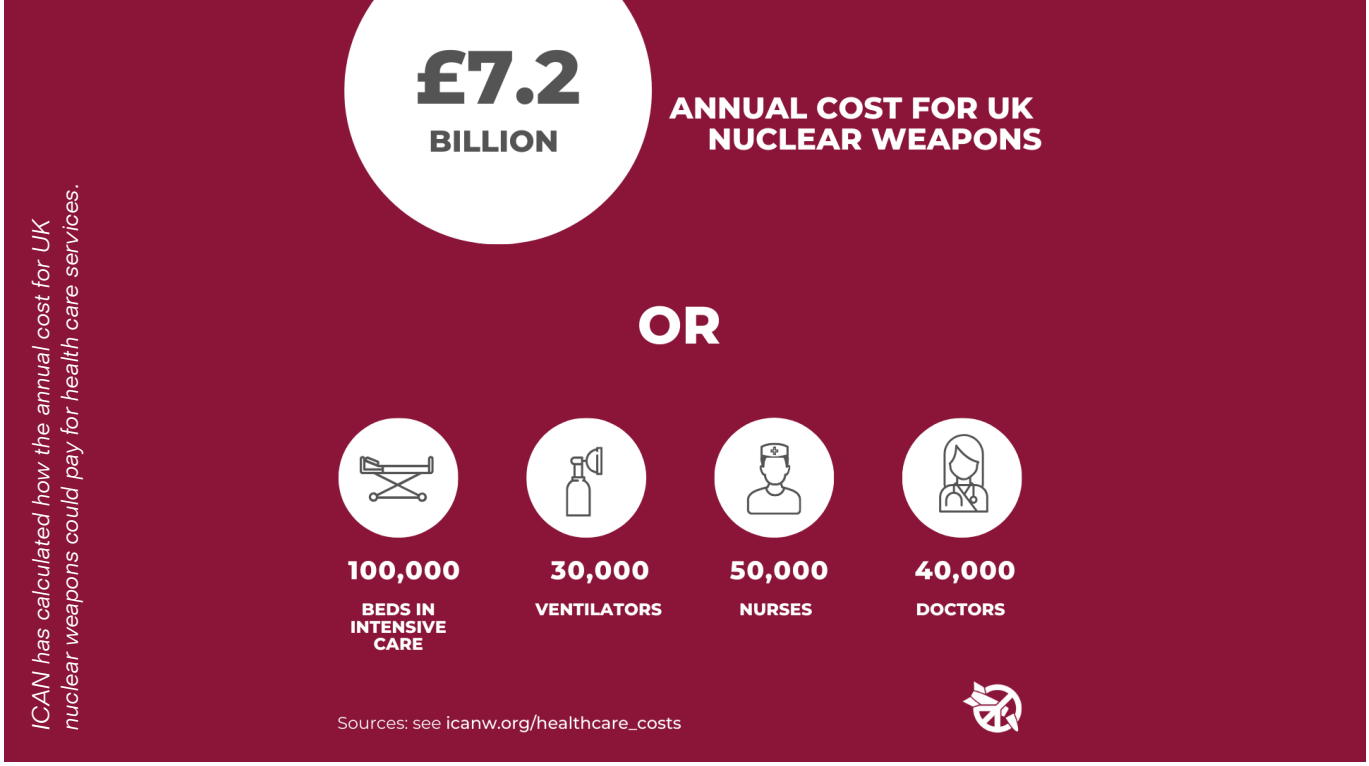
In addition to the lack of easily comprehensible information on cost, matters of safety and environmental considerations arising from the NWCSP are also subject to secrecy and lack of transparency. During 2017, the MoD refused to publish the annual report of the Defence Nuclear Safety Regulator and redacted all information about nuclear safety from the annual report of the Defence Safety Agency.[50]

The Nuclear Information Service in the UK uses a wide range of elements as well as extrapolating from the MoD's own figures and historical spending to estimate costs over time. This method estimates the total cost of the UK's nuclear weapons programme between 2019 and 2070 to be £172 billion. This is a low estimate based on 2019 prices, yet is far higher (four times) that the most commonly cited Government figures. The UK government does not release total cost figures, but the estimate for the Dreadnought programme figure is £31 billion, plus the additional £10 billion contingency for building four new Dreadnought submarines.[51]

MoD expenditure on the nuclear weapon programme is not released into the public domain, although the National Audit Office has disclosed the current MoD estimate for the DNE (which includes the cost of the UK's nuclear attack submarines, which is £50.9 billion. In 2016, the Campaign for Nuclear Disarmament (CND) produced an estimate including cost of missiles, warhead infrastructure, security, and decommissioning. Based on an MoD estimate that the programme would cost 6 percent of MoD spending over the lifetime and that an MoD budget of 2 per cent of GDP, CND's estimate for the programme is £205 billion.[52]

There are a number of areas where costs are at best bewildering, if not politically misleading. Environmental considerations and risks become externalities that are neither considered nor identified, with no analysis of remediation requirements or responses to climate change impacts, accidents, or the protection of civilian populations.

The Astute submarine programme shares infrastructure and workforce with the nuclear armed submarines, while its activities are not related to nuclear weapons. Reconnaissance aircraft, mine



warfare vessels, and destroyers are utilised by the nuclear weapons programme, but they have other primary duties, meaning their costs are not accounted for within the programme.

The MoD 2018 Update to Parliament reports on its part in the Nuclear Skills Strategy Group. This group supports the civil nuclear sector and a primary aim for the group is developing a workforce that can support the NWCSP. The absence of a buoyant civil nuclear sector makes government financial support a likely requirement. This is a historical relationship. In 2005, the MoD funded a RAND Corporation report highlighting the links between developing and servicing the nuclear submarines and a robust civil nuclear industry.[53]

The different lifespans of various elements in the nuclear weapon programme make it difficult to estimate life-cycle costs overall. For example, the development of the new warhead does not match the production cycle of the submarine. Time-slippage in the programme, delaying procurement work as a means of managing in-year funding gaps, and not including the costs of other future work, such as dock upgrade at Devonport, add to the complications. Other costs are unquantifiable liabilities listed in the MoD accounts,[54] in particular indemnities to Rolls Royce, Babcock, and BAE Systems, amongst others. These are complicated to negotiate and can lead to costs increasing along with risks.

In the absence of transparency and given the urgency of addressing the real risks presented by both the climate emergency and the planetary risks presented by nuclear weapons, inclusive cost accounting could soon become a necessity for the UK government. The inscrutable and escalating cost of the UK's nuclear ambitions are set against a background of crippling austerity, with social security payments at their lowest level since the establishment of the welfare state in the UK. In a report published by the Institute for Public Policy Research (IPPR) just before the December 2019 election, it was noted that food bank use is escalating with the steepest rise the Trussell Trust charity has witnessed since its network of food banks was established.[55] The most common driver of food bank use relates to the characteristics and functioning of the British welfare system. The IPPR report goes on to state that in the UK,

"The economy is not working for millions of people and needs fundamental reform. Average earnings have stagnated for more than a decade; young people are set to be poorer than their parents; the nations and regions of the UK are diverging further. Many of the causes of the UK's poor economic performance go back 30 years or more, particularly its weaknesses in productivity, investment and trade."[56]

From March 2020, in responding to the COVID-19 pandemic, action and investment from the government to secure the economy and the UK workforce clarifies that economy enhancing choices can be made and that reconsideration of spending priorities is perfectly possible where there is a will. Given the volte face that has taken place on public spending to protect those unable to work because of the lock down, questions are being raised in the UK mainstream media about the real nature of what constitutes security.[57]

International Law

The UK Government Foreign and Commonwealth Office (FCO) and the Ministry of Defence offers a fact sheet on International Legal Obligations with

regard to its nuclear weapons.[58] This states that the UK's possession of nuclear weapons is entirely lawful because the UK is designated a nuclear weapons state by the terms of the nuclear Non-Proliferation Treaty (NPT). The briefing describes the modernisation programme as simply "maintaining no more than the very minimum nuclear capability judged necessary for security". Twenty-two years after signing the NPT, the UK considers that it is fully compliant with its obligation to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date". The UK claims to have increased its transparency about its nuclear holdings in recent years, and since 1995 has ceased the production of fissile material for nuclear weapons. However, the UK has accumulated almost 139 metric tons of separated plutonium at its plant at Sellafield.[59] Because it has never used any of the material it recouped from reprocessing except for nuclear weapons, the result is that it already has enough plutonium to produce approximately 20 thousand Hiroshima size bombs. The costs attached to the storage of this material are astronomical.

The government's briefing on its legal position references the International Court of Justice (ICJ) Advisory Opinion[60] as rejecting the argument that nuclear weapons use would necessarily be unlawful in all circumstances, but does not examine the more detailed premise of the opinion that "The unique characteristics of nuclear weapons, the use of such weapons seemed scarcely reconcilable with respect for the requirements of the law applicable in armed conflict," or that the possible circumstances in which lawfulness may be argued would be "an extreme circumstance of self-defence, in which the very survival of a State would be at stake.

The current briefing concedes that the ICJ opinion is significant enough to be referenced in defence of its nuclear weapons policy. However, in the early 1990's the UK government was so strongly opposed to the question of the legality of nuclear weapons even being put to the ICJ by the World Health Organisation (WHO) that it produced a lengthy report to the ICJ[61] with the first chapter devoted to disputing the question being asked at all. The report claimed that the essential aim of the sponsors of the project was a political, and not a legal matter. It was further argued that, in any case, any opinion could not be implemented by WHO, and if the Court were to rule in favour of an absolute prohibition, the effects could be highly damaging, and jeopardise the NPT.

This historical resistance to the work of the ICJ in forming an opinion resonates with the actions taken by the and views expressed by the UK before and during the negotiations for the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW). In a letter to the United Nations Association-UK (UNA UK)[62] during the 2019 NPT Preparatory Committee the FCO described the TPNW as a risk to the non-proliferation regime and thus in conflict with the NPT. The letter was part of an exchange that took place following a House of Lords International Relations Enquiry[63] which called on the government to address grave concerns about the deteriorating state of nuclear diplomacy. Submissions from civil society were invited to answer questions relating to the NPT, including the potential impact of the TPNW. The report summary cites the lack of progress in the disarmament pillar of the NPT as leading to considerable dissatisfaction, which helped to facilitate the decision to negotiate the TPNW; while its conclusions urge more openness from the UK, as a "responsible" nuclear-armed state, on the possible humanitarian impact of nuclear weapons.

Despite a separate legal system in Scotland and opposition to UK nuclear weapons policy, it has not so far been possible to engage either government to seriously consider their legal obligations under international humanitarian law or to test the legality of the nuclear weapons under UK jurisdiction and based in Scotland.

At the Edinburgh conference, "Trident and International Law, Scotland's Obligations"[64] in 2009, His Excellency Judge Mohammed Bedjaoui, former President of the International Court of Justice stated,

Even in an extreme circumstance of self-defence, in which the very survival of a State would be at stake, the use of a 100 kt nuclear warhead (regardless of whether it was targeted to land accurately on or above a military target) would always fail the tests of controllability, discrimination, civilian immunity, and neutral rights and would thus be unlawful.

Public Discourse

The present UK government has repeatedly expressed its intention to maintain a nuclear weapons programme for the foreseeable future and it continues with its renewal programme. The main opposition party, Labour, initiated the replacement programme and has also expressed a commitment to maintaining nuclear weapons. In Scotland, the Scottish National Party (the government party) opposes all nuclear weapons,[65] as does the Scottish Green Party[66] and both have committed to a nuclear free Scotland that is independent of the UK government and supportive of the TPNW. Scottish Labour is opposed to the replacement programme, with a proviso that an appropriate diversification programme is put in place. It seems that one, or a combination of several possibilities are needed to deliver change to UK nuclear weapon policy:

- Real and quantifiable progress in aspects of international disarmament that would affect the UK's status in global structures, for example the entry into force of the Treaty on the Prohibition of Nuclear Weapons or a nuclear-armed state disarming;

- Election of a UK government that is committed to nuclear disarmament and addressing the climate emergency;

- A major nuclear accident and/or climate disaster affecting the UK directly;

- A constitutional crisis delivering an independent Scotland that could demand immediate disarming of warheads and removal of weapons and submarines from its territory; or

- Economic shocks that seriously disrupt the capacity to continue the nuclear weapon programmes.

These are perhaps the early days of the last of the above changes, as governments struggle to maintain the economy and fulfil their healthcare obligations during the pandemic that has stalled the 2020 NPT Review Conference.[67]

Professor Michael Clarke, Former Director General of the Royal United Services Institute, argued that Britain "scrapping" Trident would be the most significant nuclear decision the world has ever seen.[68] Professor William Walker pointed out that such a move would be unique because of Britain's role in the early development of nuclear weapons and its position as one of the three "custodians" of the NPT.[69]

In the period leading up to the 2014 referendum on Scottish independence, the late John Ainslie undertook a rigorous programme of work which enabled him to provide Scottish CND with invaluable resources to show that a Scottish government that could control policies on defence and international relations could not only insist that the UK remove its nuclear weapons from Scotland, but also initiate the elimination of the Trident nuclear weapon system in the UK. When the world came together at the UN in 2017 to adopt the Treaty on the Prohibition of Nuclear Weapons, many Scots were heartbroken that an independent Scotland was not in a position to sign it.

The deep seated disregard for the UK government throughout Scotland (there has, for example, been a permanent peace camp on the grass verge opposite the entrance to the submarine base in continuous occupation since 1982[70]) along with the uncertainty over UK economics, constitutional problems created by Brexit, and the huge economic pressure on the government in responding to the COVID-19 pandemic, creates a necessity and a culture where the UK government is more open than at any time since the dawn of the nuclear age to think the "unthinkable" and consider an alternative to such a patriarchal and imperialistic position of power.

Additional reading

John Ainslie's painstaking work is still as relevant as it is accurate and the three detailed reports: *Trident Shambles; Nowhere To Go, No Place for Trident;* and *Disarming Trident* are all available from the Scottish Campaign for Nuclear Disarmament at http://www.banthebomb.org/index.php/publications/reports.

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