A Safer World:

Treating Britain's harmful dependence on nuclear weapons

health professionals for a
safer, fairer & better world

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Foreword

Although Britain continues down the path of keeping and modernizing its nuclear weapons at huge cost, the world now has an international treaty banning them. On July 7th 2017, the UN General Assembly adopted, by a vote of 122 to 1, the text of a legally binding 'instrument' that makes it illegal for ratifying states to use, possess or produce any nuclear weapons at all. This landmark treaty signals a growing international desire to re-invigorate efforts to protect the world from the horrors of a nuclear war.

In this report, we expand on some of the treaty's implications, and in doing so, argue that Britain should now abandon its possession of nuclear weapons. We explain that the dangers attached to the policy of nuclear deterrence have grown and describe why the high-risk gamble of nuclear weapon states deploying thousands of active nuclear warheads will eventually fail.

Critically, a growing body of research shows how even a limited regional nuclear war would result in environmental effects that could trigger major declines in crop yield, putting an estimated 2 billion people at risk of serious food insecurity and starvation. A large-scale nuclear war would threaten the very survival of humanity.

We also describe how nuclear deterrence is an increasingly ineffective means of protecting our national security. While nuclear weapons give us a terrifying military might, they do not prevent or counter new forms of warfare and non-state terrorism; nor can they be used to fight sea level rise, extreme weather, ocean acidification, biodiversity loss, antimicrobial resistance and rising levels of inequality.

Many of the biggest threats to national security are global in nature, and can only be addressed collectively through the cooperation of states and peoples. Continued possession of nuclear weapons, however, only encourages other nations to seek their own weapons, while undermining the level of international cooperation required to address many of the biggest threats to human security.

There are better ways to achieve peace and national security than through the possession of nuclear weapons. Even former policy makers from America's cold war history such as Henry Kissinger, Sam Nunn, George Shultz and Bill Perry have declared that the nuclear weapons possessed by the US are no longer keeping the world safe and now pose an immense danger to humanity.

This is not to suggest that multilateral disarmament would be easy. It would require a great deal of hard work, skillful diplomacy and some courage. But it can be done; and it must be done. This is our simple message as doctors and health professionals.

By abandoning our reliance on an increasingly redundant and dangerous approach to national security, Britain can unleash its diplomatic prowess and soft power to take a lead on multilateral disarmament and make the world safer.

David McCoy
Director, Medact

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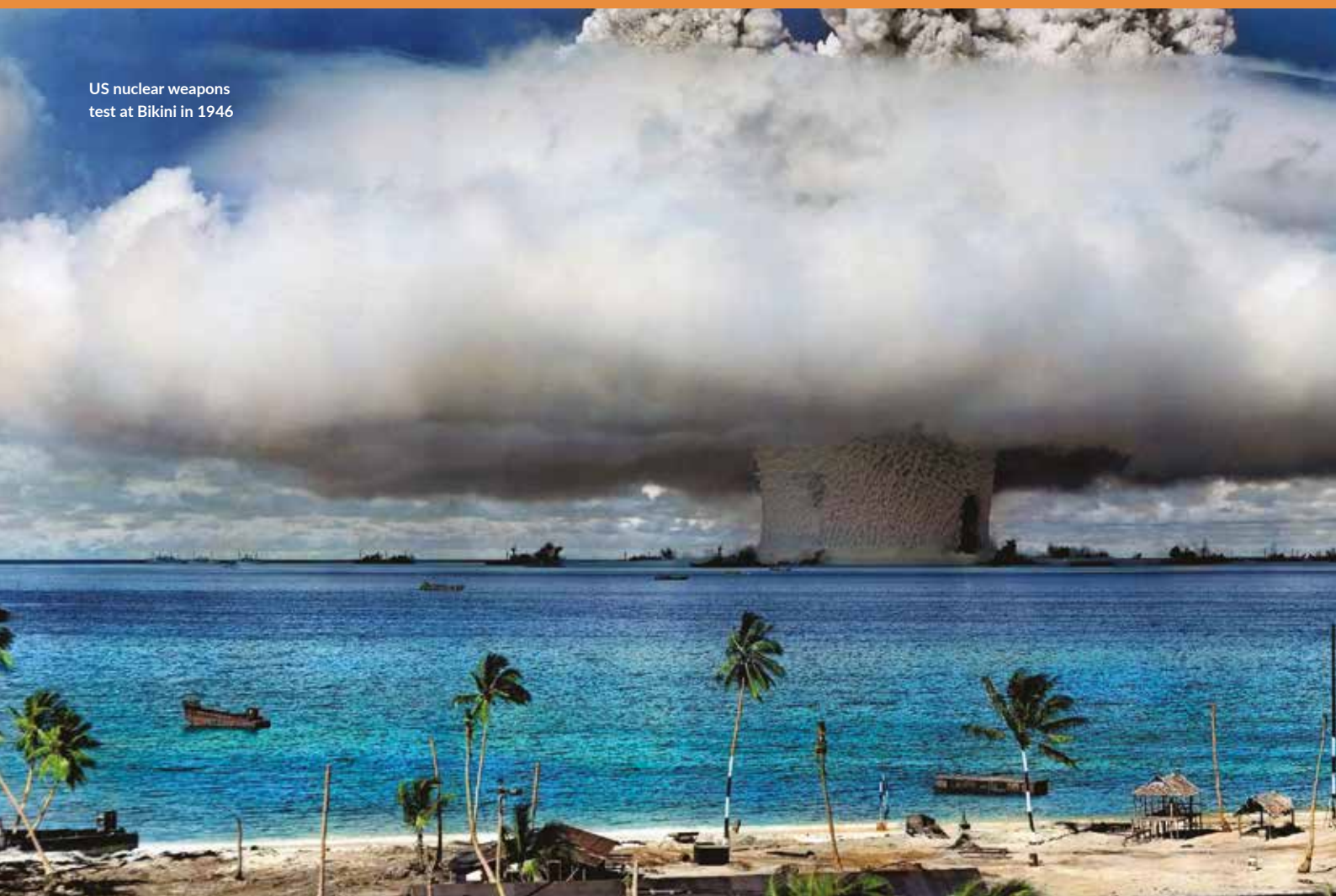
Chapter 1

Can we afford a nuclear war?

Nuclear war may feel like a distant threat, a relic from the Cold War. Today we're more likely to be kept awake by fears of terrorists using improvised weapons or home-made bombs. But nuclear weapons are never far from the headlines.



US nuclear weapons test at Bikini in 1946

Effects of the atomic bomb on Hiroshima.

While North Korea strives to build functioning nuclear weapons and the missiles to carry them across continents, the world watches nervously; some debate whether to strike first.

In Britain, Defence Secretary Michael Fallon's statement in May 2017 that the government would consider using nuclear weapons on a pre-emptive first strike prompted Frants Klintsevich, of Russia's defence committee, to express disapproval of the carefree way Fallon made his comment. He went on to state that "If Britain were foolish enough to attack a nuclear power, it would be wiped off the Earth by a retaliatory strike." [1]

Nuclear weapons, and the threat of their use, either intentionally or accidentally, are a real and growing threat to humanity. This chapter describes the effects of nuclear weapons and why we cannot afford to risk a nuclear war.

After the US dropped their nuclear weapons on Japan in 1945, all that was left of people near the epicentres were their shadows, scorched into nearby walls. Many of today's nuclear weapons are five to fifty times more powerful than those first weapons.

Effects of nuclear weapons

Researchers estimate that more than 1 billion people could die of starvation in the years following even a 'limited' nuclear war.

Immediate effects

At the heart of a nuclear detonation, there is an instantaneous flash of radiation from the exploding nuclear materials, and a fireball of extremely hot gas and highly radioactive debris rises to form the mushroom cloud. Temperatures on the ground reach several million degrees centigrade and all human tissue is vaporised.

After the US dropped their nuclear weapons on Japan in 1945, all that was left of people closest to the bombs were their shadows, scorched into nearby walls. Most of today's nuclear weapons are five to fifty times more powerful than those dropped on Hiroshima and Nagasaki in 1945.

The blast force and incinerating heat will destroy buildings and cause widespread fires. Super-hurricane force winds cause further immense damage. Separate fires will combine into a firestorm as all oxygen is consumed, killing even those sheltering underground.

Further away from the blast site, any survivors of the immediate blast will likely die from burns, internal bleeding and injuries caused by flying debris and shards of glass. Many more will be trapped under collapsed buildings.

Survivors who are exposed to the flash will suffer from acute radiation syndrome with nausea, mental disorientation, internal bleeding, diarrhoea, vomiting and fever. There is no specific remedy.

A silhouetted B-52H Stratofortress taxis down the runway during Prairie Vigilance 16-1 at Minot Air Force Base, N.D., Sept. 16, 2016.

Medact

1.5% of the world's nuclear weapons would be enough to send huge quantities of soot into the upper atmosphere and dim the sunlight for months or years, shortening growing seasons and reducing global food production. Food would become very scarce and result in a worldwide famine.

Victims exposed to high doses die in hours; those less exposed may respond initially to modern supportive treatment including blood transfusions, but long-term survivors are more likely to suffer from cancer later.

Using just 1.5% of the world's nuclear weapons could dim the sunlight and cause a nuclear winter.

Emergency service response

Following a nuclear attack, any immediate response would be mostly futile because of the complete devastation caused to roads, buildings and electricity supplies. Even if some medics could treat those not killed instantly by the searing heat and immense force of the blast, they would lack the resources to provide meaningful care.

Long-term effects

Radioactive fall-out from the bomb produces more long-term threats to human life.[2] This comes from the spread of radioactive material across a large area, depending on the size of the bomb, how much of the fireball hits the ground, and prevailing wind speed and direction. Heavier radioactive particles fall in the immediate area downwind, while finer particles may be blown many miles before falling to the ground as radioactive rain. Very fine particles ascend to the upper atmosphere to spread radiation around the world.

If particles are inhaled or swallowed, internal radiation to the body can cause harm and even death, principally from cancers but also from cardiovascular disease. Radiation is also known to cause harmful long-term genetic changes.

Other long-term effects may be psychological. Even after 50 years, survivors of Hiroshima and Nagasaki had significant post-traumatic distress disorders; and some also suffered from the effects of forced migration and social stigmatisation.

Nuclear famine

Nuclear famine refers to the impact of the huge amount of dust and soot that is thrown up into the atmosphere following a nuclear detonation.[3] This is caused not just by the immediate blast, but by the ensuing fires that will blaze across a large area when bombs are detonated over a populated area.

A nuclear war between India and Pakistan, involving about 1.5% of the world's total stockpile, would dim the sunlight for months or years, shorten growing seasons and reduce global food production. Food would become scarce and result in famine across the world. It has been estimated that over a billion people would die of starvation in the years following such a regional conflict.

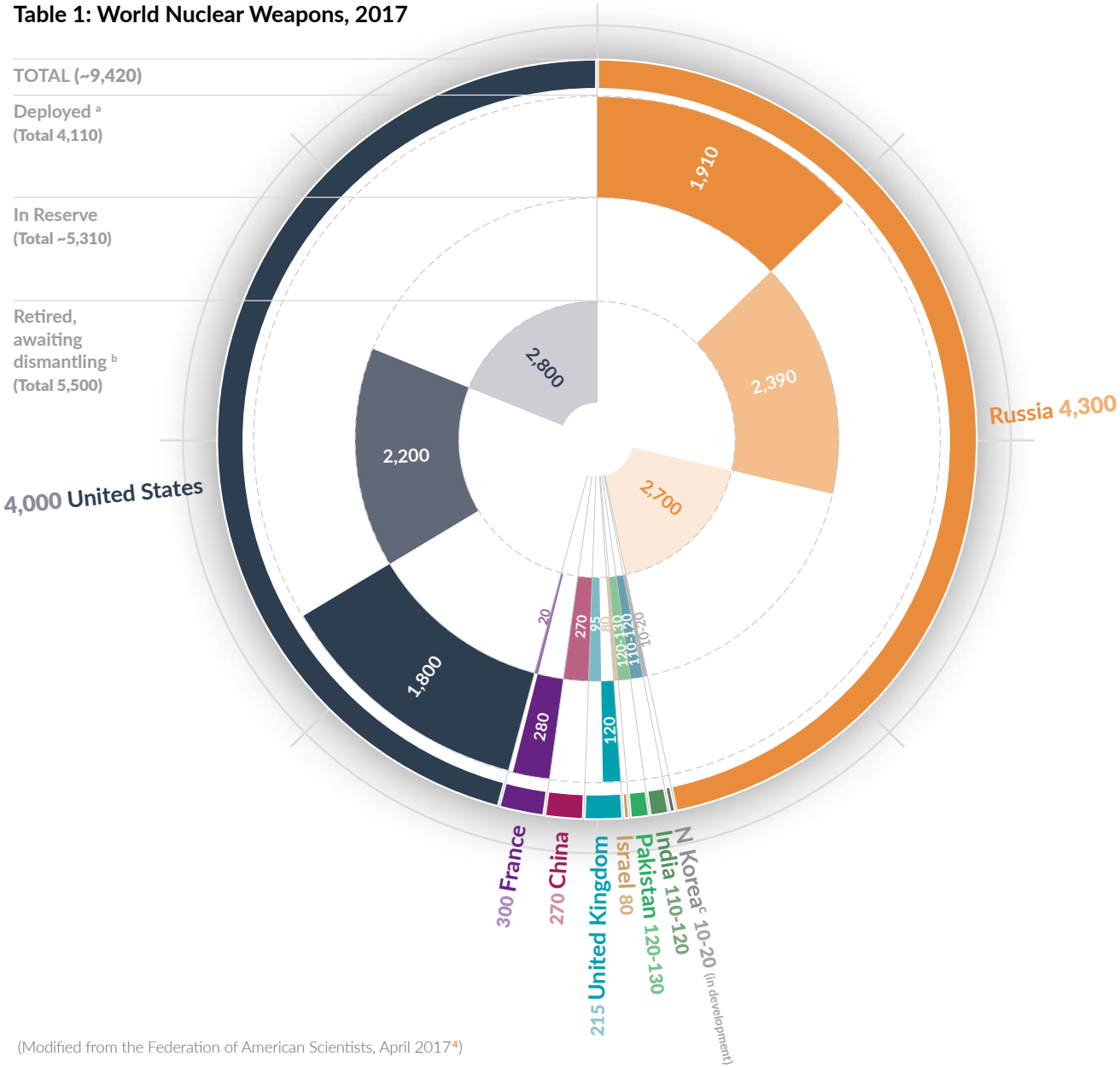
A full-scale nuclear war between the USA and Russia would result in temperatures plummeting to levels not seen since the last ice age. Agriculture would cease, ecosystems would fail, and the human race would struggle to survive.

The state of nuclear weapons

Nuclear bombs are held by nine nations: Russia, United States, France, China, Britain, Israel, Pakistan, India and North Korea. A further 32 countries are nuclear-dependent states who incorporate nuclear weapons into their national defence policies. These include the countries of NATO, Australia and South Korea. Over 4,000 weapons are currently deployed.

Most worryingly nearly 1,800 warheads are on alert and ready for use at short notice, raising the spectre of a nuclear war caused by accident or misinformation.

Table 1: World Nuclear Weapons, 2017



(Modified from the Federation of American Scientists, April 2017[4])

a Deployment refers to nuclear warheads that are mounted on missiles or at bomber bases, and prepared for firing. These include Russian and US 'tactical' weapons which are smaller and designed for 'battlefield' operations. The US has 150 tactical warheads deployed under NATO command in Europe.
b The US and Russia have a large number of retired nuclear warheads awaiting dismantling. These too pose a risk in terms of their radioactivity and potential for plutonium to be used to construct a 'dirty bomb'. Several hundred tons of weapons-grade plutonium are held in various stockpiles around the world, including over 120 tons are at Sellafield, enough for 24,000 Nagasaki-type bombs.
c North Korea has no nuclear weapons deployed as it is still developing its delivery system.

Is the possession and threatened use of nuclear weapons justifiable?

Given the immense human and environmental cost of a nuclear conflict, it is difficult to conceive of any situation that would warrant the use of nuclear weapons. Even in the gravest circumstances, we would have to consider the dire consequences of using nuclear weapons: mass casualties; indiscriminate murder; contamination of the environment; and threat of famine.

However, support for the possession of nuclear weapons is strong in Britain. Proponents argue that nuclear deterrence works and can help keep the peace and protect national security. Are these valid arguments? We consider them in the next chapter.

Key Points

- Nuclear weapons are indiscriminate killers. They are weapons of mass destruction that kill people, destroy infrastructure and contaminate the environment – potentially for generations.
- Any medical response to a nuclear attack would be extremely limited and largely ineffective.
- Using only 1.5% of the world's nuclear arsenal would trigger pronounced falls in crop yields and put around 2 billion people at risk of starvation.
- There are thousands of nuclear weapons held in a state of readiness, creating an unacceptable level of risk of accidental firing.
- Over 4000 nuclear weapons are currently deployed worldwide, with another 5000 held 'in reserve'. A further 5000 are retired and await dismantling.
- Britain has 120 ready-to-fire nuclear warheads in deployment; with a further 95 in reserve.

Additional Readings

ICRC, 2013. **Climate effects of Nuclear war and implications for global food production** *https://www.icrc.org/eng/assets/files/2013/4132-2-nuclear-weapons-global-food-production-2013.pdf*

IPPNW. **The Humanitarian Impact of Nuclear Weapons.** *http://ippnw.org/catastrophic-consequences.html*

ICAN. **Nuclear arsenals.** *http://www.icanw.org/the-facts/nuclear-arsenals/*

Arms Control Association. **Nuclear Weapons: Who Has What at a Glance.** *https://www.armscontrol.org/factsheets/Nuclearweaponswhohaswhat*

Helfand, I, 2013. **Nuclear Famine: Two Billion People at Risk—Global Impacts of Limited Nuclear War on Agriculture, Food Supplies, and Human Nutrition.** Somerville, MA: IPPNW. Available from: *www.ippnw.org/pdf/nuclear-famine-two-billion-at-risk-2013.pdf*

Robock A and Toon OB, 2010: **Local nuclear war, global suffering.** Scientific American, 302, 74-81. *http://climate.envsci.rutgers.edu/pdf/RobockToonSciAmJan2010.pdf*

ICRC, 2013. **Humanitarian Assistance in Response to the Use of Nuclear Weapons.** *https://www.icrc.org/eng/assets/files/2013/4132-3-nuclear-weapons-humanitarian-assistance-2013.pdf*

Scientists for Global Responsibility, 2017. **Chapter 3: A nuclear attack: the immediate effects.** *http://www.sgr.org.uk/resources/nuclear-weapons-beginner-s-guide-threats#S3*

International Physicians for the Prevention of Nuclear War, World Medical Association, World Federation of Public Health Associations and International Council of Nurses, 2017. **The Health and Humanitarian Case for Banning and Eliminating Nuclear Weapons.** *https://www.un.org/disarmament/ptnw/pdf/A%20CONF.229%202017%20NGO%20WP.11.pdf*

Helfand I, Haines A et al 2016. **The Growing Threat of Nuclear War and the Role of the Health Community.** World Medical Journal, 63: 86-95.

Chapter 2

Deterrence: a strategy destined to fail?

Many supporters of nuclear weapons argue that they are not so much a military means to wage war as political instruments to prevent war and keep the peace.

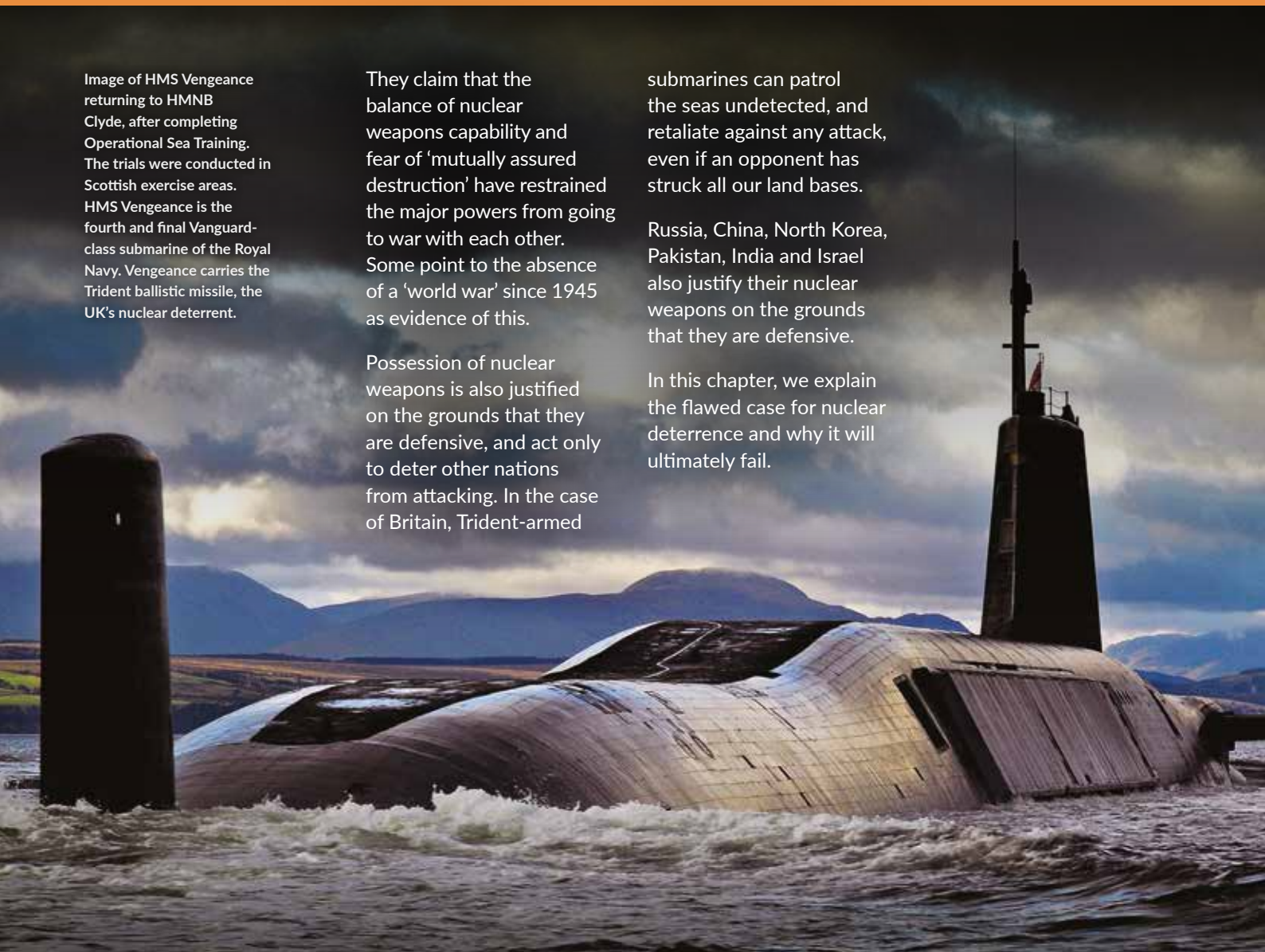


Image of HMS Vengeance returning to HMNB Clyde, after completing Operational Sea Training. The trials were conducted in Scottish exercise areas. HMS Vengeance is the fourth and final Vanguard-class submarine of the Royal Navy. Vengeance carries the Trident ballistic missile, the UK's nuclear deterrent.

They claim that the balance of nuclear weapons capability and fear of 'mutually assured destruction' have restrained the major powers from going to war with each other. Some point to the absence of a 'world war' since 1945 as evidence of this.

Possession of nuclear weapons is also justified on the grounds that they are defensive, and act only to deter other nations from attacking. In the case of Britain, Trident-armed submarines can patrol the seas undetected, and retaliate against any attack, even if an opponent has struck all our land bases.

Russia, China, North Korea, Pakistan, India and Israel also justify their nuclear weapons on the grounds that they are defensive.

In this chapter, we explain the flawed case for nuclear deterrence and why it will ultimately fail.

If the US and Russia waged a war using their nuclear arsenals, the resulting dust and soot would cause temperatures to plummet to levels not seen at the peak of the last ice age.

Living on a knife edge

At the heart of nuclear deterrence is an apocalyptic promise. If you attack me, I will destroy you: mutually assured destruction. Even if you think about attacking me, I may destroy you.

With nearly two thousand ready-to-launch nuclear weapons deployed, such an approach to maintaining world peace is a high-risk gamble. There are many potential points of failure: unstable leaders, infiltration by enemy agents, accidents, cyber-attack, or human error. Whilst it is impossible to estimate the probability of failure with any precision, even a low probability is unacceptable, given the magnitude of the threat to civilisation.

So a key question is: should we continue with this high risk gamble?

We don't think so. The risk of nuclear war has grown; and as with all gambles, it will eventually fail if allowed to continue indefinitely.

Deterrence provokes aggression and counter-aggression

Although nuclear weapon states and their dependents argue that they are merely defending their national security, the deployment of weapons of mass destruction is ultimately an act of aggression that creates tension between nuclear states and provokes retaliatory action. In the case of NATO and Russia, several thousand warheads are deployed and ready to fire at short notice.

One outcome is an arms race, where nations try and outgun each other. For example, during the Cold War, in response to the US and British development of the Trident system, the Soviets countered with 'Dead Hand' – a programme that would launch a counter-attack automatically if the Soviet leadership were destroyed.[5] In retaliation, the US spent billions of dollars on 'Star Wars' – a defence system against any Soviet nuclear attack.

Even if an arms race results in a perpetual balance of power, it is always accompanied by a state of tension that can always escalate and turn a cold war into a hot war. And it persistently diminishes the opportunity for countries to support alternative approaches to peace and collective security.

Defence Secretary Michael Fallon's (far right) statement earlier this year that the UK would consider using nuclear weapons as a pre-emptive first strike prompted Frants Klintsevich (right), of Russia's defence committee, to express disgust and state , that "If Britain were foolish enough to attack a nuclear power it would be wiped off the Earth by a retaliatory strike."

Preventing disarmament and encouraging proliferation

Most nuclear weapon states, including Britain, have clung to the misguided view that they can promote multilateral disarmament despite retaining and upgrading their own nuclear weapons capability.

It is also argued that possession of nuclear weapons (and the implicit threat to use them) discourages other states from developing their own nuclear weapons. This argument is, however, of doubtful validity and the converse can be argued.

As long as some states possess nuclear weapons, there will always be a justification for other countries to develop their own nuclear weapons. After all, the possession of nuclear weapons by the US, Russia, Britain, France and China did not prevent North Korea, Israel, Pakistan and India from becoming NW states. In the case of in North Korea, India and Pakistan, billions of dollars are spent on weapons and missile defence systems despite their populations being blighted by poverty.

Looking to the future, a 2014 UK Ministry of Defence strategic review stated that a growth in the number of NW states could be expected over the coming decades, especially if the use of nuclear energy grows.[6]

Such proliferation would inevitably increase the risk of a nuclear catastrophe. As noted by the Trident Commission, a world "awash with nuclear weapons in the hands of a larger number of states is a highly dangerous one, a more volatile international environment in which the use of nuclear weapons would become much more likely".[7]

A willingness to strike first makes things worse

Britain refuses to rule out the first use of nuclear weapons on the basis that this strengthens the deterrent effect.[8] Adopting this position means being prepared to use nuclear weapons to pre-empt a nuclear attack or deter an overwhelming conventional military attack. But in reality, neither of these two scenarios is considered likely. They don't even appear in the government's 2015 National Security Strategy and Strategic Defence and Security Review.[9]

Instead, the expressed readiness to strike first with weapons of mass destruction increases the level of international tension and the likelihood of British submarines being attacked in a conventional crisis, risking a dangerous escalation in any conflict.

Although Britain says it will not use its nuclear weapons against non-nuclear states, it reserves the right to do so if the non-nuclear state is allied to an attacking NWS. But by giving a political salience to nuclear weapons, this stance only makes them more attractive to other states and undermines the prospect for multilateral disarmament.

Deterrence, as a strategy, encourages every nation to outgun their opponents. There is an in-built incentive to have one more warhead, one more technology, one more failsafe to protect against potential threats.

In 2014, some parts of America's nuclear force was found to have an ingrained culture of cheating. Half of the 183 officers at a nuclear base in Montana were involved in the cheating scandal.

Rational and sane behaviour cannot be guaranteed

Nuclear deterrence is a strategy that depends on actors on all sides being responsible, rational and of sound mind. It is assumed that even a dictatorial and paranoid leader would not be so reckless as to invite mutually assured destruction.

But responsibility and rationality cannot be guaranteed. It is a weak link in the arguments used to support nuclear deterrence. Ultimately, the best way to avoid a reckless, irrational, impulsive or mistaken use of nuclear weapons is to remove the risk altogether.

It is true that multilateral disarmament also requires a level of responsibility and rationality, as well as willingness to build trust and robust mechanisms for effective verification. But responsible and rational behavior is encouraged by seeking to de-escalate tension and aggression. By contrast, holding onto the capacity to destroy countries with weapons of mass destruction fuels antagonism and fear, thereby increasing the risk of dangerous behavior.

Ready-to-fire nuclear weapons are accidents waiting to happen

Even if those in charge of nuclear weapons are responsible and rational, accidents can happen. Safety measures designed to prevent the accidental or mistaken launch of nuclear weapons are not a hundred percent failsafe.

Accidents may happen with the best trained and most well-disciplined personnel; but are more likely when military personnel are ill-disciplined, stressed, or living in the sub-optimal conditions of a submarine. Having nuclear weapons ready to fire at short notice also creates a state of military readiness which increases the risk of accidents.

There are a number of documented examples of sub-standard behaviour amongst military personnel who operate nuclear weapons systems in Britain and elsewhere.[10]

In April 2011, Royal Navy Commander Ian Molyneux was shot dead by Able Seaman Ryan Donovan after being refused shore leave during a publicity visit of the submarine HMS Astute. The investigating civil detective was "highly alarmed" by the high alcohol consumption allowed to the crew.[11]

In May 2015, William McNeilly, a Royal Navy engineering technician, blew the whistle on security and safety flaws in Britain's nuclear-armed submarines, describing the HMS Vanguard as a 'disaster waiting to happen' and questioning its ability to successfully fire its battery of missiles on command.[12] McNeilly was dishonourably discharged but never faced court martial or further punishment for his actions.

In the US, half of the 183 officers at a nuclear base in Montana were found in 2014 to have cheated in a test about how officers should handle emergency war orders, including when to launch a nuclear-tipped missile. The scandal resulted in all the missile officers having to retake the test (of which 22 failed).[13]

The world has also come close to catastrophe on several occasions due to accidents and mistakes. These have been researched and documented by Eric Schlosser in *Command and Control: Nuclear Weapons, the Damascus Accident and the Illusion of Safety* (2013)[14] and by Chatham House in *Too Close for Comfort: Cases of Near Nuclear Use and Options for Policy* (2014).[15]

At the height of the Cuba Missile Crisis in 1962, for example, the captain of a Russian submarine gave the order to launch a 10-kiloton nuclear torpedo at the American fleet. But the commander of the sub-flotilla persuaded the captain to wait for further orders. A diplomatic solution was eventually reached; but not before coming extraordinarily close to a nuclear war erupting.

In 1979, the US detected 2,200 missiles incoming from the Soviet Union and prepared to respond. Luckily, it was discovered to be a false alarm in time: a training scenario had been incorrectly loaded onto a live defence system. A similar scenario occurred in 1983 when the Soviet Union registered an incoming US missile strike. Duty officer Stanislav Petrov - whose job it was to register apparent enemy missile launches – doubted the computer readings and decided it was a false alarm. His decision is credited with having possibly 'saved the world'.

In another incident, Boris Yeltsin activated Russian missiles after a threat from Norway was detected in 1995. The threat turned out to be a research missile studying the Northern Lights. And more recently, an incident in 2010 saw the US losing control, command and security monitoring capabilities over 50 nuclear missiles for 45 minutes.

Such incidents demonstrate that we cannot assume that the thousands of nuclear weapons deployed across the world are being maintained and protected with complete safety. Further proliferation, combined with risks posed by cyber-warfare, will only increase the chance of an accidental or unintended nuclear weapon launch.

In 2010, US forces lost control, command and security monitoring capabilities over 50 nuclear missiles, for 45 minutes.

New technologies and the visibility of submarines

Drone technology and cyber warfare are technological advancements that further challenge the credibility of nuclear deterrence as a national security strategy. Although the control systems are said to be 'air-gapped' (i.e. not connected directly to the internet or to any other computers that are connected to the internet), ballistic missile submarines *are* susceptible to cyber-attack.[16]

In addition, emerging technologies are set to remove one of the supposed strengths of Britain's nuclear deterrence: the ability of Trident submarines to be undetected underwater. This ability is being eroded by the development of autonomous maritime drones that can operate in the air and under the sea to track submarines.[17] Their sensors and processing capabilities are rapidly improving and will mean that submarines can be detected and tracked even in large areas of ocean.

Even if some medics could treat those not killed instantly by the searing heat and immense force of the blast, they would lack the resources to provide meaningful care to the injured.

Effective missile defence is unrealistic

The US has invested hundreds of billions of dollars in missile systems designed to knock out nuclear weapons before they can detonate over American soil. The claim that a missile defence system could protect the US from a limited nuclear attack (and thereby make a nuclear war 'winnable') was made by US Army General Graham to gain funding for the 'Star Wars' programme in the 1980s.

Our nuclear deterrent doesn't stop terrorists.

However, these claims are unconvincing. Missile defence systems are constantly susceptible to improvements in delivery systems. For example, investment in hypersonic glide vehicles are designed to overcome existing defence systems. Fundamentally, no defence system can ever be 100% reliable or effective.

Furthermore, a missile defence system could encourage an opponent to strike first in any confrontation or conflict, in the belief that this might be the best chance for it to overcome the defence system. Thus defence systems end up being part of an arms race that escalates tension and risk.

Nuclear weapons do not stop wars

The view that the nuclear bombing of Hiroshima and Nagasaki helped end WW2 and prevent a greater loss of life is widely held. More recent historical analysis, however, agrees with General Dwight Eisenhower's comment in 1963 that "the Japanese were ready to surrender and it wasn't necessary to hit them with that awful thing".[18]

Although a major world war has been avoided since 1945, the relative peace of the last seventy years has been achieved more through global economic development and international diplomacy, than by nuclear deterrence.

However, the world has been blighted by many smaller conflicts across the world, including proxy wars between NATO and the Soviet Union/Russia. Thus, for hundreds of millions of people, the balance of power between opposing nuclear alliances has not been associated with peace.

NW states have also experienced conflict. Argentina invaded the Falklands, defying any risk of nuclear retaliation. Russia, in spite of their nuclear arsenal, has been in armed conflict with the Ukraine and Georgia. Wars in Korea, Vietnam and Afghanistan continued in spite of the threat of nuclear strikes by the US. And despite its ferocious nuclear capability, the US spends hundreds of billions of dollars on around 800 military bases in over 70 countries across the world.[19]

Nuclear weapons don't stop terrorists, or help defend us from climate change.

An abandoned American missile base in southern Boiotia (Greece), probably for the nuclear Nike missile systems

Although President Truman's threat in 1950 to use "any means necessary" (implying nuclear weapons) to halt the advance of communists in Korea is believed to have contributed to the eventual armistice in 1953, the fact that conflict and aggression continues on the Korean peninsula suggests that Truman's threat did not produce a lasting peace. In fact the targeting of North Korea with nuclear warheads by the US from 1959 until 1991 may have encouraged North Korea's pursuit of a nuclear weapons capability.

We also have the experience of India and Pakistan going to war in 1999 despite both being nuclear weapon states. In fact the possession of nuclear weapons on both sides illustrates what has been called a 'stability-instability paradox' – on the one hand, nuclear weapons may deter full-scale war; but they also heighten tension between countries in a way that can easily escalate beyond a point of no return.

While past conventional wars have not spilled over into a nuclear war, there is no guarantee this will always be the case. Furthermore, the postures of aggression and inevitable arms races raise the risk of accidental or mistaken nuclear detonation.

A false sense of security

While nuclear weapons project a ferocious military might, they are useless when it comes to preventing or countering new forms of warfare or non-state terrorism, including the detonation of a 'dirty bomb' (a bomb packed with radioactive material that is detonated conventionally and which then spreads highly toxic radioactive material).

They are also ineffective against many new threats to national and global security. Our reliance on globalised systems of information and communication, for example, has turned cyber-space into a new battleground where neither nuclear weapons nor conventional military force are of much use. Similarly, we cannot fight sea level rise, extreme weather, ocean acidification or biodiversity loss with military power; nor can we fight antimicrobial resistance and lethal pandemics with military power.

Nuclear weapons may deter full-scale war; but they also heighten tension between countries in a way that can easily escalate beyond a point of no return.

Rising levels of inequality and forced migration that threaten to destabilize social relations, within and across national borders, also cannot be prevented or managed with military might.

Many of these new threats cannot be mitigated by nation states on their own – they need the cooperation of states and peoples. Thus, as the fragility of the planet and our inter-dependency as a species become more apparent, so does the irrationality of nuclear weapons become more obvious.

The case for nuclear weapons and deterrence is crumbling

By dismantling our weapons of mass destruction, Britain could redirect billions of dollars towards a better strategy for securing our future safety and wellbeing.

Britain is a small country with a big influence. It is one of the five permanent members (P5) of the UN Security Council. It is a member of the Commonwealth, the G7, the G20 and the OECD. It wields significant power on the world stage, without even taking into account the soft power expressed through the reach of the English language and culture.

There is no reason to think that our power and international standing would be diminished if Britain signaled its intention to give up its nuclear weapons. If anything, our moral standing on the international stage would grow.

Key Points

- The belief that nuclear deterrence works is seductive and has underpinned foreign and defence policy in Britain since the Cold War.
- Even if deterrence may have contributed to preventing war in the past, the risks and costs have grown while the potential benefits have shrunk.
- At some point, deterrence will fail. There are many ways that a first strike could be triggered by accident, oversight, or through software failure or a cyber-attack. It thus brings an unacceptable level of risk *and* a heightening – rather than a diminishing – of tension between nation states.
- Other risks associated with deterrence are the weakening of diplomatic efforts to reduce nuclear weapons proliferation and the technological improvements in weaponry and defence systems which undermine deterrence.
- As long as nations have nuclear arsenals deployed and ready to fire, a single intentional or accidental incident could provoke a catastrophe. And the longer we maintain vast stockpiles of nuclear weapons, the greater the risk of these weapons falling the hands of terrorists.
- Meanwhile, other risks to people and ecosystems are growing and increasing the opportunity costs associated with the renewal and maintenance of nuclear weapons.
- The treaty to ban nuclear weapons provides a new opportunity to re-energize efforts for multilateral nuclear disarmament to which Britain could contribute.

Additional Readings

Eric Schlosser, 2013: **Command and Control: Nuclear Weapons, the Damascus Accident and the Illusion of Safety.** New York: Penguin Books.

Barnett L, Birch M and Waterston E, 2013. **The delusional thinking behind a policy of 'nuclear deterrence'.** London: Medact. *https://www.medact.org/wp-content/uploads/2014/01/report-delusionalthinking-2013.pdf*

Loretz, J, 2010. **The case against deterrence doctrine.** *https://peaceandhealthblog.com/2010/05/07/the-case-against-deterrence-doctrine/*

Lewis P, Aghlani S and Pelopidas B, 2014. **Too Close for Comfort: Cases of Near Nuclear Use and Options for Policy**, London: Chatham House.

Abaimov S and Ingram P, 2017. **Hacking UK Trident: A Growing Threat.** London: British American Security Information Council. *http://www.basicint.org/publications/stanislav-abaimov-paul-ingram-executive-director/2017/hacking-uk-trident-growing-threat*

Union of Concerned Scientists, 2015. **Taking Nuclear Missiles Off Hair-Trigger Alert.** *http://www.ucsusa.org/sites/default/files/attach/2015/05/Hair-Trigger-Alert-Policy-Brief.pdf*

Chapter 3

The economic folly of Trident

Some proponents of Trident argue that it is economically beneficial. The GMB union, for example, supports Trident renewal because it will bring jobs and economic growth. This argument holds zero credibility if nuclear weapons are dangerous and redundant. But even if they aren't, the argument that Trident is economically beneficial is highly questionable.

A Trident II (D-5) missile is launched from Pad 46A during the Navy's fifteenth developmental test flight.

The high price of a nuclear deterrent

Nuclear weapons are expensive to build, maintain and decommission. But calculating the price tag for replacing Trident is not straightforward - there are many different costs, and these need to be spread over a 30 to 40-year period.

The Campaign for Nuclear Disarmament (CND) used government figures to estimate a total lifetime cost of £205b.[20] This includes the cost of building submarines, leasing the missiles, managing and maintaining the new fleet and weapons, and decommissioning the retired fleet.

The Trident Commission, an independent, cross-party enquiry into Britain's nuclear policy, estimated that the average annual cost of constructing and deploying four submarines with missiles and warheads between 2016 and 2062 is £2.9b in 2012 figures. This annualised figure is equivalent to about 9.4% of the defence budget. However, because costs are higher during the initial construction phase, in the early years of that period, the cost could be as much as 20% of the defence budget. The estimated total (£133.4 billion) is less than CND's estimates.[21]

The most expensive jobs ever created

Trident renewal will create jobs. People are needed to design, build and manage submarines, their systems, engines and nuclear warheads. Thousands of people are involved in creating, maintaining and decommissioning these nuclear systems. However, these jobs are amongst the most expensive ever created.

It is believed that the renewal of Trident would maintain the 11,500 or so jobs that are currently spread across Britain's nuclear weapons programme. If so, at a total cost of £205b, Trident renewal would create, on average, one job at the cost of about £18m over a 30 - 40 year period. These would be expensive jobs. Further devaluation of sterling would increase the cost of this job creation even more.

While investment in Trident will be economically beneficial for some – including a number of banks and multinational corporations - for society as a whole, what we get from this expensive job creation scheme are un-usable and dangerous weapons of mass destruction.

But cancelling Trident would not result in a sudden loss of jobs. Many jobs would continue to exist for a period of time because workers would be needed to first maintain and then decommission the existing Trident system.

Britain's third £1 billion Astute Class nuclear submarine, Artful, being lowered into the water at Barrow-in-Furness.

How else could we spend the Trident budget?

Defence is an unavoidable cost. But there are more effective ways to protect our national security; and there are better ways to create jobs and prosperity.

Tackle poverty and invest in the future

Barrow-in-Furness, where Britain's nuclear submarines are built, is one of the most deprived communities in England. Why don't we spend money redeveloping towns like Barrow by creating high-skill and high-wage jobs that people can rely on for generations?

While the nuclear industry receives a big payday from Trident renewal, this takes cash away from other more productive and useful industries. Instead of nuclear weapons, the British government could invest in research and development aimed at the renewable energy sector, or retrofitting Britain's housing stock with safe insulation to reduce fuel costs and greenhouse gas emissions, while improving health and energy security.

Invest in public services

The impact of the 2008 global financial crisis and subsequent public bailout of the banking sector has resulted in years of austerity. Rather than renew and service a dangerous nuclear weapons system, money could be diverted to finance any number of more socially useful public services or support public investment projects that could be economically beneficial for the country.

The UK has no facility for decommissioning nuclear submarines. 19 nuclear submarines are currently sitting in the water in Devonport and Rosyth in Scotland

Invest in conventional armed forces

Finally, even if all the money earmarked for Trident were kept for military spending, it would be better spent on strengthening the country's conventional armed security services, in the light of the threat of national and international terrorism.

Nuclear decommissioning

Successive governments have failed to deal with the legacy of waste produced by the Trident system. Nuclear decommissioning actually ground to a halt in 2002 after the Office of Nuclear Regulation told the MoD that their facilities were not up to standard. As a result, retired submarines sit in the water, laden with nuclear fuel, while the government looks for somewhere to permanently store tonnes of radioactive material. Dealing with the existing load of civil and military nuclear waste is another better use of the Trident budget.

Key Points

- Renewing Trident could cost as much as £205 billion over its lifetime (forty years or so). This is a lot of money that could be better used in many other ways.
- Spending billions on Trident is not an effective way to create work in Britain. The jobs it creates are extremely expensive.
- Money could be spent and jobs created in ways that are more economically productive and socially useful.

Additional Readings

Trident Commission, 2014. **Concluding Report: An independent, cross-party inquiry to examine UK nuclear weapons policy.** London: British American Security Information Council. *https://www.files.ethz.ch/isn/181759/trident_commission_finalreport.pdf*

CND, 2016. **The costs of replacing Trident.** *http://www.cnduk.org/index.php?option=com_k2&view=item&id=2447&Itemid=26*

CND, 2016. **Trident and jobs.** *http://www.cnduk.org/images/stories/trident_and_jobs.pdf*

Morris J, 2014. **Decommissioning nuclear subs.** Plymouth: BBC. *http://www.bbc.co.uk/news/uk-england-devon-28157707*

Chapter 4
Why a Ban Treaty

Preventing proliferation; promoting disarmament

Ban The Bomb

For decades, the world was gripped with fear over a nuclear confrontation between the West and the Soviet Union. Various bilateral treaties between the US and Soviet Union, and the subsequent end of the Cold War in the early 1990s, helped de-escalate confrontational postures and reduce the risk of a nuclear war. Various other treaties may have also helped prevent nuclear war and proliferation to a limited degree.

For example, the Nuclear Non-Proliferation Treaty (NPT), enacted in 1970, requires states without nuclear weapons to agree not to acquire them, and those with nuclear weapons to agree to share the benefits of peaceful nuclear technology, while also progressing 'in good faith' towards nuclear disarmament. However, there are mixed views about whether the NPT has been effective.

One view is that more states would have acquired nuclear weapons had it not been for the effectiveness of the NPT. But from another perspective, the NPT failed to prevent India, Pakistan, North Korea and Israel from becoming nuclear weapon states; nor did it dissuade several other countries from supporting nuclear weapons by joining alliances such as NATO. Finally, the NPT did not prevent China, France, Russia, Britain and US from continuing to modernize and upgrade their nuclear weapons systems.

However, the risk of a nuclear war and further proliferation remains high and is getting bigger. There are now several potential nuclear flashpoints in different parts of the world, notably in Eastern Europe, the Indian sub-continent and around the South and East China Seas.

There are also worries about a new Cold War emerging between the West and Russia. The reductions in nuclear arsenals and alert status seen through the 1990s, slowed in the 2000s, partly due to Russian objections to the proposed US Missile Defence Shield. The latest bilateral US/Russia START (Strategic Arms Reduction Treaties) will expire in 2021. Instead of pushing for further reductions in nuclear weapons, NW states are modernising their nuclear forces at a worldwide cost of one trillion dollars per decade.

Nuclear weapon states are modernising their nuclear forces at a worldwide cost of one trillion dollars per decade.

Former US Defense Secretary William Perry claims that the risks of a nuclear exchange are greater today than during the Cold War.[23] And according to the British American Security Information Council (BASIC), "trust and confidence in the existing nuclear non-proliferation regime is fraying, tensions are high, goals are misaligned, and dialogue is irregular".[24]

Meanwhile, other forces are creating new tensions and threatening international stability. There is a rising tide of nationalism. Global warming and climate change are contributing to resource scarcity.

A new approach is needed

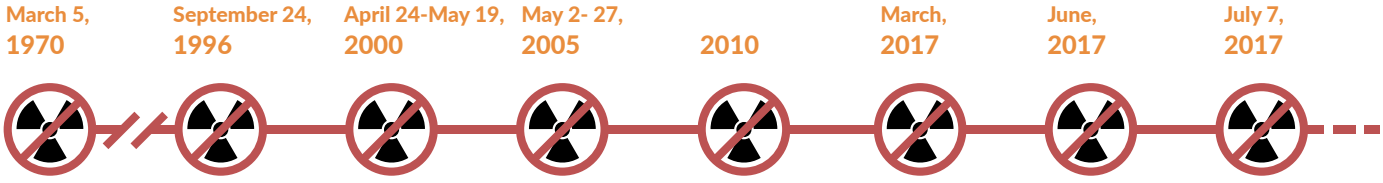
For some years now, a number of civil society organisations and enlightened governments have felt that a new approach is needed to achieve multilateral nuclear disarmament and global security.

In 2010, at the Review Conference for the NPT held in New York, several governments called for new commitments towards nuclear disarmament, safety and security, including taking steps towards a treaty to prohibit and eliminate nuclear weapons.

International meetings to advance the humanitarian case for global nuclear disarmament were held in Norway, Mexico and Austria, and eventually led to the establishment of a UN 'Open Ended Working Group' in 2016 to pursue negotiations for a 'Ban Treaty'. A round of negotiations in March 2017, attended by delegates from 130 countries, led to the drafting of a legally-binding ban treaty for nuclear weapons which was finalised in a second round of negotiations and adopted by 122 votes to 1 on July 7th 2017.

Negotiations in March 2017... led to the drafting of a legally-binding ban treaty for nuclear weapons which was finalised in a second round of negotiations and adopted by 122 votes to 1

Legal Instruments - a time line



March 5, 1970
The Nuclear Non-Proliferation Treaty enters into force.

September 24, 1996
The **CTBT** is opened for signature in New York.

April 24-May 19, 2000
The Sixth Review Conference for the states parties to the NPT, held in New York adopts a fully negotiated final document.

May 2- 27, 2005
The 2005 Nonproliferation Review Conference is held at UN Headquarters in New York and ends without having achieved significant progress on a wide range of arms control issues.

2010
The governments of Norway, Mexico, Ireland and Austria put nuclear weapons on the UN agenda

March, 2017
First round of **Ban Treaty** negotiations

June, 2017
Second round of discussions

July 7, 2017
Treaty banning nuclear weapons approved at UN

The Treaty on the Prohibition of Nuclear Weapons

The core purpose of the treaty is to prohibit states from "developing, testing, producing, manufacturing, acquiring, possessing, stockpiling, transferring, deploying, stationing, using or threatening to use nuclear weapons, under any circumstances".[25] It also makes it illegal to '*assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a state party under this treaty*' and extends the prohibitions to non-state actors. Other provisions lay out the principles and pathways for how states that currently possess nuclear weapons (or that engage in nuclear deterrence alliances, policies and practices) can join and implement the treaty.

The treaty is pragmatic and recognises that evolving technical and political conditions make it better for the precise technical, verification and institutional requirements for its implementation to be worked out over time by acceding governments, as well as organisations such as the International Atomic Energy Agency (IAEA) and the Comprehensive Test Ban Treaty Organisation (CTBTO). The IAEA are especially important for preventing the diversion of any civil nuclear technologies and materials toward military use.

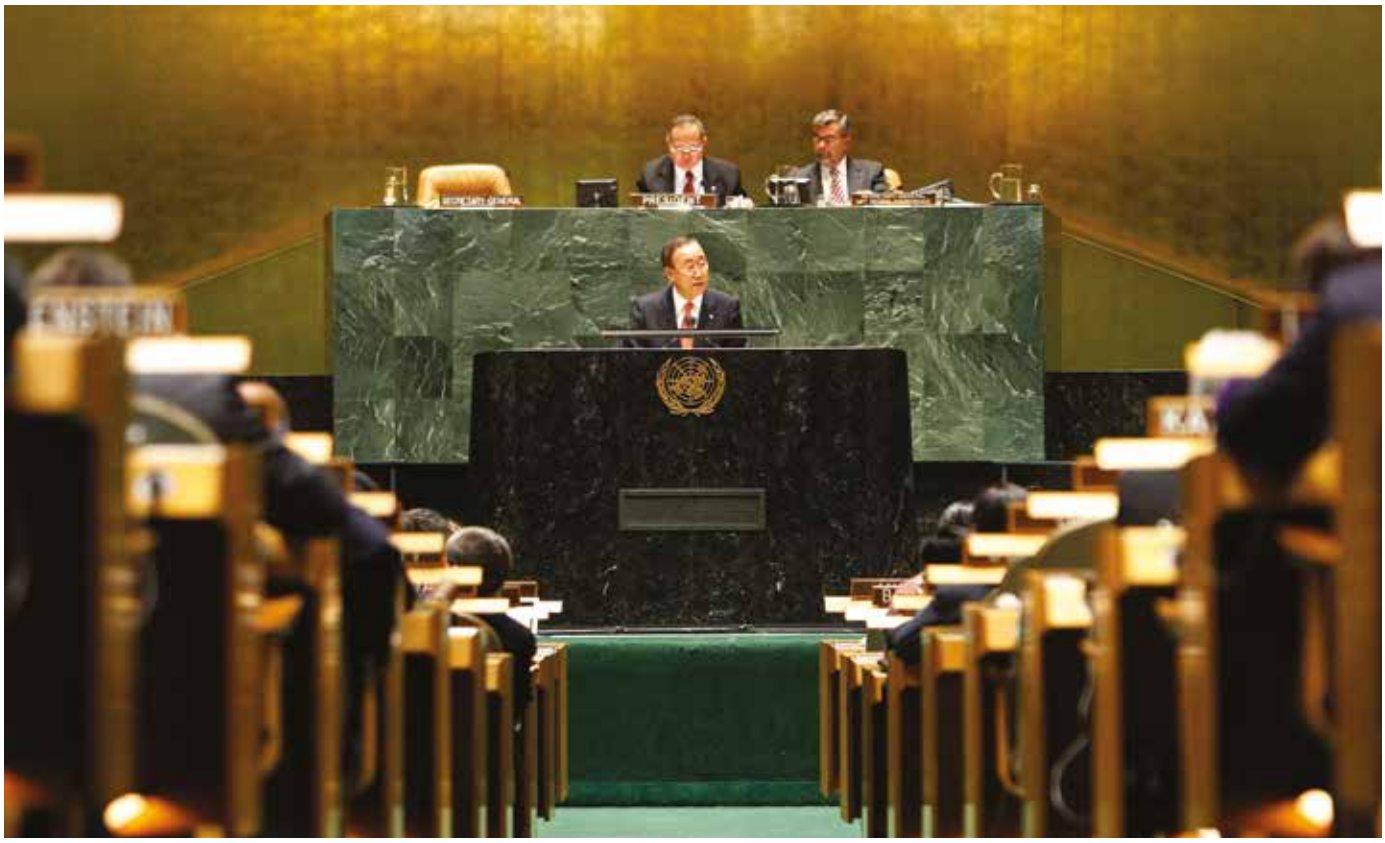
Nuclear weapons states like Britain will be permitted to join while still in possession of nuclear weapons, so long as they undertake to decommission and destroy them under a well-guarded and secure checking procedure.

The treaty also establishes obligations on victim assistance and environmental remediation, and recognises gender-related aspects of nuclear programmes and the disproportionate harm nuclear weapons and testing have caused to indigenous people.

The treaty will be open for signature on 19 September at a signing conference in New York. Fifty states are required to ratify the treaty for it to enter into force. At a national level, the process of ratification varies but usually requires parliamentary approval and the development of national legislation to turn prohibitions into national legislation. This process is also an opportunity to elaborate additional measures, such as prohibiting the financing of nuclear weapons. The first Meeting of States Parties will then take place within a year after the entry into force of the Convention.

The president of the UN conference on Nuclear Weapons, Elayne Whyte Gómez, announces the Treaty on the Prohibition of Nuclear Weapons in July 2017.

The Treaty on the Prohibition of Nuclear Weapons, the first multilateral legally-binding instrument for nuclear disarmament to have been negotiated in 20 years. It was adopted by a vote of 122 in favour to one against (Netherlands), with one abstention (Singapore).



Former UN Secretary-General Ban Ki Moon urges nations to make nuclear disarmament targets a Reality.

What next for Britain and its Legal and Moral Duties?

The British government boycotted the Ban Treaty negotiations and did not even attend the discussions that preceded the final negotiations, together with the other NW states and many nuclear-dependent states. It opposed the Ban Treaty claiming that it would undermine the NPT and other efforts to prevent nuclear war.

The non-participation of these states is clearly a problem. It means that the Ban Treaty will not immediately be followed by steps to decommission and remove the existing stock of nuclear weapons.

However, it will reinvigorate multilateral disarmament efforts, and deserves much more support from nuclear weapon states and their dependents.

In addition to the strategic and technical arguments made earlier in this report, Britain should also consider the legal and moral reasons for nuclear disarmament.

According to some, by planning to renew Trident, Britain is already in breach of the NPT which commits NW states to work towards disarmament.

The Geneva Conventions, which prohibit the use of any weapons that cannot discriminate between civilians and enemy combatants, also suggests that the threat or use of nuclear weapons is unlawful,[26] although some judges from the International Court of Justice (ICJ) argued in 1996 that it *might* be legal to use nuclear weapons if a NW state felt existentially threatened *and* if civilian lives and neutral countries were not affected.[27]

Britain should make better use of resources for the benefit and security for all people.

This view has been used by British officials to claim that it is legally permissible to use nuclear weapons, even as a first strike, *if* Britain is threatened and *if* the impact of low-yield, tactical nuclear warheads are limited to enemy combatants in a battlefield. Such a scenario, however, is patently implausible.

Others have also noted that under the Genocide Convention, states threatening to use nuclear weapons are "conspiring," "inciting," and being "complicit" in planning for what could and would likely be a *genocidal* war.[28] Because Nuclear weapons are intended to kill millions of civilians they are also a gross violation of International Humanitarian Law.

Because Nuclear weapons are intended to kill millions of civilians they are also a gross violation of International Humanitarian Law.

The Ban Treaty makes it even more difficult for Britain to defend its possession of nuclear weapons, whilst simultaneously claiming to uphold the rule of law and founding principles of the United Nations.

We should get rid of Trident. It's the right thing to do. It's the safe thing to do. And it will allow us to make better use of our resources for the benefit and security of all people.

Multilateral disarmament is feasible

Multilateral disarmament is not straightforward. States with nuclear weapons will find it difficult to give up their nuclear weapons without high confidence that they will all disarm in good faith, and that non-nuclear states will not acquire them. Disarmament by the major powers could even make the acquirement of nuclear weapons by smaller countries more attractive by increasing their relative value.

However, there are bigger risks associated with not disarming and many potential benefits that will be foregone if nuclear weapons states do give up their weapons of mass destruction and adopt a more enlightened approach to security.[29]

By declaring a readiness to give up Trident, adopting an explicit 'no first use' policy, and issuing firm and unconditional assurances that it will *not* use nuclear weapons against any state without nuclear weapons, Britain could lead a renewed process of multilateral disarmament that builds on the momentum created by the Ban Treaty. In parallel, alternative security arrangements could be developed for Britain to transition towards a more sustainable form of national security that is not reliant on nuclear weapons.

Such an expressed commitment by Britain would have a powerful impact. Instead of keeping the world stuck in a doctrine that is no longer fit for purpose, our intellectual, cultural, diplomatic and economic resources could be deployed to advance a more enlightened and sustainable approach to global security.

Thoughtful and skillful international diplomacy will be important. Here too, Britain could play a significant role. We have many well regarded diplomats, scholars and experts within our academic institutions, government departments and think tanks.

Effective multilateral disarmament is not a pipedream of utopian idealists. More and more mainstream politicians, military leaders and academic strategists have begun to discuss the viability of such a goal.[30] If anything, it is those who urge the indefinite retention of NWs who are unrealistic, naively believing that they will never be used.

Issuing firm and unconditional assurances that it will not use nuclear weapons against any state without nuclear weapons, Britain could lead a renewed process of multilateral disarmament that builds on the momentum created by the Ban Treaty.

Key Points

- Some people argue that international efforts to reduce the threat of nuclear war have been relatively successful. However, the current number of potential nuclear flashpoints, coupled with other threats to international security, have pointed to the need for a reinvigorated commitment to multilateral nuclear disarmament.
- An international ban treaty which prohibits nuclear weapons and leads towards their total elimination has now been negotiated and adopted at the UN.
- Non-ratifying states will be under extra legal and moral pressure to consider the advantages of a properly negotiated multilateral treaty.
- Although multilateral disarmament is not straightforward, it can be done. It is not a pipedream; it is more strongly rooted in reality and rationality than the idea that the indefinite retention of NWs increases our national security.
- Britain could play a really important role by declaring a readiness to give up Trident, adopting an explicit 'no first use' policy, and issuing firm and unconditional assurances that it will not use nuclear weapons against any state without nuclear weapons.
- In parallel, it could deploy its diplomatic, intellectual and economic resources to support a process of more enlightened diplomacy and international relations that would also enhance our global standing.

Additional Readings

Ammerdown Group, 2016. **Rethinking Security: A discussion paper**
http://www.c-r.org/downloads/Rethinking_Security_full_report.pdf

Johnson R, 2017. **A giant step towards a nuclear free world is in reach – but will it be sabotaged at the last minute?**
https://www.opendemocracy.net/uk/rebecca-johnson/giant-step-towards-nuclear-free-world-is-in-reach-but-will-it-be-sabotaged-at-las

Nuclear Information Service, 2017. **The UK and the nuclear ban treaty.** *http://www.nuclearinfo.org/sites/default/files/NIS%20Briefing%20on%20the%20UK%20and%20the%20nuclear%20ban%20treaty.pdf*

Chapter 5

What can be done by health professionals

The opaque machinations of nuclear politics may seem beyond the reach of ordinary health professionals. But in fact, the potential for the health community to shape public opinion and international policy is great. Here we summarise the important role played by the health community in the past, and describe what health professionals can do now.

The mandate and duty of health professionals

Health professionals, and doctors and nurses in particular, have a unique place in society. They are professionally mandated and trusted to protect society from harm. They are trained in science and evidence, and ethically bound to speak with truth and honesty. They are rooted in International Humanitarian Law and the principles of impartiality, neutrality and independence.

In the case of nuclear weapons, it is clear that there is no level of acceptable use, no option that would not cause harm. As indiscriminate weapons of mass destruction, they are catastrophic for human health. Even the smallest nuclear weapon would cause devastating and indiscriminate harm.

There is a duty for health professionals to warn the general public of the hopelessness in the aftermath of massive nuclear destruction and correct misunderstanding within the general public and mainstream media about the risks associated with nuclear weapons and the viability of multilateral disarmament and nuclear weapons abolition.

Medacts 'die-in' protest against Trident renewal

Health professionals making a difference

The award of the Nobel Peace Prize to the International Physicians for the Prevention of Nuclear War (IPPNW) in 1985 demonstrates the influence that health professionals can have in global politics.

IPPNW was founded in 1980 at a time when the world was on the brink of nuclear annihilation. Recognising the danger, a group of doctors over-rode their national and political differences to jointly research and publicise the full health effects of the bombings of Hiroshima and Nagasaki, and to extrapolate the potential effects of a nuclear war between the Soviet Union and the West.

In doing so, IPPNW debunked much of the ineffective and impractical advice on measures to protect societies from the effects of nuclear war that were being propagated by governments. Such advice included the preparation of home-made shelters for protection from a nuclear blast.

The doctors sounded a medical warning: nuclear war would be the final epidemic. There would be no cure and no meaningful medical response.

IPPNW's message reached millions of people around the world. Its education of health professionals and political leaders led it to being awarded the UNESCO Peace Education Prize in 1984. In the words of former New Zealand Prime Minister David Lange, "IPPNW made medical reality a part of political reality".[31]

Since then, IPPNW, which is now a non-partisan federation of national affiliate groups from 64 countries, has continued to research and publish authoritative research papers, books and articles in the dangers associated with the production, testing, and use of nuclear weapons.

The Health Through Peace movement resists militarisation as a driver of ill-health and works to promote peace as an essential prerequisite to a healthier world.

In addition, it has organized citizens in nation states across the world to actively campaign for the prevention of war and abolition of nuclear weapons. Physician activists were instrumental in campaigns to ban atmospheric and underground nuclear test explosions and to shut down nuclear weapons testing sites and production facilities.

In 2007, IPPNW launched the International Campaign to Abolish Nuclear Weapons (ICAN), the aim of which was to ban and delegitimize nuclear weapons as a step towards their eventual elimination. ICAN now consists of more than 420 partner NGOs from over 100 countries.

Since 2010, ICAN, IPPNW and other health organisations have been working with various governments and UN agencies to frame the debate on nuclear weapons around the catastrophic and persistent effects of nuclear weapons on our health, societies and environment. This came to be known as the Humanitarian Initiative.

Of particular note was the involvement of the International Red Cross and Red Crescent movement, the World Medical Association, the International Council of Nurses, and the World Federation of Public Health Associations.

Medact is the British-based affiliate of IPPNW and has been engaged in public and professional education about the health effects of nuclear weapons for decades.

It exists to provide a platform for British health professionals to address the underlying determinants of war and other threats to global health, including climate change and poverty. Medact, IPPNW and ICAN have demonstrated the important contribution that health professionals can make in foreign affairs, most notably in seminal work conducted to predict the full impact of the 2003 war against Iraq.

The current progress towards banning nuclear weapons provides an unparalleled opportunity for a new phase of activities in Britain aimed at removing Trident and replacing it with a more effective and safer approach to national security.

Practical actions

Learn, follow the debate and share your knowledge and concerns

This report provides some information and evidence about nuclear weapons, as well as an outline of the arguments used on both sides of the debate. If you feel concerned about the threat of nuclear weapons, you can share this report with friends and colleagues. This is a small act that can help to raise the profile of this important issue. We have also pointed to other readings if you want to learn more.

Write to your MP

Does your MP know how you feel about nuclear weapons? If you agree with our analysis, you can share your concerns by using the Write to Them service.

https://www.writetothem.com/

We've also compiled a list of points that you can cut and paste into an email.

- On 7 July 2017, the UN adopted a landmark agreement to ban nuclear weapons. Known officially as the Treaty on the Prohibition of Nuclear Weapons, it prohibits nuclear weapons, in line with present international laws banning landmines, chemical weapons and biological warfare.
- The use of nuclear weapons, many of which are vastly bigger and more damaging than the Hiroshima bomb, will have a devastating health impact. The ability to respond to anyone who survives the immediate effects of a nuclear detonation will also be limited by the destruction and crippling of medical facilities.
- Well-validated scientific studies have also shown that a limited exchange of nuclear weapons would create a massive amount of atmospheric debris, which would damage food supplies across the whole globe. Such a Nuclear Winter scenario would result in mass starvation, potentially affecting as many as 2 billion people.
- Nuclear weapons possession leaves Britain more vulnerable to harm and attack, and fails to address the real threats facing national and human security.
- Deterrence is a policy that will ultimately fail to prevent a catastrophic nuclear event, if only as a result of misunderstanding or error.
- The "first use policy" increases the level of risk of nuclear war.

Join Medact

Medact is a British-based health organization with a dedicated campaign to protect humanity from the existential threat posed by nuclear weapons. We exist to harness and amplify the voice of health professionals.

Add your voice to our chorus. Be part of a progressive health community. Help us financially by becoming a member or giving a donation.

Support other groups and campaigns

International Campaign to Abolish Nuclear Weapons

International Physicians for the Prevention of Nuclear Weapons

Acronym Institute for Disarmament Diplomacy

International Association of Lawyers Against Nuclear Arms

Campaign for Nuclear Disarmament

Peace Action

Article 36

Global Zero

Don't Bank on the Bomb

Endnotes

1 O'Connor T, 2017 **Russian Senator: UK will be 'wiped off the face of the earth' if it uses nuclear weapons.** Newsweek, 25/4/17. *http://www.newsweek.com/russia-nuclear-attack-uk-wipe-nation-face-earth-589794*

2 ICRC, 2015. **Long-term Health Consequences of Nuclear Weapons- 70 Years on Red Cross Hospitals still treat Thousands of Atomic Bomb Survivors.** *http://www.icanw.org/wp-content/uploads/2015/08/Hiroshima-and_Nagasaki-ICRC-Info-Note-final.pdf*

3 Helfand, I, 2013. **Nuclear Famine: Two Billion People at Risk—Global Impacts of Limited Nuclear War on Agriculture, Food Supplies, and Human Nutrition.** Somerville, MA: IPPNW. Available from: *www.ippnw.org/pdf/nuclear-famine-two-billion-at-risk-2013.pdf*

4 Kristensen HM and Norris RS, 2017. **Status of World Nuclear Forces.** Federation of American Scientists *https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/*

5 Hoffman, David, 2009. **The Dead Hand: The Untold Story of the Cold War Arms Race and its Dangerous Legacy.** USA: Anchor Books.

6 UK Ministry of Defence, 2014. **Global Strategic Trends 5th report.** *https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/348164/20140821_DCDC_GST_5_Web_Secured.pdf*

7 Trident Commission, 2014. **Concluding Report: An independent, cross-party inquiry to examine UK nuclear weapons policy.** London: British American Security Information Council. *https://www.files.ethz.ch/isn/181759/trident_commission_finalreport.pdf*

8 Merrick R, 2017. **Theresa May would fire UK's nuclear weapons as a 'first strike', says Defense Secretary Michael Fallon.** The Independent. *http://www.independent.co.uk/news/uk/politics/theresa-may-nuclear-weapons-first-strike-michael-fallon-general-election-jeremy-corbyn-trident-a7698621.html*

9 UK Government, 2016. **National Security Strategy and Strategic Defence and Security Review. First Annual Report 2016.** *https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/575378/national_security_strategy_strategic_defence_security_review_annual_report_2016.pdf*

10 Altogether, Britain's nuclear weapons programme has had 110 accidents, near misses, and dangerous occurrences according to the Nuclear Information Service (2017). See **Playing With Fire: Nuclear Weapons Incidents and Accidents in the United Kingdom.** *http://nuclearinfo.org/sites/default/files/Playing%20With%20Fire%20Report-Web.pdf*

11 Nuclear Information Service, 2013. **Police investigating fatal shooting shocked by binge drinking on nuclear submarine HMS Astute.** *http://www.nuclearinfo.org/article/safety-uk-fleet/police-investigating-fatal-shooting-shocked-binge-drinking-nuclear-submarine*

12 Nuclear Information Service, 2015. **Trident whistleblower William McNeilly 'sacked to save the Navy's image'** *http://nuclearinfo.org/article/uk-trident/trident-whistleblower-william-mcneilly-sacked-save-navys-image*

13 Associated Press, 2015. **US navy second military branch struck by exam cheating scandal this year.** *https://www.theguardian.com/world/2014/feb/05/us-navy-military-struck-exam-cheating-scandal-year*

14 Eric Schlosser, 2013: **Command and Control: Nuclear Weapons, the Damascus Accident and the Illusion of Safety.** New York: Penguin Books.

15 Lewis P, Aghlani S and Pelopidas B, 2014. **Too Close for Comfort: Cases of Near Nuclear Use and Options for Policy,** London: Chatham House. *https://www.chathamhouse.org/publications/papers/view/199200#sthash.k7C1RdHx.dpuf*

16 Abaimov S and Ingram P, 2017. **Hacking UK Trident: A Growing Threat.** London: British American Security Information Council. *http://www.basicint.org/publications/stanislav-abaimov-paul-ingram-executive-director/2017/hacking-uk-trident-growing-threat*

17 Hambling D, 2016. **The Inescapable Net: Unmanned Systems in Anti-Submarine Warfare.** London: British American Security Information Council *http://www.basicint.org/publications/david-hambling/2016/inescapable-net-unmanned-systems-anti-submarine-warfare http://www.basicint.org/sites/default/files/Pugwash_TransparentOceans_update_nov2016_v1%281%29.pdf*

18 See: *http://old.seattletimes.com/special/trinity/supplement/quotes.html*

19 Vine D, 2015. **Base Nation: How US Military Bases Abroad Harm America and the World.** New York: Metropolitan Books.

20 CND, 2016. **The costs of replacing Trident.** *http://www.cnduk.org/index.php?option=com_k2&view=item&id=2447&Itemid=26*

21 Trident Commission, 2014. **Concluding Report: An independent, cross-party inquiry to examine UK nuclear weapons policy.** London: British American Security Information Council. *https://www.files.ethz.ch/isn/181759/trident_commission_finalreport.pdf*

22 Blair B, 2011. **World Nuke Spending to Top $1 Trillion Per Decade.** TIME, 4 June 2011: *http://ti.me/2pSsHVc*

23 Perry W, 2015. **William J Perry on nuclear war and nuclear terrorism.** Bulletin of the Atomic Scientists, 8 December 2015: *http://bit.ly/1Q8YW9P*

24 Brixey-Williams S, Ingram P, Pedersen NS, 2017. **Meaningful multilateralism: 30 Nuclear Disarmament Proposals for the Next UK Government.** *http://www.basicint.org/publications/sebastian-brixey-williams-project-leader-paul-ingram-executive-director-nina-sofie*

25 See here: *https://www.un.org/disarmament/ptnw/index.html*

26 See here: *https://www.icrc.org/en/war-and-law/treaties-customary-law/geneva-conventions*

27 ICJ, 1996. **The Legality of the Threat or Use of Nuclear Weapons.** *https://www.law.umich.edu/facultyhome/drwcasebook/Documents/Documents/Advisory%20Opinion,%201996%20I.C.J.%20226.pdf*

28 See here: *https://ihl-databases.icrc.org/ihl/INTRO/357?OpenDocument*

29 Ammerdown Group. (2016). **Rethinking Security: A discussion paper.** *https://rethinkingsecurityorguk.files.wordpress.com/2016/10/rethinking-security-executive-summary.pdf*

30 **The growing appeal of zero** *http://www.economist.com/node/18836134*

31 **IPPNW: A Brief History.** *http://www.ippnw.org/history.html*

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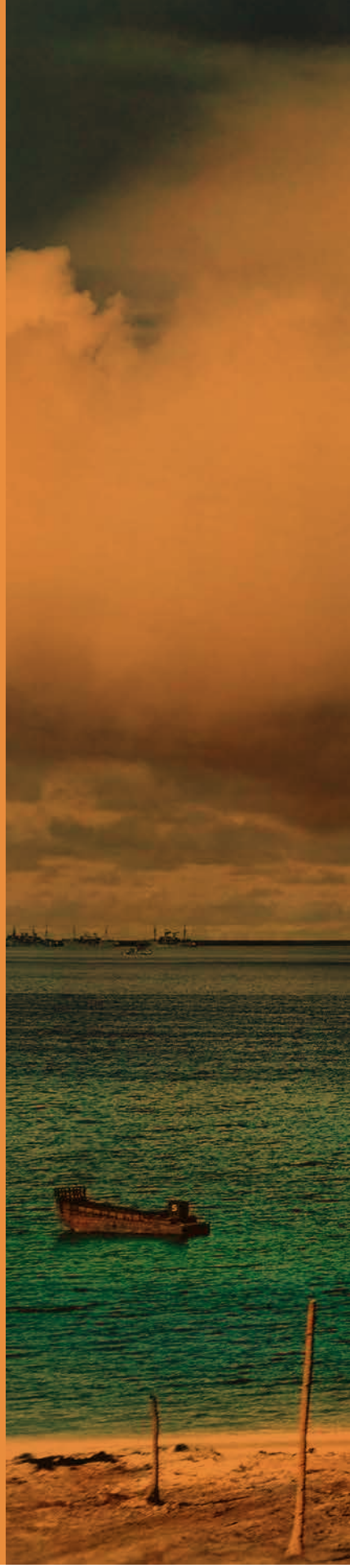

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