

Preventable Threats:

The humanitarian impacts of nuclear weapons: UK risks and challenges



Something new and challenging is shaking up the world of nuclear weapons and proliferation. In March 2013, 128 governments met in Oslo to discuss the humanitarian impacts of these weapons of mass destruction, possessed by nine countries and deployed around the world. In February 2014, 146 governments, UN agencies, parliamentarians, the International Red Cross and Red Crescent Societies, and representatives from civil society organisations met in Nayarit, Mexico, for the second intergovernmental conference on the humanitarian impacts of nuclear weapons (HINW). The next meeting is in Vienna, December 2014.

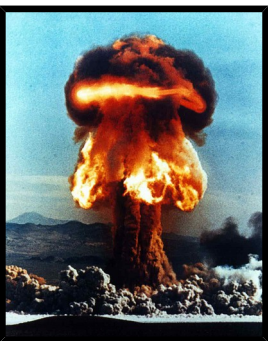
Despite declaring a commitment to multilateral disarmament, the UK government chose to shun both of these conferences and spend several billion pounds on contracts with Atomic Weapons Establishment (AWE) contractors for a further nuclear weapons system. The Ministry of Defence has set 2016 as the date for deciding on a new generation of nuclear submarines to deploy Trident missiles for another fifty years. In 2013, UK diplomats were instructed to boycott a UN Open-Ended Working Group (OEWG) mandated by the General Assembly to discuss nuclear disarmament issues at the Palais des Nations in Geneva. As with the Oslo, Nayarit and Vienna Conferences, all UN member states were invited to participate in the OEWG, and most did. The boycott was carried out only by Britain, China, France, Israel, Russia and the United States.

These multilateral meetings on disarmament and nuclear weapons are intended to enable nations to overcome the problems that have paralysed Cold War era institutions such as the Conference on Disarmament and the 1968 Non-Proliferation Treaty (NPT). Neither institution is fit for purpose in today's world. Only 66 nations are members of the Conference on Disarmament, which has been deadlocked since 1998. Four nuclear armed states remain outside the NPT, which looked like a toothless talk shop when faced with governments determined to proliferate and update their nuclear technologies. The NPT's next review conference is May 2015, and the nuclear-armed states – inside and outside the NPT – have made little or no progress in three priority requirements: preventing proliferation, tackling WMD in the Middle East, and eliminating existing nuclear arsenals. On the contrary, nuclear weapons are still being promoted and modernised, and they are still being trundled around on trucks, planes and submarines. Some leaders wield them for political advantage, like rattling sabres. Meanwhile accidents keep happening, and computers and human error continue to misidentify or miscalculate, creating nuclear war threats out of weather balloons or flocks of geese.

The Oslo Conference Chair concluded: "The effects of a nuclear weapon detonation, irrespective of cause, will not be constrained by national borders, and will affect states and people in significant ways, regionally as well as globally". Hence, it was "unlikely that any state or international body could address the immediate humanitarian emergency caused by a nuclear weapon detonation in an adequate manner and provide sufficient assistance to those affected". The Nayarit Conference highlighted: "Beyond the immediate death and destruction caused by a detonation, socio-economic development will be hampered and the environment will be damaged... suffering will be widespread, the poor and vulnerable being the most severely affected." Noting that nuclear weapons create global insecurity and are an "issue of the utmost importance to all peoples in the world", the Chair of the Nayarit Conference argued for "a diplomatic process ... [to] reach new international standards and norms, through a legally binding instrument..."

Relevance for the UK

Understanding and preventing humanitarian disasters is the responsibility of all governments. Those that produce, deploy, stockpile and transport nuclear weapons have particular roles to play in protecting people in their own countries and around the world from nuclear accidents and use. Britain's weapons are deployed at sea and taken by road between nuclear bomb factories near London and the storage and deployment bases in Scotland. For the UK – and any other nuclear-armed states – not to participate constructively in the Vienna Conference and future multilateral meetings dealing with nuclear consequences and disarmament is short-sighted, arrogant and irresponsible.



Detonation of a 100 kt warhead on Manchester

What would happen if a single nuclear warhead of 100 kt (equivalent to a hundred thousand tones TNT) were detonated on Manchester? This was the question that ICAN-UK and Article 36 considered in their 2013 case study, using conservative rather than worst case parameters. Manchester is the ninth largest city in the UK, with a population of 430,000. London, which is just 50 miles from the Atomic Weapons Establishments (AWE) Aldermaston and Burghfield, has over 7 million, while more than 600,000 people live in Glasgow, less than 40 miles from the Coulport and Faslane nuclear weapons storage and submarine bases.

One nuclear bomb would create enormous blast and thermal effects (flash, heat etc.), resulting in an estimated 81,000 immediate deaths in Manchester, leaving 212,000 people badly injured. It would destroy vital infrastructure, hospitals, housing and commercial buildings. The capacity of medical and emergency services would be severely degraded. If the warhead exploded at ground level, radioactive fallout would inflict further serious health impacts and hamper efforts to help the survivors, which would likely include large numbers of injured, homeless and displaced people. A high altitude nuclear detonation would create an electromagnetic pulse (EMP) that could knock out computers and electronic systems. Even outside the zones of direct damage, communication and transport would be severely disrupted.

Due to terrible levels of burn, blast, shock and trauma injuries, there would be very high demand for blood transfusions and intravenous fluids, plasma, clotting factors and medical services. Yet the personnel and infrastructure to deliver them safely and effectively would be overwhelmed if not rendered completely inoperative, while survivors fleeing the disaster zone would overwhelm services in the rest of the country. Many “short-term survivors” would succumb and die within days and weeks, unable to receive the help that could save their lives. To this must be added the complexity of radiation-induced problems for survivors and responders, ranging from acute sickness to immune suppression, impaired healing and elevated risks of cancer. In the event of multiple detonations, such as a regional or global nuclear war, there would be massive disruptions to transport, trade, computing and communications services that would severely restrict the ability of outside providers to assist in delivering blood and other vital medical services to afflicted areas.



If Trident were fired

Trident (as the UK’s nuclear system is usually abbreviated) comprises 4 nuclear-powered submarines, equipped with US-built Trident missiles, armed with UK-made warheads. The weapons were designed to destroy Soviet cities, but the Cold War ended before the first nuclear submarine was taken to sea. International upheavals may have removed any vestige of credible military or security purpose for these nuclear armaments – euphemistically called “our independent nuclear deterrent” – but that didn’t stop the Conservative government going ahead. Some attempt was made to claim a “sub-strategic” use, inaccurately described as a “shot across the bows”, while the number of warheads carried by each submarine

was eventually reduced to 40. Operationally, the navy still had to cling to Cold War notions that Trident would not deter others unless at least one nuclear-armed submarine was on “continuous at-sea deterrence” patrols (CASD) at all times. After 20 years of these expensive but pointless exercises, British politicians have been pushing for a new generation of submarines and warheads, costing up to £100 billion. The government’s “main gate” deadline for deciding what to get is scheduled for 2016, after the next General Election. With Scotland yearning to become a nuclear-free country, and popular majorities across the British Isles opposing Trident replacement, the politicians seem bizarrely obsessed with CASD. They also appear too frightened to address the fundamental issue of whether the UK needs nuclear weapons at all.

Trident – however deployed – lacks a credible military and security purpose but could still cause humanitarian catastrophe if fired and detonated through intention, miscalculation or accident. Two studies from 2013 highlight the appalling consequences of a specific Trident use scenario based on the Cold War requirement that Britain should have the nuclear capability to “flatten Moscow”. This “Moscow criterion” is irrelevant for today’s world, yet its assumptions still influence government discourse on replacing Trident. For this reason – without implying that Russia is Trident’s sole target – a Scottish CND analysis considered the human impacts of firing the 40 warhead payload of one UK submarine at targets in and around Moscow. Such an attack would cause over 5.4 million direct deaths during the first few months, principally from blast, fire and acute radiation poisoning. Residential and office tower blocks would be shattered, and extensive fires and firestorms would incinerate schools, hospitals and homes across a wide area. Radioactive fallout would contaminate populations at greater

distances, depending on weather and wind conditions. Moscow would be effectively destroyed, its communications, transport and infrastructure crippled, and its hospitals wrecked or incapacitated.

A further analysis from Scientists for Global Responsibility (SGR) considered the wider climate impacts and humanitarian problems if the 40 nuclear weapons on one British submarine were fired at Russia's five largest cities (Moscow, St Petersburg, Novosibirsk, Yekaterinburg and Samara). Citing recent American studies on the environmental and agricultural impacts of a hundred Hiroshima-sized bombs (approximately 1.5 million tons (MT) aggregate, since the bomb that destroyed Hiroshima was around 15 kt) the SGR analysis concluded that if one Trident-armed submarine fired its missiles (estimated as an aggregate of around 4 MT) at urban areas the consequences would be globally catastrophic. Cities are regarded as "countervalue" targets according to current doctrines and policies, while "counterforce" targets include military facilities, frequently located near towns. That means that firing Trident at Russia would cause the direct deaths of 10 million people and put many more lives at risk from blast and thermal injuries and radiation poisoning. The human suffering would be compounded by severely impaired medical and emergency services.

Mushroom clouds laden with debris from the pulverised cities would create radioactive fallout, returning to earth as deadly "black rain". There would be widespread contamination of homes and agriculture far from the incinerated targets. Smoke and dust would be hurled into the upper atmosphere and circulate around our planet, blocking sunlight and causing a dark, cold "nuclear winter" for several years or more. Disrupting the climate on that scale would shatter agriculture, natural ecosystems and food resources around the world, creating the conditions for widespread famine and disease that could kill up to two billion people.

Whether your country possessed nuclear weapons or not, everyone would suffer. At Oslo and Nayarit, governments heard that their people would starve and suffer if nuclear weapons were used, even if they live in Africa, Latin America, South-East Asia and the Pacific – which all agreed treaties declaring their regions "nuclear free zones". Shockingly, this global devastation could result from less than 1 % of today's nuclear arsenals, or just one Trident-armed sub. And British people would suffer along with the targeted country and everyone in between. As noted in the SGR report, "deploying a weapon capable of devastating the world's climate system is a grossly disproportionate, and perhaps even suicidal, response to uncertain future security concerns."

Nuclear accidents, fires and warhead transports from AWE to Scotland

The warheads for Trident are made near Reading and London at Atomic Weapons Establishment (AWE) facilities at Aldermaston and Burghfield. They travel by road to the Royal Navy's depot at Coulport, Scotland, where some are stockpiled while others are attached to US Trident missiles on board nuclear subs deployed out of Faslane, north-west of Glasgow.

Accidents happen. The Reading-based Nuclear Information Service (NIS) analyzed the local preparedness and capabilities described in a recent UK Office for Nuclear Regulation (ONR) report. Noting that when a serious fire occurred in the Aldermaston explosives area in August 2010, local fire-fighters were held back from tackling the emergency because the AWE "did not have a sufficient number of personal dosimeters on the Aldermaston site to equip each fire-fighter", the NIS report castigates those responsible for nuclear safety as having a "pervading sense of 'muddling through'".



Preventing nuclear catastrophe – an imperative for all

Over the 68 years since two atom bombs were detonated on Hiroshima and Nagasaki in August 1945, nuclear weapons became the subject of an array of military doctrines and political arguments, with countervailing aims, claims and myths. Since the Cold War ended, overall arsenal numbers have been substantially reduced (currently around 16,000) but the risks that nuclear weapons might be accidentally or intentionally detonated continue to pose unacceptable dangers for the whole world.

Most people prefer not to think about nuclear weapons being used. But we have to, because politicians are sleepwalking towards allowing tens of billions of pounds to be squandered on a new generation of nuclear weapons to be deployed until at least the 2060s – a hundred years after signing the NPT, with its "Article VI" requirement to pursue nuclear disarmament negotiations in "good faith".

It is irresponsible of leaders to hide behind glib assertions that "the point of having nuclear weapons is to deter people and not to use them..." or that they are "the best insurance policy" (David Cameron, 2010 and 2013). Deterrence is not an attribute or property of the weapons but a communicative relationship between potential adversaries, and it can – and does – go wrong. The "use them or lose them" logic and quick, computerised, launch operations attached to nuclear deterrence policies makes it *more* not *less* likely that nuclear weapons will be

detonated, especially in times of conflict, uncertainty and mistrust. As long as nuclear weapons are produced, deployed and stockpiled, the risks of nuclear use and war remain unacceptably high. That's why the International Campaign to Abolish Nuclear Weapons (ICAN), with partner organisations in over 90 countries, is arguing for a global nuclear ban treaty to prohibit the use, production, deployment, stockpiling and transfers of nuclear weapons and require their complete elimination. More and more governments now agree this is the next necessary step.

It's time to ban nuclear weapons

Other weapons of mass suffering – biological, toxin and chemical weapons – have been prohibited, as have several types of conventional weapons categorised as inhumane. In view of the appalling humanitarian and environmental effects of nuclear detonations, it is extraordinary that nuclear weapons have not yet been explicitly outlawed. This anomaly persists because of Cold War attitudes and the belief that the nuclear-armed states should determine the pace and process. Those attitudes privilege the positions of governments that have armed themselves with nuclear weapons above the security needs and interests of their own citizens and the nuclear free countries. So what we've called "disarmament" in the past fifty years has just been arms control, dominated by nuclear-dependent governments who want to stop these WMD spreading while they themselves hang on to their own nukes – and elevate the power, prestige and status they attach to that possession.

History shows that outlawing weapons generally precedes and facilitates the processes of their elimination. Allowing the political and legal status of nuclear weapons to continue to be dictated by the countries that wield them is a mistake that compromises the security of all peoples and nations. The Oslo, Nayarit and Vienna Conferences are building understanding of the humanitarian risks, but discussions need to move soon to the next phase – how to ban the weapons and prevent future suffering caused by nuclear capabilities. Taking forward a concerted multilateral process to outlaw all nuclear weapons will reduce proliferation incentives, strengthen international legal and political tools, and contribute to creating the conditions for nuclear arsenals to be comprehensively and verifiably eliminated. This is the next practical step towards achieving a more secure "world without nuclear weapons", as enshrined in many UN resolutions as well as the NPT and its 2010 Review Conference agreements. To strengthen global security, non-proliferation and disarmament efforts must now be directed towards an international nuclear ban treaty that will establish a strong legal prohibition on the use, production, deployment, stockpiling and transfer of nuclear weapons, and require their total elimination.

Reports from ICAN and ICAN UK

- Richard Moyes, Philip Webber and Greg Crowther, *Humanitarian Consequences: Short case study of the direct humanitarian impacts from a single nuclear weapon detonation on Manchester, UK*. Article 36, February 2013, www.article36.org
- John Ainslie, *If Britain Fired Trident: The humanitarian catastrophe that one Trident-armed UK nuclear submarine could cause if used against Moscow*, Scottish CND, February 2013, www.banthebomb.org
- Philip Webber, *The climatic impacts and humanitarian problems from the use of the UK's nuclear weapons*, Scientists for Global Responsibility, February 2013. www.sgr.org.uk
- Reaching Critical Will, *Unspeakable Suffering: the Humanitarian Impact of Nuclear Weapons*, 2013, www.reachingcriticalwill.org
- Article 36, *Banning Nuclear Weapons*, 2013, www.article36.org
- Rebecca Johnson, 'The necessity to reduce and eliminate nuclear threats and weapons in the Middle East and Internationally', in Thomas S. Axworthy and Zafar Adeel, *Global Agenda 2013*, United Nations University, 2014. www.interactioncouncil.org or www.acronym.org.uk

Further reading

- John Borrie and Tim Caughley, *An Illusion of Safety: Challenges of Nuclear Weapons Detonations for UN Humanitarian Coordination and Response*, UNIDIR, 2014
- Ira Helfand, *Nuclear Famine: Two Billion People at Risk*, IPPNW, Boston, December 2013

For further information:
www.icanw.org/unitedkingdom
www.acronym.org.uk
www.actionawe.org
www.article36.org
www.banthebomb.org
www.cnduk.org
www.nuclearinfo.org
www.sgr.org.uk
www.icanw.org
www.reachingcriticalwill.org



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