

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository:<https://orca.cardiff.ac.uk/id/eprint/118145/>

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Harrington, Anne , Gheorghe, Eliza and Loukianova, Anya 2017. What arguments motivate citizens to demand nuclear disarmament. *Bulletin of the Atomic Scientists* 73 (4) , pp. 255-263.  
10.1080/00963402.2017.1338039

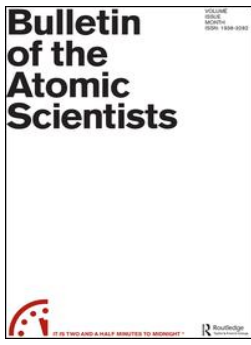
Publishers page: <https://doi.org/10.1080/00963402.2017.1338039>

Please note:

Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See <http://orca.cf.ac.uk/policies.html> for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.





## What arguments motivate citizens to demand nuclear disarmament?

Anne I. Harrington, Eliza Gheorghe & Anya Loukianova Fink

To cite this article: Anne I. Harrington, Eliza Gheorghe & Anya Loukianova Fink (2017) What arguments motivate citizens to demand nuclear disarmament?, *Bulletin of the Atomic Scientists*, 73:4, 255-263, DOI: [10.1080/00963402.2017.1338039](https://doi.org/10.1080/00963402.2017.1338039)

To link to this article: <https://doi.org/10.1080/00963402.2017.1338039>



Published online: 19 Jun 2017.



Submit your article to this journal [↗](#)



Article views: 449



View Crossmark data [↗](#)



## What arguments motivate citizens to demand nuclear disarmament?

Anne I. Harrington, Eliza Gheorghe and Anya Loukianova Fink

### ABSTRACT

Why is the global public so apathetic about nuclear disarmament? To answer this question, this article examines the various arguments made in support of policies meant to rid the world of atomic weapons. They include the immorality of deterrence, its impracticality in a world where the enemy does not behave rationally, and the calamitous consequences of nuclear accidents. The authors argue that the approach with the highest chance of successfully stimulating political activism focuses on the current costs of maintaining nuclear arsenals.

### KEYWORDS

Activism; civil society; disarmament; Global Zero; Humanitarian Initiative; International Campaign to Abolish Nuclear Weapons; Nuclear Security Project; nuclear weapons

In many countries around the world, including those that have nuclear weapons, a majority of citizens support the goal of nuclear disarmament. This should be good news for organizations like the Nuclear Security Project, Global Zero, and the International Campaign to Abolish Nuclear Weapons, which want to stimulate and engage civil society in an effort to reduce global nuclear dangers. Many of these groups have the funds and sophistication to conduct robust outreach, by, for example, engaging students on university campuses, building civil society coalitions, or producing full-length documentaries.

Yet despite the disarmament organizations' best efforts, and despite people's stated support, at least in principle, for nuclear abolition, only a small minority actively engages in initiatives that contribute to the goal. Why? In part, this lack of civil society engagement could be due to a perception that the era of the nuclear arms race is over. Another reason might be that in a number of nuclear weapon states, criticism of national security policies can be dangerous. Still, the gap between support for the goal of nuclear disarmament and the lack of public engagement is puzzling.

One way to provide insight into this puzzle is to break apart the various arguments in favor of nuclear disarmament and evaluate them each for potential effectiveness in motivating grassroots participation. Too often, disarmament groups are painted with a broad brush, but their visions and goals are actually quite distinct. They make at least six separate arguments about the desirability of disarmament, each with its own strengths and weaknesses. Specifically, they argue that we should get rid of nuclear weapons because: terrorists can get their hands on a nuclear

device; not all adversaries are rational; the very existence of nuclear weapons poses a danger to us all; nuclear weapons are inherently immoral and abhorrent; they are accident-prone; and they cost an unaffordable amount.

While sometimes subsets of these arguments can reinforce one another, that is not always the case. Arguments grounded primarily in the fear of nuclear attack are only effective at motivating grassroots engagement when people feel like those threats are imminent. These fear-based arguments may also have the inadvertent effect of strengthening security-based arguments for maintaining nuclear deterrence, with citizens reasoning that their own government needs atomic weapons to make sure another government does not attack. On the other hand, arguments that focus on the current environmental, human, and financial costs of maintaining nuclear arsenals could be more likely to sustain meaningful public engagement and generate political activism.

### Lackluster public engagement

Over the last decade, there have been numerous polls focused on understanding societal attitudes toward nuclear weapons. These polls have detailed public opinion on the use of nuclear weapons, their modernization, agreements to reduce their numbers, and their possible elimination. Arguably, in both nuclear and nonnuclear states, a majority of citizens view nuclear weapons negatively, and therefore could support the goal of nuclear disarmament in principle (Rethink Media 2009–2016; World Public Opinion 2008). However, only a small minority takes part in initiatives

that raise awareness about the dangers of nuclear weapons or contribute to the goal of abolition (Wittner 2010a).

This lack of civil society engagement could be due to the perception that the most dangerous era for nuclear weapons – the Cold War – is over, and that today’s nuclear policies are not a matter of great concern or urgency. International enthusiasm spawned by former US president Barack Obama’s 2009 call for a world free of nuclear weapons appears to have waned. And, as the United States and Russia, along with other nuclear-armed states, embark on nuclear weapon modernization programs, windows of opportunity to promote nuclear disarmament appear to have closed.

The lack of broad disarmament activism could also be due to the fact that the public is uninformed about the basic facts with regard to nuclear weapons, let alone their role in today’s security environment (Rethink Media 2009-2016). The public could also believe that there are defenses against a potential nuclear attack (Moore 2001). In some cases, public opinion may reflect the fact that a country relies on another’s “nuclear umbrella,” benefiting from the protection offered by a nuclear patron in case of an attack (International Business Times 2015). And, in many “nuclear newcomer” countries, the development and demonstration of nuclear technologies, peaceful and otherwise, is linked to a sense of national achievement and pride (PIPA 2015).

Because disarmament activism in nuclear-armed states implies a public objection to the policies of a standing government, this type of activism takes courage. During the Cold War, activism and peace advocacy by nuclear scientists in the Soviet Union and the United States was viewed with great suspicion. In the Soviet Union, dissidents like the creator of the Soviet hydrogen bomb, Andrei Sakharov, were persecuted and lived in internal exile for decades. Even in the United States, nuclear scientists were caught up in public hearings about their potential Communist sympathies. In addition, antinuclear weapons activism may be dangerous in states that have deliberately sought to disempower nongovernmental organizations. In these states, civil society groups rarely go against the government line, as they risk persecution and harassment or even being shut down.

There is also competition for activist energies. In many Western democracies, there is an ongoing public backlash to the trends of globalization, automation, and social change that, some feel, threaten their way of life. More disturbing is the heightened sense of internal insecurity that has mobilized public sentiment and action against “the other,” that is, immigrants and

minorities. In comparison, the dangers associated with nuclear weapons may seem less pressing. Moreover, public polling suggests that when the public perceives a growth in external or internal security threats – even threats, like terrorism, that cannot be countered with nuclear weapons – they are much less likely to support nuclear weapons reductions (Grice 2016; Sagan and Valentino 2016).

Even in places where the public is aware of the dangers of nuclear weapons, they may not perceive them as an immediate policy priority on par with the economy or internal security. They may also distrust scientists. To this end, there may be overlaps between the challenges faced by climate change scientists in motivating public action and those faced by nuclear experts in catalyzing action on disarmament (CRED 2009).

Finally, disarmament is only likely to seem like a high priority, on par with shelter and safety, to those whose well-being is personally and immediately affected by nuclear technology. There are numerous examples of such people, including the survivors of the nuclear bombings of Hiroshima and Nagasaki (the Hibakusha) and individuals impacted by nuclear testing (such as the Downwinders in the United States). A terrible nuclear accident can also make nuclear dangers in general a higher priority in people’s minds. For example, concerns stemming from the human and environmental consequences of the 1986 Chernobyl nuclear power plant accident had an impact on the Soviet leadership’s views on nuclear weapons (Gorbachev 1986).

It may also be that today’s nuclear disarmament movement has simply not yet had a chance to apply the kind of focus, persistence, and time that motivated nuclear activism during the Cold War era. The call to halt the nuclear arms race initiated in the 1970s grew into the full-fledged Nuclear Freeze Movement in the United States only as a result of diligent grassroots organizing; endorsement of its platform by a coalition that included major religious denominations, academic associations, women’s organizations, and doctors’ groups; and the passage of related resolutions by numerous city councils and state legislatures (Wittner 2010b). At its height, the Freeze was able to offer a vocal and organized counterpoint to the nuclear rhetoric of the Reagan Administration, and even become a plank of the Democratic Party platform in 1984. Achieving a desired policy outcome is usually the product of sustained coordination that includes not only civil society, but also draws in policy makers, funders, and other stakeholders (ORS Impact 2015).

All that said, public engagement remains a very important driver of policy change in nuclear disarmament as in anything else. Understanding the different arguments and how they motivate the public can only help advance the cause.

### **Why is nuclear disarmament desirable?**

Too often, arguments about the desirability of nuclear disarmament, and the groups that champion those arguments, are treated monolithically, making them easier for opponents to dismiss. By disaggregating the different arguments, it becomes possible to assess their relative strengths and weaknesses. At the same time, separating the arguments from one another brings into relief tensions within the disarmament movement. In particular, there is a schism between those who would eliminate nuclear weapons but seek to maintain the existing balance of power, and those who believe nuclear disarmament should liberate states from the inequities of the current structure of nuclear “haves” and nuclear “have nots.”

In the following paragraphs, we identify six arguments for *why* nuclear weapon states ought to disarm, and subsequently we consider how these different arguments are taken up by advocacy groups.

#### ***Argument 1: terrorists have “no return address”***

The post-9/11 shift in American security culture from a paradigm in which traditional nation-state adversaries reigned supreme to one in which non-state actors became a major justification for the use of military force had a profound impact on nuclear politics. The possibility of a nuclear terrorist act provided a new rationale for eliminating nuclear weapons, because nuclear terrorism did not fit within the conceptual framework of nuclear deterrence. By definition, non-state terrorist groups have no sovereign territory; they have no “return address” (Shultz et al. 2007). Therefore, deterrence using a threat of retaliation in kind is not a viable option. In fact, in the current political climate, no one considers the large-scale destruction of another states’ sovereign territory a credible option, even if that state is harboring terrorists. (Instead, retaliation takes the form of targeting terrorists for kill or capture.)

The weakness of the no-return-address argument is that it overestimates and exaggerates the security threat terrorism poses. The risk of being killed in a terrorist attack is about 1 in 3.5 million, which is much lower than dying from an accident involving a home appliance (1 in 1.5 million) or a bathtub (1 in 950,000) (Mueller and Stewart 2010).

#### ***Argument 2: not all adversaries are rational***

Critics of deterrence theory have long argued that not all actors can reliably be deterred, because their behavior cannot be assumed to be rational (Morgan 1977). Deterrence relies on the assumption that the actors in question are rational and will seek to preserve their own survival. New nuclear states, in particular, have been viewed with suspicion. From Iraq to North Korea to Iran, states that have flouted international norms and laws with clandestine nuclear programs have engendered debate about whether or not their leaders could be counted on to make rational decisions.

The weakness of this argument is that by emphasizing the threat posed by nonrational states, it could end up strengthening the case of those who argue that it is best to negotiate with these nuclear newcomer countries from a position of force. Nuclear weapons offer the ultimate embodiment of such force, which is why this argument may play well in the hands of anti-disarmament advocates.

#### ***Argument 3: eliminating nuclear weapons reduces the likelihood of nuclear war***

The third argument is one that focuses on the dangers posed by nuclear war. In contrast to the arguments focusing on nuclear terrorism or irrational actors – which posit that rogue states and terrorist groups are the primary threats to national security – the central claim of this argument is that nuclear weapons themselves are the primary threat to human security. The advocates of this perspective reject the central premise of nuclear deterrence, namely that preparing to fight a nuclear war is the best way to prevent one. Instead, they see the production of nuclear weapons as generating a risk to global security that would not otherwise exist. Their preferred solution to the nuclear dilemma, therefore, is to rid the world of nuclear danger by eliminating nuclear weapons. However, by hyping the danger of nuclear weapons, this approach can inadvertently feed the perceived need for a strong nuclear deterrent. Deterrence advocates fetishize the dangers of nuclear war in a similar way, but feel that maintaining a nuclear arsenal is the best way to prevent nuclear weapons from being used (Harrington de Santana 2009).

#### ***Argument 4: nuclear weapons are immoral and illegitimate***

The next argument involves delegitimizing nuclear weapons. Like those who argue that nuclear weapons are inherently dangerous, those who call them immoral

say that nuclear weapons are threatening regardless of who possesses them. However, the delegitimizing line of persuasion is unique in that it makes a moral argument. Proponents argue that possessing or using nuclear weapons violates basic principles of human rights. By focusing on human rights, advocates of delegitimizing nuclear weapons widen the discussion to include the human suffering that has occurred as a result of nuclear explosions, and will occur in the event of a nuclear war (Ritchie 2014; Sauer and Pretorius 2014).

However, the desire to prevent the horrors of a nuclear-armed conflict is also a keystone for supporters of nuclear deterrence. Nuclear deterrence is a strategy to dissuade military aggression through the threat of retaliation in kind. There is no disagreement, *per se*, among supporters of nuclear deterrence and supporters of delegitimizing nuclear weapons on whether or not using them would be inhumane. Rather, they disagree on the best method of preventing that outcome. Both groups depend on invoking a future imaginary loss – of individuals, states, or the human race. What for some may lead to the conclusion that ridding the world of nuclear weapons is the only way to prevent that loss may for others reinvigorate a commitment to deterrence.

### **Argument 5: accidents will happen**

The fifth argument highlights the risk of accidents involving nuclear weapons. Accidents, by the usual definition, are abnormal occurrences, unintended aberrations from a normal protocol or routine. However, in tightly coupled, complex systems, like nuclear arsenals, accidents are inevitable. In fact, the more redundancies that are introduced to try to prevent accidents, the more opportunities arise for something to go wrong. Accidents are, therefore, to be expected in any complex system (Perrow 1999). The recent book *Command and Control* by Eric Schlosser revived the discussion of nuclear weapons as sophisticated machines embedded in complex systems that could be prone to catastrophic accidents (Schlosser 2013). Proponents of the “accidents will happen” argument seek to raise awareness within academic and policy maker communities, as well as among the wider public. It is an argument that focuses attention on the importance of safety in organizational culture, with the goal of making changes to the way nuclear arsenals are structured in order to minimize tight coupling and complex interactions. If one’s goal is to reduce nuclear danger, then eliminating nuclear weapons and the inevitable accompanying accidents is one of the surest ways.

This approach, however, is not necessarily an effective disarmament argument since its primary focus is not on elimination, but on making nuclear weapons “safer” and also reducing their number in order to minimize, among other things, the risk of accidental wars, the threats to command and control emerging from the cyber domain, and the dangers of proliferation.

### **Argument 6: maintaining nuclear arsenals is costly**

Most arguments about the desirability of nuclear disarmament are future oriented; they focus on the threat of annihilation. The construction and maintenance of nuclear programs, however, also comes with existing human, environmental, financial, and political costs. Many of these costs, especially environmental ones, are poorly understood. In the United States and other nuclear-armed states, the focus on future costs has preempted or obscured discussion about the current costs and other social trade-offs of nuclear weapons. Focusing on the latter instead may be a promising argument for public engagement.

### **Advocates and policy**

Disarmament advocates use many of these arguments simultaneously in different combinations. For example, the International Campaign to Abolish Nuclear Weapons (ICAN) invokes arguments about humanitarian norms heavily, but also frequently connects them to “current costs” or “accidents” arguments. Yet there is not universal agreement among advocacy groups about why nuclear weapon states ought to disarm. For instance, the so-called four horsemen – George Shultz, William Perry, Henry Kissinger, and Sam Nunn – use the nuclear terrorism argument, and also frequently bring up accidents. But they mostly ignore the humanitarian norms argument as it does not fit with their realist worldview; this puts them at odds with some other disarmament advocates. In this section we discuss the arguments listed, connecting them to organizations that have dedicated resources to public engagement. We focus on three new organizations that emerged in the early 2000s: The four horsemen’s Nuclear Security Project; Global Zero; and ICAN and the Humanitarian Initiative.

#### **The Nuclear Security Project**

Multiple organizations have taken up the nuclear terrorism argument and added it to their list of

reasons for disarmament. However, this argument played a special role for the leadership of the Nuclear Security Project, which was formed by the “four horsemen,” all former US statesmen, in 2007. In providing a new rationale for disarmament, it allowed the old guard to hold on to its belief in the effectiveness of Cold War-era nuclear deterrence, while at the same time advocating for abolition on a practical rather than moral basis. When Shultz and his colleagues first came out in favor of “a world free of nuclear weapons,” critics questioned their sincerity and grumbled about the effect of old age on their judgment. How, people wondered, could these architects of the Cold War have had such a change of heart? Their answer was that they had not changed, but the world around them had.

Unlike Cold War-era grassroots disarmament movements and groups like Pugwash, the new abolitionists do not take issue with the rationality and practice of superpower nuclear deterrence – they argue that nuclear weapons were essential to maintaining international security during the Cold War. Now, they argue, the actors have changed: Not only are small states like North Korea now testing and refining their warhead design, but the possibility of nuclear terrorism by non-state groups looms large. These new abolitionists argue that “non-state terrorist groups with nuclear weapons are conceptually outside the bounds of a deterrent strategy” (Shultz et al. 2007).

Unlike traditional advocates of disarmament, the new abolitionists do not conceive of the goal of a world free of nuclear weapons as the solution to preventing nuclear war. They are primarily focused on preventing nuclear attacks that fall short of full-scale nuclear war, and believe that the risks of disarmament are worth the benefits. They agree that working toward the goal of complete nuclear disarmament, regardless of how ill-defined it remains, is necessary to motivate the cooperation required to secure loose nuclear materials and keep them out of the hands of terrorists. As Shultz and company explained in their 2007 op-ed, “Without the bold vision, the actions will not be perceived as fair or urgent. Without the actions, the vision will not be perceived as realistic or possible” (Shultz et al. 2007). However, as they readily admit, they have not yet reconciled the desire for a world free of nuclear weapons with the fact that their vision sits uncomfortably within the broader framework of their Cold War-era worldview.

In sum, proponents of this argument envisage a world free of nuclear weapons, with a short- and medium-term focus on reducing threats of terrorism and accidental use. Their actions are an effort by elites to

engage elites, primarily in nuclear states. The immediate focus is on reducing the dangers posed by nuclear weapons, decreasing nuclear reliance, and improving the security of nuclear weapons and materials. However, it takes considerable time to bring about the kind of policy change they aim for, and this lack of immediacy may diminish the degree to which civil society engages in the effort.

### **Global Zero**

The focus on eliminating nuclear weapons was common among Cold War-era disarmament movements, which began with the dissident nuclear physicists who founded two organizations that are still in existence today: the *Bulletin of Atomic Scientists* and Pugwash. The *Bulletin* is, of course, a policy-focused publication that provides scientifically grounded, expert-level analysis, and Pugwash is a forum for dialog among international nuclear experts. Concerns about the peril to future generations posed by atomic arsenals also lay at the heart of numerous grassroots antinuclear protests during the Cold War, including the demonstrations organized by the Campaign for Nuclear Disarmament and the Women’s International League for Peace and Freedom, as well as spontaneous movements that sprang up through existing women’s networks – enabled by chain letters and phone trees – like the Greenham Common Women’s Peace Camp in the United Kingdom, which spread to the United States, Italy, and Australia (Martin 2006).

In today’s environment, Global Zero is the highest profile advocacy group that relies on this line of thought to structure its rhetoric. Global Zero launched in the wake of the 2007 call by Shultz, Perry, Kissinger, and Nunn for a world free of nuclear weapons. While the nuclear-danger argument advanced by Global Zero has some overlap with other arguments, like other organizations it is also distinguished by its own central animus.

Global Zero gained a lot of its prominence and energy after former US president Obama’s 2009 speech in Prague, in which he announced “America’s commitment to seek the peace and security of a world without nuclear weapons” (The White House Office of the Press Secretary 2009). The group solicited (and garnered) support from world leaders, including Russia’s then-President Dmitry Medvedev, allowing these leaders to gain credit for endorsing disarmament as a long-term goal without committing to any practical steps. Global Zero endorses an action plan that begins with bilateral US and Russian reductions and builds toward a multilateral instrument, compliance with

which would be supported by rigorous on-site inspections. Under their plan, all nuclear weapons would be eliminated by 2030 (Global Zero Commission 2010). However, with the worsening of US–Russian relations and the continuation of nuclear modernization programs, including in the United States, enthusiasm for these initiatives appears to have waned. Today, Global Zero is primarily an effort to build millennial support and grassroots validation for disarmament and risk reduction. Without high-impact activism, nuclear policy in nuclear weapon states remains an elite issue.

### ***The International Campaign to Abolish Nuclear Weapons and the Humanitarian Initiative***

Moral arguments are traditionally espoused by religious organizations, and indeed the Catholic Church has become an important advocate for disarmament from a moral standpoint. (During the Cold War, it accepted deterrence in a limited way, but its ethic has since shifted (Powers 2015).) Today, though, the key international movement advancing the moral argument is made up of ICAN and the Humanitarian Initiative. The Humanitarian Initiative grew out of frustration among nonnuclear weapon states and civil society groups with the lack of progress on key elements of the disarmament agenda under the 1970 Nuclear Non-Proliferation Treaty, or NPT. The final documents produced by the NPT Review Conferences of 1995 and 2000 called for specific multilateral steps, including ratification of the Comprehensive Test Ban Treaty, negotiation of a Fissile Material Cut-off Treaty, and the establishment of a Nuclear Weapon Free Zone in the Middle East. While nonnuclear weapon states viewed continued bilateral US and Russian nuclear reductions as a further step in the right direction, they had become disillusioned with the glacial pace of progress on multilateral measures. Bilateral arms control alone does not reduce dependence on nuclear weapons, or create institutional structures that might supersede deterrence. With that in mind, the Humanitarian Initiative has sought to reframe the debate about nuclear disarmament in terms of the unacceptable humanitarian impact of nuclear war, and in doing so delegitimize nuclear weapons as tools of security (Ritchie 2014; Sauer and Pretorius 2014).

The Humanitarian Initiative models itself on the success of two previous campaigns: the one that resulted in the 1997 Anti-Personnel Mine Ban, and the one that resulted in the 2008 Convention on Cluster Munitions. Despite resistance from countries that possessed anti-personnel mines and cluster munitions, including the United States and Russia, those

campaigns transformed the perception of these weapons. By broadening the conversation to include evidence of their inhumane effects, organizers were able to conclude treaties that ban their use, stockpiling, production, and transfer (Borrie 2014).

The momentum behind the Humanitarian Initiative began as early as 2007, when a variety of civil society groups formed ICAN, a coalition of nongovernmental organizations with representation from one hundred countries. That momentum got a boost from one of the major organizations behind the earlier land mine and cluster munition bans when, in the lead up to the 2010 NPT Review Conference, the President of the International Committee of the Red Cross (ICRC) turned his attention to the humanitarian consequences of nuclear war. He publically said that “the ICRC finds it difficult to envisage how any use of nuclear weapons could be compatible with the rules of international humanitarian law” (Sauer and Pretorius 2014).

The first major conference on the Humanitarian Initiative took place in spring 2013 in Norway. It brought together 128 governments, United Nations organizations, and civil society groups. The conference provided a forum for an evidence-based discussion of “the humanitarian and developmental consequences of a nuclear weapons detonation” (Government of Norway Ministry of Foreign Affairs 2013). At that meeting, and in subsequent ones hosted by Mexico and Vienna in 2014, experts presented evidence of the catastrophic global consequences of using nuclear weapons, including effects on the climate, environment, and human health “as well as, potentially, on the ability of humankind to survive.

The crux of the Humanitarian Initiative’s argument is that the humanitarian consequences of using nuclear weapons make them immoral and inhumane, and that as long as they exist, there is a possibility they will be used. However, the agenda broadened and evolved over the course of the conferences to include considerations of immediate, mid- and long-term human and environmental costs associated with nuclear tests. The Vienna conference also included a presentation by Schlosser on nuclear accidents (Schlosser 2014).

Many participants came to agree on the need for an international legal instrument that would outlaw the use of nuclear weapons. In October 2016, with a vote of 123 in favor, 38 against, and 16 abstaining, the United Nations decided “to convene in 2017 a United Nations conference to negotiate a legally binding instrument to prohibit nuclear weapons, leading towards their total elimination” (United Nations General Assembly 2016). Negotiations on a Ban Treaty – which critics fear could undermine the NPT – were ongoing at the time of



publication, with a first draft released on 22 May 2017 (Draft Convention on the Prohibition of Nuclear Weapons 2017).

### The motivating effect of high costs

The authors of this piece have various opinions on disarmament, but we agree that one set of arguments stands out for its potential to spark a more informed debate and greater public engagement on the issue. It involves current costs.

Arguments based on the real-time costs of developing and maintaining a nuclear arsenal could lead to very different policy outcomes than those based on fear of an apocalyptic future. Cost-based arguments focus attention on all that is not being prioritized when governments spend money on their nuclear arsenals: social care, education, public infrastructure. In other words, cost arguments ask nuclear weapon states to examine the trade-offs of their choice. A more substantive and comprehensive message about the financial, environmental, human, and political costs incurred in the pursuit of nuclear weapons could lead to a discussion of opportunity costs among the public (Harrington de Santana 2009; Biswas 2014).

Since the end of the Cold War, nongovernmental organizations, journalists, and academics have begun collecting information on the costs, financial and otherwise, of nuclear weapons. Previously, the process through which nuclear weapon states produced and maintained their nuclear arsenals took place behind a wall of secrecy, preempting public debate about costs. Today, data is most readily available with regard to the US nuclear program. The price tag for the Manhattan Project, which developed the first US nuclear weapons in 1945, came to approximately \$26 billion (in 2016 dollars) (Schwartz 1998). The most recent available data shows that between the early 1940s and the mid-1990s, the United States spent \$5.8 trillion on nuclear weapons-related activities. And for the period from 2010 to 2018, the United States allocated more than \$179 billion to developing and maintaining its atomic arsenal (Nuclear Threat Initiative 2013).

Additional costs are difficult to calculate, given that many of the activities associated with a nuclear military program are interwoven with the civilian economy. Despite the resources allocated by the United States for environmental restoration and waste management, some have observed that “no amount of money can return all the land and water under [Department of Energy] facilities to their original condition” (Schwartz 1998, 374). Global concern about fallout played a role in driving most nuclear testing underground in the

mid-1960s. Even so, as Joseph Masco observed in his study of nuclear labs and their surrounding communities, as a result of nuclear testing, the United States is already “the most nuclear-bombed country in world, having detonated nearly one thousand nuclear devices within its own territorial borders” (Masco 2006, 27). Communities surrounding former nuclear weapons production facilities, like the one located at Rocky Flats in Colorado, are slowly unearthing evidence of contamination, although establishing reliable causal links to increased rates of cancer remains controversial (Iverson 2013).

To be sure, the sum of these costs could not have been foreseen from the start, and many believed that they could be offset. For the first nuclear weapon states, peaceful nuclear energy represented a welcome spin-off from the atomic weapons effort (Koplow 2011). The expectation was that nuclear power would allow governments to reap positive returns on the huge investment in nuclear weapons (The Future of Nuclear Power – Editorial 1948). Creating a nuclear arsenal entailed a vast infrastructure, covering everything from mining to uranium enrichment or plutonium reprocessing. Splitting the atom, according to nuclear industry advocates, would lead not only to the creation of tremendously destructive arsenals, but also to energy which, as one chairman of the US Atomic Energy Commission put it, would become “too cheap to meter” (Lewis 1954). In those years, industry discourse on the feasibility and profitability of nuclear energy shifted from “if the atom becomes a viable source of energy” to “when the atom becomes a viable source of energy” without much consideration for the implications of such a transition (Washington Report 1955). Beginning in the 1950s, the industries of the nuclear weapon states flooded the global market with nuclear technology.

As it turned out, despite the immense societal benefits of peaceful nuclear technologies, the export of certain related materials had downstream consequences in terms of nuclear proliferation and the danger of nuclear terrorism. For example, the United States and the Soviet Union transferred research reactors powered by highly enriched uranium to numerous states. After lengthy and elaborate efforts to convert or shut down these reactors, their material was repatriated back to the United States and Russia.

In addition to all of these costs, the United States and other Western donors also spent vast sums of money and enormous energy to deal with the Soviet nuclear legacy in Russia and other former Soviet states, including for threat reduction, environmental remediation, and defense conversion projects. Today, the United States

and Russia continue to pay for dismantlement and destruction of old nuclear weapons and systems, as well as environmental remediation, even as they spend billions to undertake nuclear modernization. In light of all these expenditures, one is left wondering whether disclosing the full cost of nuclear weapons could galvanize public opinion.

Arguments focused on the real-time costs of nuclear weapons could provide a new basis for civil society engagement in the disarmament debate. Creating a sense of urgency about the costs that are being incurred now, rather than emphasizing the possibility of apocalyptic costs that may or may not be incurred at some point in the future, may be the best way to engage civil society on abolishing nuclear weapons.

### Acknowledgments

The authors would like to thank Angela Kane, Ulrich Kühn, the Heinrich Böll Foundation, and participants in the N.E.X.T. Project for their support and feedback, as well as Michal Smetana and Tom Sauer for their constructive criticism.

### Disclosure statement

No potential conflict of interest was reported by the authors.

### Funding

This article is adapted from a paper commissioned by N.E.X.T. (Nuclear Experts Talks), a project that brings together young and mid-career professionals from Russia, Europe, and the United States with the aim of formulating new approaches to nuclear arms control and disarmament. This project was supported by a grant from the Heinrich Böll Foundation.

### Notes on contributors

**Anne I. Harrington** is a lecturer at Cardiff University. She earned her PhD in Political Science from the University of Chicago and has held fellowships at the Center for International Security and Cooperation at Stanford University, the James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Relations at Monterey, the Center for Security Studies at ETH Zürich, and the United States Congress. Her research interests lie at the nexus of international relations and science and technology studies.

**Eliza Gheorghe** is a postdoctoral research fellow at the Belfer Center for Science and International Affairs at the Harvard Kennedy School. She holds a doctorate in international relations from the University of Oxford. She held fellowships at the Woodrow Wilson International Center for Scholars, Cornell University, the Johns Hopkins University SAIS Center in Bologna, and the Norwegian Institute for Defense

Studies. She writes on proliferation, nuclear technology transfers, and nuclear alliances.

**Anya Loukianova Fink** is a research scholar at the Center for International and Security Studies at Maryland. She was previously a program officer for nuclear security at the Stanley Foundation and a research associate at the James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Relations at Monterey. She holds a PhD in policy studies from the University of Maryland's School of Public Policy.

### References

- Biswas, S. 2014. *Nuclear Desire*. Minneapolis: Minnesota University Press.
- Borrie, J. 2014. "Humanitarian Reframing of Nuclear Weapons and the Logic of a Ban." *International Affairs* 90: 601–623. doi:10.1111/1468-2346.12130.
- Draft Convention on the Prohibition of Nuclear Weapons*. 2017. New York, NY. <http://www.icanw.org/wp-content/uploads/2017/05/DraftTreaty.pdf>
- "The Future of Nuclear Power – Editorial." 1948. *Nucleonics* 3 (3) Sep.
- Global Zero Commission. 2010. *Global Zero Action Plan*. [https://www.globalzero.org/files/gzap\\_6.0.pdf](https://www.globalzero.org/files/gzap_6.0.pdf)
- Gorbachev, M. 1986. Speech. May 15. <http://www.nytimes.com/1986/05/15/world/excerpts-from-gorbachev-s-speech-on-chernobyl-accident.html>.
- Government of Norway Ministry of Foreign Affairs. 2013. "Conference: Humanitarian Impact Of Nuclear Weapons." Accessed Jan 7, 2017, last updated Mar 11, 2013. [https://www.regjeringen.no/en/topics/foreign-affairs/humanitarian-efforts/humimpact\\_2013/id708603/](https://www.regjeringen.no/en/topics/foreign-affairs/humanitarian-efforts/humimpact_2013/id708603/)
- Grice, A. 2016. "Trident: Majority of Britons Back Keeping Nuclear Weapons Programme, Poll Shows." *The Independent*. [www.independent.co.uk/news/uk/politics/trident-majority-of-britons-back-keeping-nuclear-weapons-programme-poll-shows-a6831376.html](http://www.independent.co.uk/news/uk/politics/trident-majority-of-britons-back-keeping-nuclear-weapons-programme-poll-shows-a6831376.html).
- Harrington de Santana, A. 2009. "Nuclear Weapons as the Currency of Power. Deconstructing the Fetishism of Force." *The Nonproliferation Review* 16 (3): 325–345. doi:10.1080/10736700903255029.
- International Business Times*. 2015. "Australia's Opposition to Nuclear Disarmament Push by Austria Causing Its Global Isolation." <http://www.ibtimes.com.au/australias-opposition-nuclear-disarmament-push-austria-causing-its-global-isolation-1467453>.
- Iverson, K. 2013. *Full Body Burden: Growing up in the Nuclear Shadow of Rocky Flats*. New York: Random House.
- Koplow, D. 2011. *Nuclear Power: Still Not Viable Without Subsidies*. Union of Concerned Scientists. [http://www.ucsusa.org/sites/default/files/legacy/assets/documents/nuclear\\_power/nuclear\\_subsidies\\_report.pdf](http://www.ucsusa.org/sites/default/files/legacy/assets/documents/nuclear_power/nuclear_subsidies_report.pdf).
- Martin, L. 2006. "The Battle of Greenham Common Is Over. But Their Spirit Still Burns." *The Guardian*. Accessed Aug 19. <https://www.theguardian.com/uk/2006/aug/20/lorna-martin.theobserver>.
- Masco, J. 2006. *The Nuclear Borderlands the Manhattan Project in Post-Cold War New Mexico*. Princeton, NJ: Princeton University Press.

- Moore, D. W. 2001. "Public Supports Concept of Missile Defense." Gallup. <http://www.gallup.com/poll/4753/public-supports-concept-missile-defense.aspx>.
- Morgan, P. M. 1977. *Deterrence: A Conceptual Analysis*. Beverly Hills [u.a.]: Sage.
- Mueller, J., and M. G. Stewart. 2010. "Hardly Existential." *Foreign Affairs*. <https://www.foreignaffairs.com/articles/north-america/2010-04-02/hardly-existential?page=3>
- Nuclear Threat Initiative, Center for Nonproliferation Studies. 2013. *U.S. Nuclear Weapons Budget: An Overview*. <http://www.nti.org/analysis/articles/us-nuclear-weapons-budget-overview/>.
- ORS Impact. 2015. "The William and Flora Hewlett Foundation's Nuclear Security Initiative – Findings from a Summative Evaluation." <http://www.hewlett.org/sites/default/files/NSI-%20Findings%20from%20a%20Summative%20Evaluation.pdf>.
- Perrow, C. 1999. *Normal Accidents: Living with High-Risk Technologies*. Princeton, NJ: Princeton University Press.
- PIPA. 2015. "Iranian Public Opinion on the Nuclear Negotiations." [www.cissm.umd.edu/sites/default/files/UTCPOR-CISSM-PA%20final%20report%20062215.pdf](http://www.cissm.umd.edu/sites/default/files/UTCPOR-CISSM-PA%20final%20report%20062215.pdf).
- Powers, G., 2015. "From Nuclear Deterrence to Disarmament: Evolving Catholic Perspectives," *Arms Control Today*. Accessed May. [https://www.armscontrol.org/ACT/2015\\_05/Features/From-Nuclear-Deterrence-to-Disarmament-Evolving-Catholic-Perspectives#endnotes](https://www.armscontrol.org/ACT/2015_05/Features/From-Nuclear-Deterrence-to-Disarmament-Evolving-Catholic-Perspectives#endnotes).
- "The Psychology of Climate Change Communication." CRED. [http://guide.cred.columbia.edu/pdfs/CREDguide\\_full-res.pdf](http://guide.cred.columbia.edu/pdfs/CREDguide_full-res.pdf).
- Rethink Media, 2009-2016. "Nuclear Weapons Public Opinion Audit." [https://rethinkmedia.org/sites/default/files/Nuclear%20Weapons%20Public%20Opinion%20Audit\\_2009-2016.pdf](https://rethinkmedia.org/sites/default/files/Nuclear%20Weapons%20Public%20Opinion%20Audit_2009-2016.pdf)
- Ritchie, N. 2014. "Waiting for Kant: Devaluing and Delegitimizing Nuclear Weapons." *International Affairs* 90 (3): 601–623.
- Sagan, S. D., and B. A. Valentino. 2016. "Would the U.S. Drop the Bomb Again?" *The Wall Street Journal*. [www.wsj.com/articles/would-the-u-s-drop-the-bomb-again-1463682867](http://www.wsj.com/articles/would-the-u-s-drop-the-bomb-again-1463682867).
- Sauer, T., and J. Pretorius. 2014. "Nuclear Weapons And The Humanitarian Approach." *Global Change, Peace & Security* 26 (3): 233–250. doi: 10.1080/14781158.2014.959753.
- Schlosser, E. 2013. *Command And Control: Nuclear Weapon, the Damascus Accident, and the Illusion of Safety*. New York: Penguin Random House.
- Schlosser, E. 2014. "The Most Dangerous Machines." Vienna Conference on the Humanitarian Impact of Nuclear Weapons, Vienna, December 8-9. <https://ratical.org/radiation/NuclearExtinction/EricSchlosser120814.html>
- Schwartz, S. I., ed. 1998. *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons since 1940*. Washington, DC: Brookings Institution Press.
- Shultz, G. P., W. J. Perry, H. A. Kissinger, and S. Nunn. 2007. "A World Free of Nuclear Weapons." *The Wall Street Journal*, Jan 4. [www.wsj.com/articles/SB116787515251566636](http://www.wsj.com/articles/SB116787515251566636).
- Strauss, L. L. 1954. *Speech to the National Association of Science Writers*. New York City, September 16. Washington, DC: US Atomic Energy Commission.
- United Nations General Assembly. 2016. *Resolution L.41, General and Complete Disarmament: Taking Forward Multilateral Nuclear Disarmament Negotiations*. Oct 14. New York: United Nations. <http://reachingcriticalwill.org/images/documents/Disarmament-fora/1com/1com16/resolutions/L41.pdf>
- "Washington Report." 1955. *Nucleonics* 13 (7): July.
- The White House Office of the Press Secretary. 2009. "Remarks By President Barack Obama In Prague As Delivered." Accessed 5 Apr. <https://www.whitehouse.gov/the-press-office/remarks-president-barack-obama-prague-delivered>.
- Wittner, L. S. 2010a. "Public Mobilization for a Nuclear-Free World." *Foreign Policy in Focus*. [http://fpif.org/public\\_mobilization\\_for\\_a\\_nuclear-free\\_world/](http://fpif.org/public_mobilization_for_a_nuclear-free_world/).
- Wittner, L. S. 2010b. "The Nuclear Freeze and Its Impact." *Arms Control Today* 40: 53–56.
- World Public Opinion. 2008. "Publics around the World Favor International Agreement to Eliminate All Nuclear Weapons." *World Public Opinion*. [www.worldpublicopinion.org/pipa/articles/international\\_security\\_bt/577.php](http://www.worldpublicopinion.org/pipa/articles/international_security_bt/577.php).