Chapter 25

Engaging Scientists Citizens, and International Youth in Diplomacy to Abolish Nuclear Weapons

Alicia Sanders-Zakre

The role of scientists, citizens and international youth in abolishing nuclear weapons is a topic that the International Campaign to Abolish Nuclear Weapons knows quite a lot about. As a campaign of over 500 partner organizations in over 100 countries, we bring together scientists and activists and citizens of all ages in pursuit of one common goal—banning and eliminating nuclear weapons.

I have great respect for the historic contributions of scientists to educate the public on the dangers posed by nuclear weapons and to press for nuclear abolition.

Scientific involvement in nuclear disarmament activism is not new—in fact it is nearly as old as the bomb itself. Many of the original scientists who developed the first nuclear weapons during the Manhattan Project later renounced nuclear weapons and began to advocate for their total and complete elimination.

Before the bomb was even dropped on Hiroshima, scientists were concerned about possessing and using this new weapon of mass destruction. Seventy scientists who worked on the Manhattan Project signed a petition drafted by Leo Szilard in July 1945 to express concern about the moral responsibilities of possessing nuclear weapons.¹

In 1946, Leo Szilard and Albert Einstein created the Emergency Committee of the Atomic Scientists to warn the public about the danger of nuclear weapons.

In an initial fundraising letter for the committee in December 1946, Einstein wrote: “We scientists recognize our inescapable responsibility to carry to our fellow citizens an understanding of the simple facts of atomic energy and its implications for society. In this lies our only security and our only hope—we believe that an informed citizenry will act for life and not for death.”²

¹“A Petition to the President of the United States,” July 17, 1945, https://www.atomicheritage.org/sites/default/files/B04_03-03_01.jpg.

²Letter: Emergency Committee of the Atomic Scientists, December 11, 1946.

A. Sanders-Zakre (✉)

International Campaign to Abolish Nuclear Weapons, Geneva, Switzerland
e-mail: alicia@icanw.org

© The Author(s) 2020

L. Maiani et al. (eds.), *International Cooperation for Enhancing Nuclear Safety, Security, Safeguards and Non-proliferation*, Springer Proceedings in Physics 243, https://doi.org/10.1007/978-3-030-42913-3_25

Other scientists took up the call and formed organizations that still exist today to raise awareness of the dangers of nuclear weapons.

The Bulletin of the Atomic Scientists was first founded in 1945 by Manhattan Project scientists who could not remain aloof to the consequences of their work and continues to exist today as a platform for scientists, policy makers and activists to speak out about nuclear weapons risks and consequences.

Einstein and others formed Pugwash Conferences on Science and World Affairs in 1955 to draw attention to the dangers of thermonuclear weapons and the need to peacefully resolve conflicts.

The Union of Concerned Scientists was formed in 1968 “to express determined opposition to ill-advised and hazardous projects such as the ABM system, the enlargement of our nuclear arsenal, and the development of chemical and biological weapons.”³

In addition to forming organizations, individual scientists, including physicians and climate scientists documented the catastrophic humanitarian and environmental consequences of nuclear weapons use by publishing articles and speaking out.

Soviet physicist Andrei Sakharov, who worked on Soviet thermonuclear weapons, began publishing articles in the 1950s on the hazards of radioactive fallout, while pushing Soviet officials to stop atmospheric testing.

Dr. Helen Caldicott used her scientific expertise and concern about the medical effects of radioactive fallout to form Physicians for Social Responsibility and mobilize a mass movement to freeze the nuclear arms race in the 1980s. In large part due to her efforts, one million people rallied in New York City in 1982 to call for a nuclear freeze.

In the early 1980s, astrophysicist Carl Sagan also began to warn the public about “nuclear winter”—the terrifying long-term consequences of nuclear war that could lead to global famine and starvation.

Updated studies on nuclear winter indicate that the consequences could be even more devastating than previously expected. An updated climate modelling study from Owen B. Toon and nine other leading researchers was published on 2 October 2019. It shows that a relatively limited nuclear exchange involving 250 nuclear weapons dropped on urban areas in India and Pakistan would result in dramatically reduced sunlight, precipitation and global cooling—choking off food production as we know it for the next decade at least.⁴ Beyond the unacceptable immediate deaths, billions could die from the resulting famine in the long term.⁵

Nuclear weapons aren’t just city destroyers, they could be humanity destroyers. We cannot wait to act.

Many scientists today recognize the growing risks nuclear weapons pose and are following in the footsteps of their predecessors to call for nuclear weapon abolition.

³“Founding Document: 1968 MIT Faculty Statement,” Union of Concerned Scientists, <https://www.ucsusa.org/about/history/founding-document-1968-mit-faculty-statement>.

⁴Toon et al. [1].

⁵Helfand [2].

In July 2017, over 3700 scientists from around the world signed a letter in support of the negotiations of the Treaty on the Prohibition of Nuclear Weapons, urging their national governments to support the treaty as well.

They wrote: “Scientists bear a special responsibility for Nuclear Weapons, since it was scientists who invented them and discovered that their effects are even more horrific than first thought.”⁶

The letter was organized by Max Tegmark, a physics professor from the Massachusetts Institute of Technology and included Stephen Hawking and 27 other Nobel Laureates in Chemistry, Physics and Physiology and Medicine, including two individuals who won Nobel Prizes in two disciplines. Former U.S. Secretary of Defense William Perry also signed the letter.

The over 3700 scientists got their wish—in July 2017, 122 countries voted to adopt the Treaty on the Prohibition of Nuclear Weapons. 79 countries have signed the treaty and 32 have ratified it—over half of the required 50 ratifications for it to enter into force.

The treaty prohibits states-parties from developing, testing, producing, manufacturing, transferring, possessing, stockpiling, using or threatening to use nuclear weapons, or allowing nuclear weapons to be stationed on their territory. It also prohibits them from assisting, encouraging or inducing anyone to engage in any of these activities. According to research from the Norwegian People’s Aid, 155 number of states currently maintain policies and practices that are compliant with these prohibitions.⁷

It includes positive obligations for states to provide victim assistance and environmental remediation for people and places harmed by nuclear weapons use and testing.

The treaty requires that all countries have a Comprehensive Safeguards Agreement with the International Atomic Energy Agency as a *minimum*, just like the Nuclear Non-Proliferation Treaty. However, the TPNW goes a step further than the NPT on safeguards. Unlike the NPT, the TPNW actually *requires* the Additional Protocol for states that already had one in force at the time of the treaty’s entry into force.⁸

Scientists played a key role during the negotiations of the TPNW and continue to do so as the treaty nears entry into force. A team of Princeton University physicists and political scientists published a paper outlining a possible structure for negotiating and verifying the irreversible elimination of nuclear weapons if a nuclear armed state joins the TPNW.⁹

⁶“An Open Letter From Scientists In Support of the UN Nuclear Weapons Negotiations,” Future of Life Institute, <https://futureoflife.org/nuclear-open-letter/>.

⁷Norwegian People’s Aid, “Nuclear Weapons Ban Monitor 2019, October 2019, <https://banmonitor.org/>.

⁸See Article 3: “Each State Party to which Article 4, paragraph 1 or 2, does not apply shall, at a minimum, maintain its International Atomic Energy Agency safeguards obligations in force at the time of entry into force of this Treaty, without prejudice to any additional relevant instruments that it may adopt in the future.”

⁹Patton et al. [3].

And ICAN is currently working with scientists and researchers to better understand and educate the public on the increasing nuclear weapons risks caused by emerging technologies like artificial intelligence and cyber technologies.

Scientists have been instrumental in educating the public on nuclear weapons dangers and the need for nuclear abolition. But they need a mobilized public—and engaged young people in particular—to transform their warnings into real change.

Luckily, there is a new generation of young people who refuse to accept the failure of adults to take action on existential threats to their future.

16 year old Greta Thunberg, whose simple act last year of refusing to go to school to protest political inaction on climate change, has spread into a global movement.

One of Greta's strengths is youthful impatience. Impatience to demand that change happens now and impertinence to speak up for values even when others tell her to be quiet.

We need to all be impatient when it comes to these existential threats, including nuclear weapons. We can't afford to wait.

Greta was sick of waiting for powerful people to solve climate change. She was sick of inaction and excuses, as minute by minute we track closer to armageddon. So she took power into her own hands.

Like with climate change, scientists have warned that nuclear weapons threaten the future that young people will inherit.

Like with climate change, the reality of nuclear weapons caused a global response of denial. Seven decades of denying that these weapons have to be eliminated as a matter of urgency. We must destroy them, before they destroy us.

Martin Luther King, Jr. eloquently explained while accepting the Nobel Peace Prize.

He said, "The fact that most of the time human beings put the truth about the nature and risks of the nuclear war out of their minds is because it is too painful and therefore not acceptable does not alter the nature and risks of such war. The device of "rejection" may temporarily cover up anxiety, but it does not bestow peace of mind and emotional security."¹⁰

Young people are sick of inaction on nuclear disarmament, like Greta is sick of inaction on climate change. Grassroots pressure is bringing democracy to nuclear disarmament in a movement spearheaded by young people, bold female politicians, diplomats and municipalities, and grounded in the leadership and moral authority of the survivors of nuclear bombings and testing.

ICAN is full of young people around the world like Greta. Just look at our international staff team. When we won the Nobel Peace Prize in 2017, none of our staff members were over the age of 35. Our campaigners around the world are young and passionate activists, who like Greta, are taking their future into their own hands.

We are helping to educate more young people about the threat of nuclear weapons by bringing young people to Hiroshima for an intensive course to learn first-hand about the terrible effects of nuclear weapons. This summer, through fieldwork and

¹⁰"Martin Luther King Jr.—Acceptance Speech," December 10, 1964, <https://www.nobelprize.org/prizes/peace/1964/king/26142-martin-luther-king-jr-acceptance-speech-1964/>.

lectures the participants learned about the humanitarian impacts of nuclear weapons, global trends on nuclear weapons and met with UN officials, diplomats, and civil society members.

One of our partner organizations, Peace Boat, has connected over 100 hibakusha, the survivors of the bombings of Hiroshima and Nagasaki, with hundreds of young people to ensure that their stories are passed on and the humanitarian impact of nuclear weapon use is not forgotten.

We are also shedding light on the links between universities and the nuclear weapons complex in the United States, so that students can decide if they want their university to continue to contribute to developing weapons of mass murder.

An ICAN report documents how U.S. universities have been involved in research about and production of nuclear weapons since the Manhattan Project through direct lab management, institutional partnerships and research and training programs for students to become nuclear weapons scientists.

We call on universities to provide greater transparency about their links to nuclear weapons research and production, dissolve partnerships with nuclear weapons production sites and contracts directly related to nuclear weapons and reinvest weapons activities funding to non-proliferation and environmental remediation efforts.

In conclusion, the nuclear abolition movement owes much to scientists, who have spoken out about the medical and environmental hazards of nuclear weapons and have called for their elimination. As a network of young activists, ICAN works to amplify the concerns and follow the advice of these scientists who demand a world free of nuclear weapons.

References

1. O.B. Toon et al., Rapidly expanding nuclear arsenals in Pakistan and India portend regional and global catastrophe. *Sci. Adv.* **5**, eaay5478 (2019). <https://advances.sciencemag.org/content/5/10/eaay5478>. (2 Oct)
2. I. Helfand, Nuclear famine: two billion people at risk? in *International Physicians for the Prevention of Nuclear War* (2013). <https://www.ippnw.org/pdf/nuclear-famine-two-billion-at-risk-2013.pdf>
3. T. Patton, S. Phillippe, Z. Mian, Fit for purpose: an evolutionary strategy for the implementation and verification of the treaty on the prohibition of nuclear weapons. *J. Peace Nucl. Disarmament* **2**, 387–409 (2019). <https://doi.org/10.1080/25751654.2019.1666699>. (24 Sept)

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.