A BEGINNER'S GUIDE TO NUCLEAR WEAPONS

BACK FROM THE BRINK

PRINTABLE GUIDE · PATH TO A NUCLEAR WEAPONS-FREE WORLD

Since 1945, human beings have lived with the terrifying and unacceptable fact that nuclear weapons threaten humanity's very existence, our future as a species. In the 80 years since the devastating U.S. atomic bombings of Hiroshima and Nagasaki, Japan, the world has been lucky enough to avoid another nuclear war. But countless individuals and communities have suffered and been harmed by nuclear weapons testing, manufacturing, production and the mining of uranium.

It doesn't have to be this way.

The complete elimination of all of the world's existing nuclear weapons and a global prohibition of their possession, development, testing and use is both possible and realistic – technically and politically. Solving this existential problem is in humanity's and the nations of the world's collective self-interest.

BIOLOGICAL AND CHEMICAL WEAPONS ARE BANNED – NUCLEAR WEAPONS CAN BE TOO

There are three types of weapons of mass destruction: biological, chemical, and nuclear. All of them cause widespread devastation, indiscriminate harm, and can spread uncontrollably. Of these, nuclear weapons are the only ones that haven't effectively been banned under international law, despite the UN Treaty on the Prohibition of Nuclear Weapons (learn more under the subheader "Political progress has already been made").

So, how did the world manage to ban entire categories of weapons? With legally binding treaties, known as the Biological Weapons Convention (BWC)[1], which has 187 parties, and the Chemical Weapons Convention (CWC)[2], which has 193 parties. The BWC and CWC ban the development, stockpiling, acquisition, retention, and production of biological and chemical weapons, respectively.

The BWC and the CWC encourage transparency; when parties join, they must declare the size of their stockpiles. Over time, they need to demonstrate what measures they've taken to dismantle the weapons, accounting for every devastating component. Both treaties allow members to submit compliance concerns, which get investigated, and the CWC has also written in a protocol for both routine and surprise inspections.

During World War I, people saw the horrific consequences of using chlorine gas, hydrogen cyanide, and anthrax on the battlefield. The Geneva Protocol made it a war crime to use biological and chemical weapons, and the BWC and CWC followed up by prohibiting their production, storage, and transfer as well. Both treaties have widespread support because the world understands that weapons of mass destruction are unacceptable.

POLITICAL PROGRESS HAS ALREADY BEEN MADE

The number of nuclear weapons worldwide has shrunk considerably from its peak of 70,374 in 1986 to today's 12,241. Our rate of arms reductions is slowing down though, and the amount that remains could still end human civilization many times over. We need to continue reducing how many nuclear weapons there are in the world

until that number is zero. Fortunately, the path forward has already been laid out for us–we just need to get back on it.

Between 1960 and the early 1990s, several arms control and nuclear testing treaties contributed to our collective safety. Diplomatic agreements like the Limited Test Ban Treaty (LTBT), Comprehensive Test-Ban Treaty (CTBT), Nuclear Nonproliferation Treaty (NPT), and New Strategic Arms Reduction Treaty (New START) all helped by promoting peaceful cooperation over antagonization.

The LTBT, which has been in effect since 1963, bans nuclear tests in the atmosphere, outer space, and underwater. The CTBT goes a step further by banning nuclear explosions underground or for any purpose. It has been open for signatures since 1996, but hasn't received enough ratifications to become binding. Despite this, there has been a voluntary moratorium on nuclear testing since the 1990s that all countries are abiding by except for North Korea, which has carried out six tests between 2006 and 2017.

The 1962 Cuban Missile Crisis forced many to confront the dangerous reality of nuclear war and provided momentum for the eventual negotiation of the NPT, which has been in effect since 1970.

An international treaty with the goal of preventing the spread of nuclear weapons, the NPT requires countries without nuclear weapons to renounce ever developing or possessing nuclear weapons, a commitment that gets verified by an independent organization. In exchange, nuclear-armed nations share their peaceful nuclear technologies and vow to pursue nuclear disarmament in good faith.

There is, in fact, a global agreement to ban nuclear weapons. In 2017, the Treaty on the Prohibition of Nuclear Weapons (TPNW)[3] was negotiated and approved by 122 nations in a United Nations vote. It came into effect in 2021 after 50 countries ratified it. The TPNW prohibits nations 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.

This historic agreement, representing an overwhelming majority of the world's nations, came about as a result of years of persistent organizing and advocacy. Nuclear-armed nations are welcome and encouraged to join the TPNW; they would just need to agree to destroy their nuclear weapons according to a time-bound plan. Currently, none of its 94 signatories and 73 "states parties" – countries that have ratified the TPNW

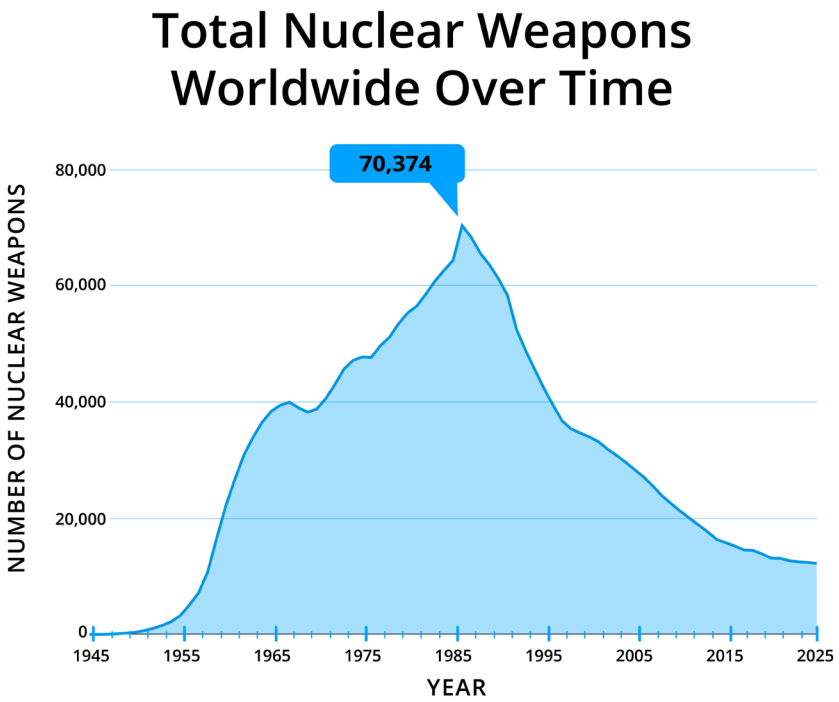

Table right: Data from the Federation of American Scientists. Graphic by Anthony Eyring

Photo left: Airmen wearing chemical protective gear decontaminate weapons during an operational readiness inspection in 1985. National Archives photo no. 330-CFD-DF-ST-86-11754.

– are any of the world's nine nuclear-armed nations.

Fortunately, history shows us it is possible for a country to give up nuclear weapons. South Africa[4] produced its first nuclear weapon in 1982 and built 6 more before choosing to give them up and end its nuclear program in 1989.

Kazakhstan[5], used by the Soviet Union for nuclear testing from the 1940s to the 1990s, inherited more than a thousand nuclear weapons with the collapse of the Soviet Union. Harmed by decades of radiation from testing, the people of Kazakhstan protested against the tests[6] and succeeded in closing a test site. Instead of choosing to keep their nuclear inheritance and becoming a nuclear power, the people of Kazakhstan decided they would be safer if they gave it up.

Much of the international community is already on board with a world free of nuclear weapons. There are five Nuclear-Weapon-Free Zones[7] (NWFZs) covering much of the Southern Hemisphere, Central Asia, Mongolia, and Antarctica. Within these boundaries, nuclear weapons cannot be acquired, possessed, placed, or tested.

Then, there are the countries like Argentina, Brazil, South Korea, and others, that started developing nuclear weapons, but decided to stop[8]. They reveal that not everyone will build up a nuclear arsenal simply because they can. In fact, the number of nations that have decided not to become a nuclear power outnumber how many have.

NATIONS ARE ALREADY COOPERATING ON SHARED PROBLEMS

Countries – even those that may otherwise be adversaries – already cooperate on myriad shared threats. There are international organizations coordinating activity on maritime rights[9], air travel[10], global health[11], and protecting the ozone layer[12].

These agreements allow the global community to work together for the sake of a healthier, more peaceful world. But they were not a given. Diplomats worked hard to align interests and incentives until they had a treaty that was in everybody's best interest.

To achieve a world free of nuclear weapons, we must similarly be able to take everyone's security and economic interests into account – even those that may be considered adversaries. Only this way will global security flashpoints be able to shift from confrontational to cooperative. Diplomatic agreements succeed when they serve the interests of every party involved. Nobody, not even authoritarian regimes, wants nuclear war.

TECHNOLOGY AND SYSTEMS EXIST FOR VERIFICATION AND ENFORCEMENT

While it is not possible to un-invent nuclear weapons, we can effectively enforce a ban on their possession, development, deployment, and use. The United States, Russia, China and most developed nations have highly sophisticated intelligence gathering and monitoring capabilities, allowing them to effectively detect nuclear explosions[13] from space and other covert bomb-making activities.

There are also organizations and systems in place to systematically verify treaty compliance. The Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) manages an international network of 321 monitoring stations and 16 laboratories hosted by 89 countries around the world. If a nation started conducting explosive tests – say, as part of a nuclear weapons development program – the CTBTO's network would detect it.

Under Article 3 of the Nuclear Non-Proliferation Treaty (NPT), each Non-Nuclear Weapon State is required to conclude a safeguards agreement with the International Atomic Energy Agency (IAEA). Founded in 1957, The IAEA has proven highly capable at detecting the misuse of nuclear weapons material and technology. It runs regular inspections and thoroughly accounts for all nuclear material, and has successfully kept nuclear weapons out of the hands of most countries for more than 50 years.

One important, verifiable arms control treaty is set to expire in February 2026. The New START agreement[14], made between the United States and Russia in 2010, is a strong model for any global agreement to ban and prohibit nuclear weapons. It limits both sides to a maximum of 1,550 deployed strategic nuclear warheads and verifies compliance with data exchanges, required notifications, and on-site inspections.

Although Russia suspended its participation in New START in 2023[15], it is believed that they are still complying with the treaty's limits for now. Without New START, however, the U.S. loses crucial access to verifiable information on Russia's nuclear capabilities. Extending the treaty before its set expiration date in February, 2026 would be an easy win for preventing an uncontrollable nuclear arms race by maintaining a limit on the world's two largest nuclear arsenals.

IT WON'T HAPPEN UNLESS THE PUBLIC UNDERSTANDS THE PROBLEM AND DEMANDS CHANGE

In the early 1980s, the general public's growing concern about the possibility of nuclear war gave birth to the Nuclear Freeze movement in the U.S. Everyday people signed petitions, met with their neighbors, and took to the streets, calling for an agreement between the U.S. and Soviet Union to stop testing, producing, and deploying nuclear weapons.

The Nuclear Freeze movement started with town meetings but quickly gained momentum across the nation. By June of 1982, an estimated one million people gathered in New York City for an anti-nuclear arms demonstration–the largest peace rally in U.S. history. In the fall that year, Freeze referendums appeared on the ballot in 10 states and 37 cities and counties; they passed in 8 states and 34 municipalities. In May, 1983, the U.S. House of Representatives passed a Nuclear Freeze resolution. Over time, the movement gathered endorsements from all major religious bodies in the U.S., hundreds of organizations, and 25 labor unions – much like Back from the Brink (BftB) is doing today.

Across the pond, the British Campaign for Nuclear Disarmament had been organizing to abolish nuclear weapons since the late 1950s. Their first march took place in 1958, in London, with thousands in attendance. This activism gave rise in the 1980s to the Europe-wide European Nuclear Disarmament movement. In October 1983, 3 million people across western Europe gathered to protest the placement of nuclear missiles in Europe and call for an end to the arms race.

The widespread outcry pressured leaders to adopt the Intermediate-Range Nuclear Forces Treaty[16], which required the U.S. and Soviet Union to get rid of missiles with ranges between 500 and 5,500 kilometers. This agreement effectively removed many nuclear-armed missiles being stationed in Western Europe.

Today, BftB and scores of other nuclear disarmament campaigners and civil society organizations around the world are shaping a new movement that is giving voice and agency to people. Our campaign provides a platform, resources, and sense of community allowing any individual, organization, or elected official to get engaged and make a real difference in their communities. Because nuclear weapons are a local issue affecting all of us, all of us should have a voice and say. And we say it's time to get rid of them.

BENDING THE ARC–HOW THE "IMPOSSIBLE" BECAME REALITY

After living in a world with nuclear weapons for more than 80 years, it can be hard to believe they could ever go away. But throughout history, people have succeeded in making social and political changes that were once thought to be impossible.

Looking back today, it may feel like the accomplishments of the civil rights movement were inevitable, when in fact it faced serious doubt at the time. When Martin Luther King Jr. delivered his famous "I Have a Dream" speech at the March on Washington, a Gallup poll found 60% of white people[17] believed it would not accomplish anything and only cause violence.

This skepticism actually grew a year later, with 74% of Americans[18] saying that mass demonstrations hurt the cause for racial equality. But only two months after that second poll, the Civil Rights Act of 1964[19] was passed. Five years later, another Gallup poll found 63% of Americans believed nonviolent demonstrations could help black Americans win civil rights.

Protesting and activism have succeeded time and again in swaying public opinion and building political will for change. These methods have made a difference in so many issues: the abolition of slavery, marriage equality, and women's right to vote. Plenty of people once thought these could never happen, until – through persistence and organizing – it did.

Today's movement to abolish nuclear weapons, photographed at the Third Meeting of States Parties of the Treaty on the Prohibition of Nuclear Weapons in 2025. ICAN Photo by Darren Ortiz.

Links

PATH TO A NUCLEAR WEAPONS-FREE WORLD

1. https://www.armscontrol.org/factsheets/biological-weapons-convention-bwc-glance-0
2. https://www.armscontrol.org/factsheets/chemical-weapons-convention-cwc-glance-0
3. https://www.icanw.org/the_treaty
4. https://www.nti.org/countries/south-africa/
5. https://www.nti.org/analysis/articles/kazakhstan-nuclear-disarmament/
6. https://carnegieendowment.org/posts/2022/02/how-kazakhstan-fought-back-against-soviet-nuclear-tests?lang=en
7. https://www.un.org/nwfz/content/overview-nuclear-weapon-free-zones
8. https://www.armscontrol.org/factsheets/nuclear-weapons-who-has-what-glance
9. https://www.un.org/en/global-issues/oceans-and-the-law-of-the-sea
10. https://www.icao.int/
11. https://www.who.int/
12. https://www.state.gov/the-montreal-protocol-on-substances-that-deplete-the-ozone-layer
13. https://www.lanl.gov/media/publications/national-security-science/0720-cold-war-watchmen
14. https://www.armscontrol.org/treaties/new-strategic-arms-reduction-treaty
15. https://www.armscontrol.org/act/2023-03/news/russia-suspends-new-start
16. https://www.armscontrol.org/factsheets/intermediate-range-nuclear-forces-inf-treaty-glance
17. https://ropercenter.cornell.edu/public-opinion-civil-rights-reflections-civil-rights-act-1964
18. https://news.gallup.com/vault/246167/protests-seen-harming-civil-rights-movement-60s.aspx
19. https://www.archives.gov/milestone-documents/civil-rights-act

BACK FROM THE BRINK

Back from the Brink is a national grassroots campaign of committed individuals, organizations, and elected officials advocating for common-sense policies to prevent nuclear war and abolish nuclear weapons from the planet.

Scan for the latest links and actions.
www.preventnuclearwar.org

This publication was made possible in part by a grant from Carnegie Corporation of New York. The statements made and views expressed are solely the responsibility of the author.