



The world's worst weapons

Nuclear weapons are the most destructive, indiscriminate and inhumane weapons ever made. A single bomb is powerful enough to destroy a whole city, with a death toll measured in the hundreds of thousands, if not millions.

The International Committee of the Red Cross has described nuclear weapons as “unique in their destructive power, in the unspeakable human suffering they cause ... and in the threat they pose to the environment, to future generations and indeed to the survival of humanity”.

Releasing vast quantities of radiation, they poison the air, land, water and our bodies, inflicting harm across national borders and across generations.

So long as they exist, there is a very real risk that they will be used again, and the consequences will be catastrophic – including for people in nations that have nothing to do with the conflict in which they are used.

Effects of a nuclear weapon

Heat



When a nuclear weapon is detonated, it releases extreme heat. Almost everything and everyone close to ground zero is instantly reduced to ash and vapour.

A large fireball, over a million degrees Celsius at its core, rises high into the sky, and ground temperatures reach several thousand degrees – hotter than the surface of the Sun.

The extreme heat ignites fires across a wide area, which release toxic smoke and combustion gases into the air and coalesce to form a giant firestorm.

Even people who are tens of kilometres away from ground zero suffer severe, life-threatening burns, while people much further away are blinded by the bright flash of light.

Blast



A nuclear weapon also generates an immense, fast-moving wall of high-pressure air known as a shock wave, which moves outwards for many kilometres.

It hurls people through the air, knocks them unconscious, rips their bodies apart and causes their lungs to collapse.

Buildings across a wide area are completely flattened, and many people are crushed to death. Loose objects are tossed through the air like missiles.

Even large concrete and steel skyscrapers are destroyed by the force of the blast.

Radiation



The nuclear chain reaction that causes the explosion releases a massive amount of ionising radiation, which penetrates deep into people's bodies, destroying or damaging their cells and inducing disease.

Even at a distance of several kilometres from ground zero, people receive a dose of radiation high enough to cause death from acute radiation poisoning.

Symptoms include vomiting, bleeding gums, diarrhoea and hair loss. Most sufferers die within a couple of months of the attack.

Some recover from the acute stage of the illness but die years or even decades later from cancers and other illnesses caused by the delayed effects of radiation.

Some survivors exhibit chromosomal aberrations and other types of genetic damage, which can be passed on to future generations.

Fallout



A nuclear weapon also creates an enormous mushroom cloud, which sucks up radioactive dust and debris in a column and releases it into the atmosphere.

Wind currents disperse it through the air, and it eventually falls to the ground over a vast area.

Known as fallout, it poses immediate and long-term health risks even to people far away from ground zero. Some radioactive isotopes remain hazardous for many years, contaminating the soil, water and food supplies.

Electromagnetic pulse



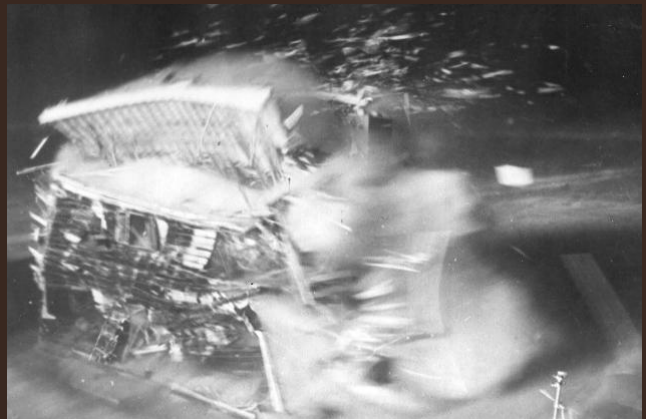
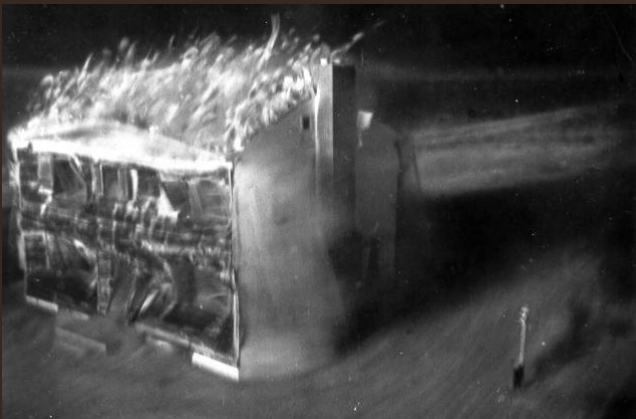
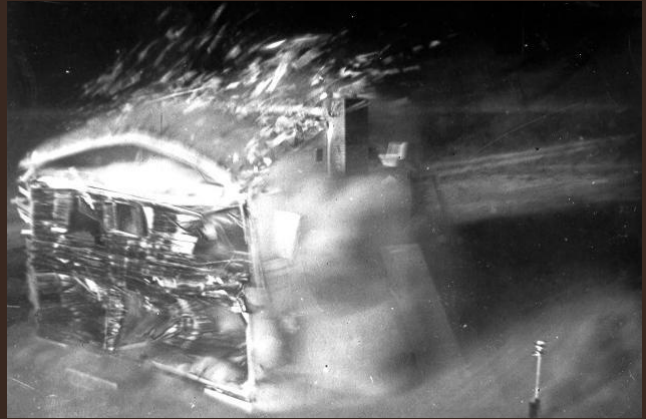
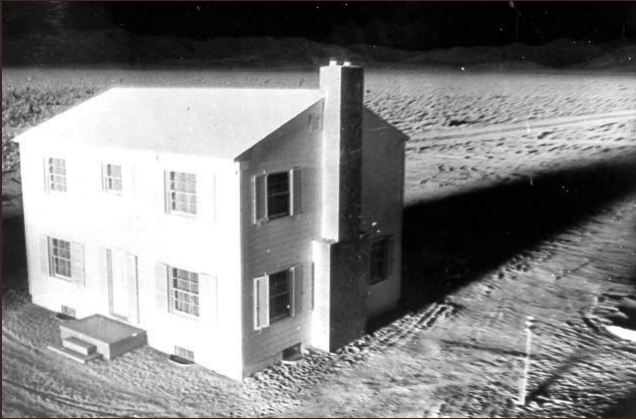
If detonated at a high altitude, a nuclear weapon emits a powerful electromagnetic pulse, which destroys electronics over a wide area. Cellular communications, internet capabilities and banking technology are all severely disrupted.

This effect was first observed during the era of atmospheric and high-altitude nuclear testing. In 1962, when the United States tested a nuclear weapon in outer space about 400 kilometres above Johnston Atoll in the Pacific Ocean, it caused damage to streetlights and phones in Hawaii, more than 1,450 kilometres away.

A very high-yield, high-altitude nuclear explosion could destroy electronics across an entire continent.



Gas masks offer no protection against gamma radiation. Credit: Ricky Pitman



The blast effects of a nuclear test explosion on a mock house in the US state of Nevada. Credit: US government

Children's greater vulnerability

Infants and children are particularly vulnerable to the effects of nuclear weapons.

They are more likely than adults to die from burns (as their skin is thinner and more delicate), blast injuries (given the relative frailty of their bodies) and acute radiation sickness (as they have more cells that are growing and dividing rapidly).

They are also less able to free themselves from collapsed and burning buildings or take other steps in the aftermath to increase their chances of survival.



A child receives treatment for burns following the US nuclear bombing of Nagasaki in 1945.

Credit: Yasuo Tomishige

Nuclear winter and famine

Nuclear weapons are the only devices ever created with the capacity to destroy all complex life forms on Earth.

If one hundred or more of them were used against cities, the soot and smoke from the ensuing firestorms would blanket the planet and block out sunlight for over a decade, leading to a dramatic drop in global temperatures – an effect known as nuclear winter.

Plunged into darkness, the world would experience freezing conditions even in what are now tropical environments. Food crops would be decimated and global agricultural production would collapse, leading to widespread famine and societal breakdown.

Infectious disease epidemics and conflict over scarce resources would become rife. People who are already malnourished would be at greatest risk of death.

Even a so-called “limited” nuclear war – involving a small fraction of the global inventory of nuclear weapons – would place much of the world’s population at risk of starvation.

Such a war would severely deplete the ozone layer, leading to a major increase in certain cancers and devastating loss of marine life. Many plant and animal species would face extinction, and the damage to the planet would be irreversible.

Displacement and economic collapse

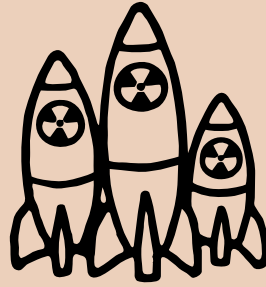
In a nuclear war, millions of people exposed to fallout would be forced to flee their homes to neighbouring countries, in urgent need of shelter, uncontaminated food and water, and health care. The number of people seeking refuge would be unprecedented in history.

The use of multiple nuclear weapons would also severely disrupt international trade and telecommunications, and possibly result in global economic collapse, which would worsen poverty and set back human development goals by decades.

No nation and no individual is immune to the potential impacts.

Global climatic effects

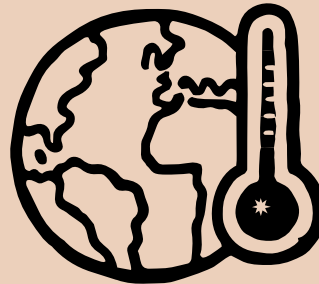
Multiple nuclear weapons are used.



Soot and smoke block out sunlight.



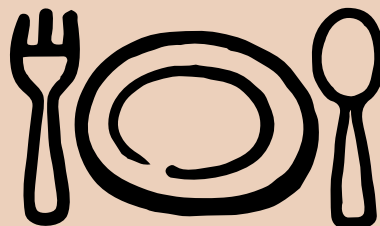
Global temperatures drop dramatically.



Agricultural production collapses.



Millions of people die from starvation.





Hiroshima in ruins. Credit: US government