SPECIAL FEATURE: Reality Check: The Hiroshima and Nagasaki Bombings in Pictures

The first nuclear bomb detonation in July 1945 and the surprise attacks on the people of Hiroshima and Nagasaki in August of that year ignited a global debate about the role, the morality, and the control of nuclear weapons that continues to this day.

Then as now, some judged that the catastrophic dangers inherent in nuclear weapons outweigh any justification for their existence or at least for large numbers of such weapons, leading them to seek meaningful nuclear restraints. Others considered nuclear weapons to be legitimate military and political instruments that guarantee national security by deterring threats or attacks. In an effort to maintain a technological edge or at least a balance of terror, they argued for an ever increasing array of nuclear capabilities. Still others, including much of the American public, have embraced some elements of both perspectives.

Since the bombings in Japan, nuclear weapons have not been used in a military attack. Yet they have left a trail of devastation, including: cancer victims from the fallout from atmospheric nuclear test explosions, contaminated workers and radioactive and toxic pollution from nuclear weapons production plants.

Although the U.S.-Soviet superpower competition that gave rise to the development, testing, and deployment of tens of thousands of nuclear weapons and thousands of strategic and tactical nuclear delivery systems ended nearly twenty years ago, many of the weapons and the policies developed to justify their possession and potential use persist.

Russia and the United States still possess nearly 20,000 nuclear bombs—more than 90 percent of the world total. In addition to the United States and Russia, there are now seven more nuclear-armed nations: the U.K., France, China, Israel, India, Pakistan, and North Korea.

In recent years, the overall number of nuclear weapons has declined and their use viewed as increasingly unacceptable. However, many U.S. and Russian weapons remain primed for quick launch, nuclear weapons material stocks remain insecure, some states continue to produce nuclear bomb material, a few states still refuse to ratify a global ban on nuclear testing, and some states retain the option to use nuclear weapons in conflicts that begin with conventional weapons. There is a risk that additional countries may utilize "peaceful" nuclear technologies to produce fissile material for bombs. Consequently, our nuclear anxieties persist, and the struggle to contain and eliminate the nuclear weapons danger continues.

As President Barack Obama said in an eloquent July 27 speech: "… together, we must strengthen the Nuclear Non-Proliferation Treaty by renewing its basic bargain: countries with nuclear weapons will move towards disarmament; countries without nuclear weapons will not acquire them; and all countries can access peaceful nuclear energy. A balance of terror cannot hold. In the 21st century, a strong and global regime is the only basis for security from the world's deadliest weapons."

To back up his words with meaningful action, President Obama can and must direct the Pentagon to shed Cold War thinking about nuclear weapons and nuclear targeting as it undertakes the congressionally-mandated Nuclear Posture Review that is due by the end of this year.

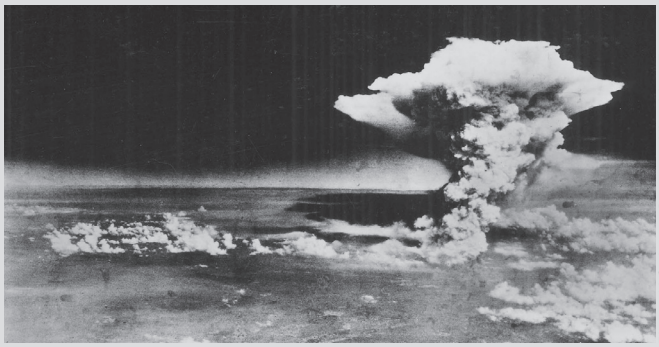

Photo: U.S. Army; Courtesy: Hiroshima Peace Memorial Museum

The cloud generated by "Little Boy," the uranium-based atomic bomb dropped by the United States on Hiroshima, rises above the city of 340,000 people on the morning of August 6, 1945. The blast packed a destructive force equivalent to about 15 kilotons of TNT. In minutes, approximately half the city vanished. Three days later, U.S. leaders ordered another U.S. bomber to release "Fat Man," a plutonium-based bomb with an explosive yield estimated at 21 kilotons, on the city of Nagasaki and its 240,000 residents.

As I said in my July 29 address to a symposium sponsored by U.S. Strategic Command in Omaha, so long as the United States hangs on to these obsolete Cold War nuclear missions and implies the potential use of nuclear weapons in response to conventional, chemical, and biological threats, U.S. nuclear weapons will be more of a liability than an asset in addressing today's highest national security priority: preventing the use of nuclear weapons and their proliferation to terrorists and additional states.

President Obama can and should immediately restrict the role of U.S. nuclear weapons to a core deterrence mission: maintaining a sufficient, survivable nuclear force for the sole purpose of deterring the use of nuclear weapons by another country against the United States or its allies.

However one feels about nuclear weapons and their role, it is essential that the devastating and horrific effects of just one nuclear detonation are clearly understood and that the experience and lessons of the people affected are not forgotten. Otherwise, the very motivation behind the decades-long effort to reduce and eliminate them, to deter and refrain from their use, and to stop their spread may diminish, and political leaders and military theoreticians may come to believe in the "usability" of these most terrible killing machines.

It is everyone's task to understand the devastating power and tremendous human, environmental, and financial costs of nuclear weapons. It is everyone's responsibility—especially the leaders of the world nations—to take action now to reduce and eliminate the chance nuclear weapons are used again.

On the occasion of the anniversary of the atomic bombings of Hiroshima and Nagasaki, Arms Control Today presents the following short, annotated photo essay to help recall and confront the consequences of nuclear weapons and nuclear war in ways that words cannot describe. —Daryl G. Kimball

A man surveys the destruction of Hiroshima near ground zero days after the initial blast. The explosion produced a supersonic shock wave followed by extreme winds that remained above hurricane force more than 3 kilometers from ground zero. A secondary and equally devastating reverse wind ensued, flattening a 3 kilometer-wide area around the point of impact and severely damaging homes and buildings several kilometers further away.

Photo: Shigeo Hayashi
Courtesy: Hiroshima Peace Memorial Museum

Photo: Yosuke Yamahata
Copyright: Shogo Yamahata/courtesy IDG films Photo restoration: TX Unlimited, San Francisco

The Ichino Gate at the entrance of the Sanno shrine stands amid the ruins of Nagasaki on August 10, 1945. The nuclear attack on Nagasaki killed an estimated 74,000 people by the end of 1945 and injured approximately another 75,000. The attack occurred two days earlier than planned, 10 hours after the Soviets entered the war against Japan, and as Japan's leaders were contemplating surrender.

Photo: U.S. Army Marine Headquarters. Courtesy: Hiroshima Peace Memorial Museum

The pattern of a woman's kimono was burned into her skin by the intense heat rays of the Hiroshima bomb, which reached several million degrees centigrade at ground zero and incinerated everything within approximately 2 kilometers. The heat scorched flesh and ignited trees and other flammable materials as far as 3.5 kilometers from ground zero. Flash burns from the primary heat wave caused most of the deaths at Hiroshima. By the end of 1945, an estimated 140,000 people were killed by the blast, heat, and radiation effects of the nuclear attack.

Photo: Kazuma Hayashi. Courtesy: Hiroshima Peace Memorial Museum

Fires ravaged the city of Hiroshima for hours after the explosion, peaking around midday. The intense firestorms leveled neighborhoods where the blast had inflicted only partial damage and killed victims trapped under the fallen debris. Within 20 minutes, the explosion also produced black rain laden with radioactive soot and dust that contaminated areas as far away as 29 kilometers from ground zero.

Photo: Yosuke Yamahata. Copyright: Shogo Yamahata/courtesy IDG films
Photo restoration: TX Unlimited, San Francisco

A day after the bomb dropped on Nagasaki (August 9, 1945), a woman struggles for survival. Many of those who outlived the Hiroshima and Nagasaki attacks would die of radiation-induced illnesses years later. The number of survivors contracting leukemia increased noticeably five to six years after the bombing. Ten years after the bombing, the survivors began contracting thyroid, breast, lung and other cancers at higher than normal rates. These *hibakusha* and their descendants helped form the nucleus of the Japanese—and global—nuclear disarmament movement.