Nuclear Weapons: Who Has What at a Glance

At the dawn of the nuclear age, the United States hoped to maintain a monopoly on its new weapon, but the secrets and the technology for making nuclear weapons soon spread. The United States conducted its first nuclear test explosion in July 1945 and dropped two atomic bombs on the cities of Hiroshima and Nagasaki in August 1945. Just four years later, the Soviet Union conducted its first nuclear test explosion. The United Kingdom (1952), France (1960), and China (1964) followed. Seeking to prevent the nuclear weapon ranks from expanding further, the United States and other like-minded states negotiated the nuclear Nonproliferation Treaty (NPT) in 1968 and the Comprehensive Nuclear Test Ban Treaty (CTBT) in 1996.

India, Israel, and Pakistan never signed the NPT and possess nuclear arsenals. Iraq initiated a secret nuclear program under Saddam Hussein before the 1991 Persian Gulf War. North Korea announced its withdrawal from the NPT in January 2003 and has tested nuclear devices since that time. Iran and Libya have pursued secret nuclear activities in violation of the treaty’s terms, and Syria is suspected of having done the same. Still, nuclear nonproliferation successes outnumber failures and dire forecasts decades ago that the world would be home to dozens of states armed with nuclear weapons have not come to pass.

At the time the NPT was concluded, the nuclear stockpiles of both the United States and the Soviet Union/Russia numbered in the tens of thousands. Beginning in the 1970s, U.S. and Soviet/Russian leaders negotiated a series of bilateral arms control agreements and initiatives that limited, and later helped to reduce, the size of their nuclear arsenals. Today, the United States and Russia each deploy roughly 1,400 strategic warheads on several hundred bombers and missiles, and are modernizing their nuclear delivery systems.

China, India, and Pakistan are all pursuing new ballistic missile, cruise missile, and sea-based nuclear delivery systems. In addition, Pakistan has lowered the threshold for nuclear weapons use by developing tactical nuclear weapons capabilities to counter perceived Indian conventional military threats. North Korea continues its nuclear pursuits in violation of its earlier denuclearization pledges.

Nuclear-Weapon States:

The nuclear-weapon states (NWS) are the five states—China, France, Russia, United Kingdom, and the United States—officially recognized as possessing nuclear weapons by the NPT. The treaty legitimizes these states’ nuclear arsenals, but establishes they are not supposed to build and maintain such weapons in perpetuity. In 2000, the NWS committed themselves to an “unequivocal undertaking…to accomplish the total elimination of their nuclear arsenals.” Because of the secretive nature with which most governments treat information about their nuclear arsenals, most of the figures below are best estimates of each nuclear-weapon state’s nuclear holdings, including both strategic warheads and lower-yield devices referred to as tactical weapons.

March 2019 New START declaration: 1,461 strategic warheads deployed on 524 intercontinental ballistic missiles, submarine-launched ballistic missiles, and strategic bombers.

The Federation of American Scientists (FAS) estimates approximately 4,490 stockpiled warheads and 2,000 retired warheads for a total of roughly 6,490 warheads, as of early 2019.

United Kingdom:

About 120 strategic warheads, of which no more than 40 are deployed at sea on a nuclear ballistic missile submarine at any given time. The United Kingdom possesses a total of four ballistic missile submarines.

Total stockpile is estimated up to 200 warheads.

United States:

March 2019 New START declaration: 1,365 strategic nuclear warheads deployed on 656 intercontinental ballistic missiles, submarine-launched ballistic missiles, and strategic bombers.

FAS estimates approximately 3,800 stockpiled warheads and 2,385 retired warheads for a total of 6,185 warheads as of early 2019.

Non-NPT Nuclear Weapons Possessors:

India, Israel, and Pakistan never joined the NPT and are known to possess nuclear weapons.

India first tested a nuclear explosive device in 1974. That test spurred Pakistan to ramp up work on its secret nuclear weapons program.

India and Pakistan both publicly demonstrated their nuclear weapon capabilities with a round of tit-for-tat nuclear tests in May 1998.

Israel has not publicly conducted a nuclear test, does not admit or deny having nuclear weapons, and states that it will not be the first to introduce nuclear weapons in the Middle East. Nevertheless, Israel is universally believed to possess nuclear arms, although it is unclear exactly how many.

The following arsenal estimates are based on the amount of fissile material—highly enriched uranium and plutonium—that each of the states is estimated to have produced. Fissile material is the key element for making nuclear weapons. India and Israel are believed to use plutonium in their weapons, while Pakistan is thought to use highly enriched uranium.

India: Between 130-140 nuclear warheads.

Israel: An estimated 80-90 nuclear warheads, with fissile material for up to 200.

Pakistan: Between 150-160 nuclear warheads.

States of Immediate Proliferation Concern:

Prior to the implementation of the Joint Comprehensive Plan of Action, Iran pursued a uranium-enrichment program and other projects that provided it with the capability to produce bomb-grade fissile material and develop nuclear weapons, if it chose to do so. Iran’s uranium enrichment program continues, but it is restricted and monitored by the nuclear deal. North Korea announced its withdrawal from the NPT in 2003 and tested nuclear devices and nuclear-capable ballistic missiles. Uncertainty persists about how many nuclear devices North Korea has assembled. In 2007, Israel bombed a site in Syria that was widely assessed to be a nuclear reactor being constructed with North Korea's assistance. Syria has refused to cooperate with the International Atomic Energy Agency's attempts to investigate.

Iran:

No known weapons or sufficient fissile material stockpiles to build weapons.

The International Atomic Energy Agency (IAEA), the institution charged with verifying that states are not illicitly building nuclear weapons, concluded in 2003 that Iran had undertaken covert nuclear activities to establish the capacity to indigenously produce fissile material.

July 2015: Iran and six world powers negotiated a long-term agreement to verify and significantly reduce Iran's capacity to produce material for nuclear weapons.

As part of this agreement, the IAEA and Iran concluded an investigation into Iran’s past nuclear weapons-related activities. The agency concluded that Iran had an organized program to pursue nuclear weapons prior to 2003. Some of these activities continued through 2009, but there were no indications of weaponization activities taking place after that date.

North Korea:

Estimated as of June 2019 to have approximately 20-30 warheads and the fissile material for 30-60 nuclear weapons.

While there is a high degree of uncertainty surrounding North Korea's fissile material stockpile and production, particularly on the uranium enrichment side, North Korea is estimated to have 20-40 kilograms of plutonium and 250-500 kilograms of highly enriched uranium. The estimated annual production of fissile material is enough for 6-7 weapons.

North Korea operates its 5-megawatt heavy-water graphite-moderated reactor used to extract plutonium in the past for nuclear warheads on an intermittent basis since August 2013. There has also been intermittent activity at North Korea's reprocessing facility since 2016, indicating that Pyongyang has likely separated plutonium from the reactor's spent fuel.

North Korea unveiled a centrifuge facility in 2010. It is likely that Pyongyang is using the facility to produce highly-enriched uranium for weapons. U.S. intelligence suggests that there are several additional centrifuge facilities in North Korea.

By 2020, experts estimate that North Korea could have anywhere between 20-100 nuclear warheads based on the rate of its stockpile growth and technological improvements.

Syria:

September 2007: Israel conducted an airstrike on what U.S. officials alleged was the construction site of a nuclear research reactor similar to North Korea’s Yongbyon reactor.

The extent of Syrian-North Korean nuclear cooperation is unclear, but is believed to have begun in 1997.

Investigations into U.S. claims uncovered traces of undeclared man-made uranium particles at both the site of the destroyed facility and Syria’s declared research reactor.

Syria has not adequately cooperated with the IAEA to clarify the nature of the destroyed facility and procurement efforts that could be related to a nuclear program.

States That Had Nuclear Weapons or Nuclear Weapons Programs at One Time:

Belarus, Kazakhstan, and Ukraine inherited nuclear weapons following the Soviet Union’s 1991 collapse, but returned them to Russia and joined the NPT as non-nuclear-weapon states.

South Africa secretly developed but subsequently dismantled its small number of nuclear warheads and also joined the NPT in 1991.

Iraq had an active nuclear weapons program prior to the 1991 Persian Gulf War, but was forced to verifiably dismantle it under the supervision of UN inspectors. The U.S.-led March 2003 invasion of Iraq and subsequent capture of Iraqi leader Saddam Hussein definitively ended his regime’s pursuit of nuclear weapons.

Libya voluntarily renounced its secret nuclear weapons efforts in December 2003.

Argentina, Brazil, South Korea, and Taiwan also shelved nuclear weapons programs.