

Maintainance of Nuclear Security in the 21st Century

Key Definitions:

Nuclear Proliferation

Nuclear proliferation also referred to as the NPT or the Treaty on the Non-Proliferation of Nuclear Weapons, is the transfer of nuclear weapons, fissionable material, and technology and information that can be used to make nuclear weapons to countries that are not designated as "Nuclear Weapon States." Many countries, both those with and without nuclear weapons, have opposed proliferation because they believe that more nuclear-armed states will increase the likelihood of nuclear conflict (including the so-called counter value targeting of civilians with weapons of mass destruction), destabilize regional or global relations, or violate the sovereignty of sovereign nations. Other than the five states with nuclear weapons that have been officially recognized, four other nations—India, Pakistan, North Korea, and Israel—have nuclear weapons or are thought to have them. None of these four are NPT members, despite the fact that North Korea joined in 1985, withdrew in 2003, and carried out public nuclear tests in 2006, 2009, 2013, 2016, and 2017. The NPT has come under fire for being unfair in that only nations that conducted nuclear tests prior to 1968 are recognized as nuclear weapon states, while all other nations are considered as non-nuclear weapon states and are only eligible to join the treaty if they renounce nuclear weapons. Initially, the US, Germany, Japan, and the USSR worked together with the UK and Canada to conduct research into the creation of nuclear weapons during World War II. When it dropped two bombs on Japan in August 1945, the United States did so first and remains the only nation to have done so. Germany and Japan stopped working on nuclear weapons once they submitted to end the war. The USSR tested a nuclear weapon in August 1949, making it the second nation to use a nuclear weapon. In October 1952, the UK conducted the first nuclear bomb test. In 1960, France conducted the first nuclear weapon test. In 1964, the People's Republic of China set off a nuclear explosion. Pakistan began to build its own nuclear program in response to India's first nuclear test in 1974. Pakistan then developed its own nuclear program in response to India's second series of nuclear tests in 1998.

The IAEA

The International Atomic Energy Agency (IAEA) is a global organization that works to promote nuclear energy's peaceful applications and to prevent its use for any military objectives, including the development of nuclear weapons. On July 29, 1957, the IAEA became a standalone entity. IAEA reports to both the UN General Assembly and Security Council despite being founded independently of the UN through its own international treaty, the IAEA Statute. The

IAEA, which has its headquarters in Vienna, acts as an international forum for scientific and technological cooperation on the safe and non-proliferative use of nuclear technology and nuclear power. The IAEA's initiatives support the development of nuclear energy, research, and technology for peaceful purposes, offer global safeguards against the abuse of nuclear materials and technology, and advocate the adoption of nuclear safety (including radiation protection) and security standards.

Nuclear Weapons

An explosive device that derives its destructive power from nuclear reactions, either fission (fission bombs) or a combination of fission and fusion reactions, is referred to as a nuclear weapon. It is also referred to as an atom bomb, atomic bomb, nuclear bomb, or nuclear warhead (thermonuclear bomb). Both types of bombs produce a tremendous quantity of energy from a tiny amount of substance. About 20,000 tonnes of TNT's worth of energy were released during the first fission (or "atomic") bomb test (84 TJ). The energy released by the first thermonuclear (hydrogen) bomb test was about equal to 10 million tonnes of TNT (42 PJ). The W54 nuclear bomb, with a yield of 10 tonnes TNT, and the Tsar Bomba, with a yield of 50 megatons (see TNT equivalent). It is possible for a thermonuclear weapon as light as 600 pounds (270 kg) to provide energy equivalent to more than 1.2 megatons of TNT (5.0 PJ). An entire city can be destroyed by blast, fire, and radiation from a nuclear device that is no bigger than a conventional bomb. The spread of nuclear weapons is a subject of international relations policy because they are weapons of mass destruction. In two separate conflicts, the United States used nuclear weapons against the Japanese cities of Hiroshima and Nagasaki in 1945.

The Non-Proliferation Treaty (NPT)

The NPT is a historic international agreement whose main goals are to promote cooperation in the peaceful uses of nuclear energy, prevent the spread of nuclear weapons and weapons technology, and advance the cause of general and complete disarmament. The Treaty is the only multilateral agreement that makes a legally binding commitment to the nuclear-weapon states' disarmament as a goal. The Treaty was made available for signing in 1968, and it became operative in 1970. The Treaty was renewed indefinitely on May 11, 1995. The five nuclear-armed States are included in the overall number of States that have ratified the Treaty. The NPT has been ratified by more nations than any other arms control and disarmament agreement, which is evidence of the treaty's importance. The Treaty is recognized as the cornerstone of the international regime for nuclear non-proliferation and as a crucial stepping stone toward nuclear disarmament. Its objectives were to stop the spread of nuclear weapons, advance the aims of total and universal disarmament, and encourage cooperation in the peaceful uses of nuclear energy. The Treaty established a safeguards system under the control of the

International Atomic Energy Agency in order to advance the goal of non-proliferation and as a confidence-boosting measure between States parties (IAEA). The IAEA conducts inspections to see whether the Treaty is being complied with using safeguards. While safeguards prevent the diversion of fissile material for use in weapons, the Treaty fosters collaboration in the field of peaceful nuclear technology and equal access to this technology for all States parties. The 1995 NPT Review and Extension Conference confirmed the terms of the Treaty, particularly article VIII, paragraph 3, which calls for a review of the Treaty's operation every five years.

Without adopting a substantial consensus decision, the 2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons came to an end. The 2015 outcome represents a setback for the strengthened review process established to ensure accountability with respect to activities under the three pillars of the Treaty as States Parties agreed to a final document in 2010 that included conclusions and recommendations for follow-on actions, including the implementation of the 1995 Resolution on the Middle East. The 2015 results represent a setback for the reinforced review procedure established to promote accountability with regard to operations under the Treaty's three pillars as part of the package supporting the Treaty's indefinite extension in 1995. The 2020 Review Conference preparation process is currently in progress.

North Korea and Nuclear Proliferation

Since the 1950s, North Korea has expressed interest in creating nuclear weapons. When North Korea began what it called an "all-fortress nation," which was the beginning of the hyper-militarized North Korea of today, the nuclear program can be traced back to around 1962. North Korea requested assistance from the Soviet Union in 1963 but received a negative response. The Soviet Union consented to assist North Korea with the training of nuclear scientists and the development of a peaceful nuclear energy program. Later, following its own nuclear tests, China also turned down North Korea's pleas for assistance in building nuclear weapons. The IRT-2000 research reactor, which was built by Soviet engineers as part of the Yongbyon Nuclear Scientific Research Center's construction and started in 1963, was operational in 1965, and it was expanded to 8 MW in 1974. In Yongbyon, North Korea started construction on a second research reactor, an ore processing facility, and a facility for making fuel rods in 1979. The nuclear weapons development of North Korea began in the 1980s. North Korea started operating uranium manufacture and conversion facilities, carried out high-explosive detonation tests, and concentrated on the completion of a nuclear weapon development system. North Korea ratified the NPT in 1985, but it wasn't until 1992 that it also included the necessary safeguards agreement with the IAEA. The IAEA came to the conclusion that there was substantial evidence that North Korea's initial declaration was incomplete in early 1993 while confirming this declaration. The IAEA informed the UN Security Council of North Korea's noncompliance when it rejected the proposed special inspection. North Korea announced its departure from the NPT in

1993, but it was postponed before it became effective. In accordance with the 1994 Pledged Framework, the United States agreed to help North Korea obtain two light water reactors in exchange for its disarmament. Although not "proliferation proof," these reactors are thought to be "more proliferation-resistant than North Korea's graphite-moderated reactors." The Republican-controlled Congress undermined the Agreed Framework during the Clinton administration by rejecting the deal with North Korea, imposing new sanctions on that country, and preventing the Clinton administration from supplying North Korea with the supplies specified in the Agreed Framework. The Agreed Framework's implementation failed, and it collapsed in 2002, with each party putting the blame on the other. Pakistan acknowledged in 2002 that North Korea had obtained access to its nuclear technologies. In 2003, DPRK left the NPT and accepted the fact that it had nuclear weapons. Although they vowed to close down their nuclear program, North Korea declared its first nuclear test had been successfully completed on October 9, 2006. A radioactive explosion that occurred underground was discovered, and its yield was determined to be less than a kiloton. The North Korean leadership reiterated its denial of having nuclear weapons on January 6, 2007. North Korea informed attendees at international nuclear talks on March 17, 2007, that it was getting ready to close down its primary nuclear site. Six-party negotiations including North Korea, South Korea, China, Russia, Japan, and the United States that started in 2003 led to the accord. The deal stated that in exchange for fuel assistance and the disabling of the nuclear site, a list of its nuclear activities would be submitted. North Korea declared in February 2012 that it would halt uranium enrichment at the Yongbyon Nuclear Scientific Research Center and refrain from conducting any more nuclear weapons tests as long as successful talks with the United States persisted. The embargo on long-range missile tests was part of this agreement. In addition, North Korea consented to let IAEA inspectors observe activities at Yongbyon. The United States agreed to send food aid to North Korea and reiterated that it had no hostile intentions against the DPRK. It also stated that it was ready to strengthen bilateral relations. The United States hailed the action as "important, although limited," but added that it would continue cautiously and that negotiations would only restart once North Korea had taken concrete steps to keep its word. However, the United States chose not to move further with the food aid after North Korea carried out a long-range missile test in April 2012. About a month after the purported hydrogen bomb test, on February 7, 2016, North Korea claimed to have launched a satellite into orbit. Shinz Abe, the prime minister of Japan, had issued a warning to the North, stating that if it launched the rocket and it breached Japanese territory, it would be shot down. North Korea nevertheless fired off the rocket, drawing condemnation from the US, Japan, and South Korea. Despite North Korean assertions that the rocket was being used for scientific research, it has received harsh criticism for being an attempt to launch a satellite while also conducting an ICBM test. However, China encouraged "the relevant parties" to "refrain from taking acts that may further aggravate tensions on the Korean peninsula" although also criticising the launch. On September 9, 2016, a nuclear test was conducted five times. This test yield, which surpassed the previous record set in 2013, is thought to be the greatest of the five tests conducted thus far. Despite other reports suggesting a yield of

20 to 30 kt, the South Korean government claimed that the yield was around 10 kt. The same German source that estimated the yield of each of North Korea's past nuclear tests predicted a 25 kiloton test. With a range of measures, other countries and the UN have reacted to North Korea's continuous missile and nuclear development. On March 2, 2016, the UN Security Council decided to impose new sanctions against North Korea.

North Korea tested two ICBMs in 2017, the second of which was capable of reaching the whole US continent. The nation declared a further "perfect" hydrogen bomb test in September 2017. According to North Korea's official policy, nuclear weapons "will never be misused or utilised as a means of preemptive strike," but if there is a "effort to take recourse to military force against us," North Korea may deploy their "most powerful offensive capabilities in advance to punish them."

