

BRITAIN

All information retrieved from the Arms Control Association Nuclear Profile Factsheets - <https://www.armscontrol.org/factsheets/countryprofiles> (Accessed 25/07/17) - Edited

Arms Control Agreements and Treaties

	Signed	Ratified
Nuclear Nonproliferation Treaty	1968	1968
Comprehensive Test Ban Treaty	1996	1998
Convention on the Physical Protection of Nuclear Material (CPP NM)	1980	1981
CPPNM 2005 Amendment		2010
International Convention for the Suppression of Acts of Nuclear Terrorism	2005	2009

The Nuclear Arsenal, an Overview

In 2010, the United Kingdom (UK) maintained a military stockpile of 215 nuclear weapons and has reduced its deployed strategic warheads to 120.

The UK has the smallest deployed arsenal of the nuclear weapons states and has committed to reducing its nuclear stockpile. In October 2010, the UK government announced plans to reduce its total nuclear weapons stockpile to 180 weapons by the mid-2020s

Upon successful reduction down to 180 nuclear warheads, the UK will have achieved a 65 percent reduction in the size of its overall nuclear stockpiles since the height of the Cold War. Plans to modernize the UK's nuclear arsenal were introduced in 2006. The cornerstone of modernization plans was the potential introduction of a new nuclear-capable submarine to replace the *Vanguard*-class.

Fissile Material

MILITARY

- In April 1995, the UK ceased production of separated plutonium and the British government declared that it no longer produces fissile material for weapons. The UK halted the production of highly enriched uranium (HEU) in 1963.
- In 2010, the UK controlled a total of 7.6 metric tons of plutonium of which 3.2 metric tons were available for weapons and 4.4 metric tons declared excess.
- They also controlled 21.2 metric tons of Highly Enriched Uranium

CIVILIAN

- The United Kingdom possesses the world's largest stockpile of civilian plutonium, with over 103.3 metric tons designated for this purpose.
- The country stores approximately 23 metric tons of foreign owned plutonium, the majority of which belongs to Japan.

Proliferation Record

The UK is not known to have deliberately or significantly contributed to the spread of biological, chemical, or nuclear weapons to other states. The UK is, officially, an active promoter of nonproliferation and is a leading member in the Nuclear Suppliers Group, the Australia Group, the Missile Technology Control Regime, and the Zangger Committee as well as the Proliferation Security Initiative. The UK has been involved in both Iranian and Libyan nonproliferation processes and continues to support the creation of an effective and verifiable chemical, biological, radiological, and nuclear-free zone in the Middle East.

Nuclear Doctrine

The British government is committed to not using nuclear weapons against non-nuclear-weapon states-parties to the Nuclear Nonproliferation Treaty (NPT) subject to certain conditions regarding their behavior and alliances. Nevertheless, the government reserves the right to review this assurance if the future threat, development or proliferation of these weapons make it necessary. London refuses to rule out the first use of nuclear weapons, but has stated that it would only employ such arms in self-defense and even then only in extreme circumstances.

The UK's 2006 defense white paper states that "we deliberately maintain ambiguity about precisely when, how and at what scale we would contemplate use of our nuclear deterrent."

The British government's standard practice is to have one submarine on deterrent patrol at any given time. The government claims the missiles aboard the submarine are not on alert and that launching a missile would take several days of preparation.

TESTING

The United Kingdom has conducted 45 nuclear weapon tests. The first test occurred on October 3, 1952, and the last took place November 26, 1991.

Other Arms Control and Nonproliferation Activities

Conference on Disarmament (CD)

The United Kingdom regularly participates in the CD, established in 1979 by the international community as a multilateral disarmament negotiating forum. In July 2009, the British government announced its report on nuclear nonproliferation entitled "The Road to 2010" at the CD. In 2010, the UK called for negotiations on an Fissile Material Cutoff Treaty (FMCT) to be moved to the United Nations General Assembly where it could be endorsed by a majority vote.

Nuclear Weapons Free Zones

The United Kingdom has ratified additional protocols to the Latin American and the Caribbean, South Pacific, African, and Central Asian nuclear weapons free zone treaties pledging not to use or threaten to use nuclear weapons against the treaty's member states. However, the UK maintains reservations to each of these protocols.

Nuclear Security Summits

British participation in the Nuclear Security Summits includes the 2010 Nuclear Security Summit (NSS) in Washington, DC.

IRAN

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Nuclear Nonproliferation Treaty	1968	1970
Comprehensive Test Ban Treaty	1996	
Convention on the Physical Protection of Nuclear Material (CPPNM)		
CPPNM 2005 Amendment		
International Convention for the Suppression of Acts of Nuclear Terrorism		

The Nuclear Arsenal, an Overview

Iran does not possess nuclear weapons but it conducted activities in the past relevant to developing a nuclear warhead, including uranium enrichment and studies on ballistic missile mating and re-entry.

Fissile Material

- During the latter half of 2002, the IAEA began investigating two secret Iranian nuclear facilities: a heavy-water production plant near Arak and a gas centrifuge uranium-enrichment facility near Natanz.
- In September of 2009, the discovery of Fordow, a secret nuclear facility under construction near Qom, deepened international suspicions about Iran's uranium enrichment activities.
- In 2010, Iran scaled up some of its uranium enrichment from less than 5 percent to 20 percent, the level required for Iran's research reactor.
- Under the Iran deal, Iran's enriched uranium is capped at 3.67 percent.
- Much of the uranium-enrichment program is based on equipment and designs acquired through former Pakistani nuclear official A.Q. Khan's secret supply network.
- Iran relies on its IR-1 centrifuge, a variant of Pakistan's P-1 centrifuge, known to be crash-prone and unreliable.
- In 2006, the Security Council adopted a number of resolutions calling on Iran to suspend uranium enrichment-related activities and cooperate fully with the IAEA.
- When Iran refused to comply, the UNSC introduced four rounds of sanctions targeting Iranian entities and individuals believed to be involved in Iran's proliferation-related activities.
- In 2009, Russia, France, and the United States negotiated a fuel swap deal with Iran to transfer low-enriched uranium (LEU) out of the country in exchange for fuel for a reactor that produces medical isotopes. The deal fell through when Iran tried to change the terms.

Proliferation Record

- In 2000, Iran exported rockets and several ballistic missile components to Libya.
- Iran has been accused of violating a Security Council resolution barring arms transfers to Hezbollah.

- Since 2007, the Security Council has barred Iran from selling conventional arms and also prohibits any country from importing arms from Iran without prior UN Security Council approval.

Other Arms Control and Nonproliferation Activities

Middle East Nuclear-Weapon-Free Zone

- Iran was one of the first states to formally call for a nuclear-weapon-free zone in the Middle East, joining with Egypt to propose the goal to the UN General Assembly in 1974. Tehran consistently makes statements at disarmament expressing its support for the zone concept.

PAKISTAN

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Arms Control Agreements and Treaties

	Signed	Ratified
Nuclear Nonproliferation Treaty		
Comprehensive Test Ban Treaty		
Convention on the Physical Protection of Nuclear Material (CPPNM)		2000 (Though stated it will not be bound by settlement procedures)
CPPNM 2005 Amendment		
International Convention for the Suppression of Acts of Nuclear Terrorism		

The Nuclear Arsenal, an Overview

Pakistan developed nuclear weapons outside of the Nuclear Nonproliferation Treaty. Pakistan's nuclear program dates back to the 1970s and was spurred on by India's first nuclear test in 1974. Pakistan is believed to house a nuclear arsenal of 130-140 warheads. Pakistan is currently expanding its nuclear arsenal faster than any other country and developing new delivery systems for its warheads.

Fissile Material

- Specific estimates of Pakistan's stockpiles of fissile material are difficult to determine, given uncertainty about Pakistan's uranium enrichment capacity.
- Pakistan continues to produce fissile materials for nuclear weapons purposes.

Proliferation Record

- The foundation of Pakistan's nuclear weapons program was aided by the theft of nuclear technology and know-how from the European company URENCO by scientist Abdul Qadeer Khan, who became a leading figure in Pakistan's nuclear weapons establishment. Khan is also believed to have received a nuclear weapon design from China. Although U.S. intelligence was aware of Pakistan's illicit program, the United States continued to provide military assistance and foreign aid to Islamabad up until 1990 when President George H. W. Bush decided that he could no longer certify that Pakistan did not possess a nuclear device. U.S. sanctions related to Pakistan's nuclear program were dropped after the Sept. 11, 2001 terrorist attacks when the United States decided to pursue closer relations with Pakistan as part of the U.S. declared "war on terror."
- Abdul Qadeer Khan had also developed a black market network of suppliers to procure technology and know-how for Pakistan's secret nuclear weapons program and then transformed that network into a supply chain for other states. Iran, Libya, and North Korea were all clients and other states might have been as well. After the interception of one of his shipments to Libya in October 2003, Khan appeared on Pakistani television in February 2004 and confessed to running the network, which transferred items ranging from centrifuges to bomb designs.

- The Pakistani government denied any complicity in or knowledge of the network and confined Khan to house arrest. Although reportedly serving as an intermediary to foreign governments, the Pakistani government has not made Khan available to direct interviews by other states. General concern exists that remnants of the network might still be functioning.
- Pakistan instituted new export control laws following the public exposure of Khan's network in 2004, including the establishment of the Strategic Export Control Division of the Ministry of Foreign Affairs. Pakistan's control list now includes dual-use materials in an effort to meet the regulatory standards of export control regimes.
- Numerous Pakistani entities and—more recently—individuals, including Abdul Qadeer Khan himself, have been placed under U.S. nonproliferation sanctions, many of which are still active.

Nuclear Doctrine

Pakistan has pledged no first use against non-nuclear weapons states. Pakistan's policy on first use against states that possess nuclear weapons, particularly India, remains vague. Although Pakistani officials have claimed that nuclear weapons would be used only as a matter of last resort in such a conflict with India, Islamabad's development of battlefield nuclear weapons to counter Indian conventional forces raises questions as to how central Pakistani nuclear weapons are in its security doctrine.

Pakistan's nuclear warheads are believed to be stored in a disassembled state, with the fissile core kept separate from the warhead package. This practice greatly increases the time required to deploy the weapons.

Due to severe political instability from extremist groups in Pakistan, there is unease regarding the safety of Pakistan's nuclear arsenal, materials, and facilities from both insurgent threats and insider collusion. Pakistan has shared critical information about its nuclear activities with the U.S., and both Pakistani and U.S. officials have repeatedly stated that Pakistani nuclear assets are secure from such threats.

TESTING

Pakistan has conducted two nuclear weapon tests, although one of those involved five simultaneous explosions. The first test occurred May 28, 1998, and the last took place May 30, 1998. In 1990, China is believed to have tested a Pakistani derivative of the nuclear design Beijing allegedly gave to Khan.

Other Arms Control and Nonproliferation Activities

BILATERAL TALKS WITH INDIA

- Signed the India-Pakistan non-Attack Agreement which entered into force in January 1991.
- In 1992 India, signed the India-Pakistan Agreement on Chemical Weapons for the "complete prohibition of chemical weapons."
- After their tit-for-tat nuclear tests in 1998, Pakistan and India volunteered to abstain from nuclear testing.
- Established a hotline to reduce the risk of accidental nuclear war and agreed to exchange advance notifications of ballistic missile flight tests.
- In 2007, the fifth round of talks regarding the review of nuclear and ballistic missile-related confidence building measures took place as part of the Composite Dialogue Process.

CONFERENCE ON DISARMAMENT (CD)

Established in 1979 as a multilateral disarmament negotiating forum by the international community, Pakistan has been a regular and active participant in the CD. Pakistan has blocked the start of negotiations on a fissile material cut-off treaty (FMCT) at the 65-member CD. Islamabad has insisted that an FMCT must cover existing stocks of fissile material due to concerns about India's current stockpile, and is preventing the body from reaching consensus on an agenda that would allow negotiations on the treaty to begin

Arms Control Agreements and Treaties

	Signed	Ratified
Nuclear Nonproliferation Treaty		
Comprehensive Test Ban Treaty		
Convention on the Physical Protection of Nuclear Material (CPPNM)		2002 (Though stated it will not be bound by settlement procedures)
CPPNM 2005 Amendment		2007
International Convention for the Suppression of Acts of Nuclear Terrorism	2006	2006 (Though stated it will not be bound by settlement procedures)

The Nuclear Arsenal, an Overview

India developed nuclear weapons outside of the nuclear Nonproliferation Treaty (NPT). India is estimated to have an arsenal of 120-130 nuclear warheads. India's warheads have plutonium cores and are believed to be stored separately from their delivery systems.

Fissile Material

PLUTONIUM

- All of India's nuclear weapons are plutonium-based.
- Much of its weapons-grade plutonium has been produced at its CIRUS reactor (shut down in 2010), and the Dhruva heavy-water reactor.
- India has plans to build 6 fast-breeder reactors which would dramatically increase the speed at which India produces plutonium for its nuclear energy program.
- India agreed in 2006 to allow 14 of its 22 nuclear reactors to be monitored by the IAEA, and has since updated its plan to include an additional four reactors under safeguards.

HIGHLY ENRICHED URANIUM (HEU)

- India produces HEU—but not to weapons grade—to fuel the reactor cores for its nuclear submarine program.

Proliferation Record

- Under the U.S. "Atoms for Peace" initiative, India was a recipient of training and technological transfers intended for peaceful purposes but put to use in its nuclear weapons program. India's first nuclear test was of a device derived partially from Canadian and U.S. exports designated for peaceful purposes. That test spurred the United

States and several other countries to create the Nuclear Suppliers Group (NSG) to more severely restrict global nuclear trade.

- The U.S. helped secure a waiver for India on export restrictions of nuclear materials, causing some to allege that U.S. strategic interests lead Washington to turn a blind eye to proliferation concerns in India.
- India is not a signatory to the nuclear Nonproliferation Treaty (NPT).

Nuclear Doctrine

Indian nuclear planning has been largely based on an unofficial document released in 1999 by the National Security Advisory Board known as the draft nuclear doctrine. This document calls for India's nuclear forces to be deployed on a triad of delivery vehicles of "aircraft, mobile land-based missiles and sea-based assets," designed for "punitive retaliation." Indian officials say the size of their nuclear stockpile is based on maintaining a "credible minimum deterrent" and that its abilities must enable an "adequate retaliatory capability should deterrence fail." However, India's ability to retaliate with speed remains an inhibitor that they supplement by "assuring" retaliation, despite delays. Although India reiterated in January 2003 that it would not use nuclear weapons against states that do not possess such arms and declared that nuclear weapons would only be used to retaliate against a nuclear attack, the government reserved the right to use nuclear weapons in response to biological or chemical weapons attacks. However, given the offensive restructuring of India's nuclear forces, there has arisen recent debate whether or not India may be considering a "preemptive nuclear counterforce" doctrine.

Other Arms Control and Nonproliferation Activities

BILATERAL TALKS WITH PAKISTAN

- India-Pakistan non-Attack Agreement, entered into force in January 1991.
- In 1992 India signed the India-Pakistan Agreement on Chemical Weapons for the "complete prohibition of chemical weapons."
- After their tit-for-tat nuclear tests in 1998, Pakistan and India volunteered to abstain from nuclear testing.
- Established a hotline to reduce the risk of accidental nuclear war and agreed to exchange advance notifications of ballistic missile flight tests.
- In 2007, the fifth round of talks regarding the review of nuclear and ballistic missile-related confidence building measures took place as part of the Composite Dialogue Process.

NUCLEAR SECURITY SUMMITS

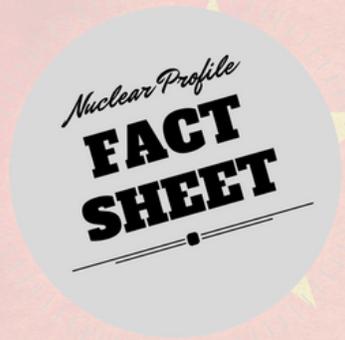
In April 2010, India attended the first Nuclear Security Summit (NSS) in Washington, DC where participants included 47 countries, 38 of which were represented at the head of state or head of government level, and the heads of the United Nations, the International Atomic Energy Agency, and the European Union.

CONFERENCE ON DISARMAMENT (CD)

Established in 1979 as a multilateral disarmament negotiating forum by the international community, India has been a regular and active participant in the CD. India favors negotiation of a fissile material cutoff treaty that is "effectively verifiable," which is a condition opposed by the United States. At the CD (and elsewhere), India has consistently called for general nuclear disarmament by all states.

CIVILIAN NUCLEAR TRADE WITH INDIA & THE 123 AGREEMENT

The United States signed a controversial agreement with India to repeal most U.S. and multilateral civilian nuclear trade restrictions on India. In 2006, Congress amended its own domestic legislation to allow nuclear trade with India to proceed. The two governments later concluded a "123 Agreement" (the U.S.–India Civil Nuclear Agreement), which was approved by Congress and signed into law in October 2008 after India received a waiver from the Nuclear Suppliers Group (NSG) that September.



CHINA

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Comprehensive Test Ban Treaty	1996	
Convention on the Physical Protection of Nuclear Material (CPPNM)		1989 <small>(Though stated it will not be bound by settlement procedures)</small>
CPPNM 2005 Amendment		2009
International Convention for the Suppression of Acts of Nuclear Terrorism	2005	2010

The Nuclear Arsenal, an Overview

China does not publicly release information about the size of its nuclear arsenal. China's nuclear arsenal has been steadily increasing with respective figures placed at 240 in 2011. China's warheads are thought to be kept in storage under central control during times of peace. It is uncertain whether or not China possesses a non-strategic nuclear arsenal.

China's nuclear policy has been defined by possessing the minimum capabilities needed to deter a first strike from a potential aggressor.

Fissile Material

- Although China has not publicly declared a halt to the production of fissile material for weapons purposes, highly enriched uranium (HEU) and separated plutonium, general speculation is that Beijing has stopped its production. China is reported to have last produced HEU in 1989 and last produced separated plutonium in 1991.
- The limited size of China's military stockpile restricts its ability to produce more warheads
- According to the International Panel on Fissile Materials 2011 Report, China is believed to have discontinued the production of fissile material for military purposes.

Proliferation Record

- China has a record of assisting states with nuclear and missile programs in the past, but in 2000, China made a public commitment not to assist "in any way, any country in the development of ballistic missiles that can be used to deliver nuclear weapons."
- China has aided Pakistan's nuclear and missile programs among other states. Iran, Libya, North Korea, and Saudi Arabia have also been identified as recipients of sensitive technologies and materials from China.
- The China Nuclear Energy Industry Corporation (CNEIC)—with government authorization—has exported Miniature Neutron Source Reactors (MNSR) to Pakistan, Iran, Syria, Ghana, and Nigeria. These reactors run on

highly enriched uranium fuel, albeit a fraction of what is necessary for a nuclear warhead, which has been supplied by China to recipient states.

- There have been efforts made by China to work with those states to convert these reactors to use low enriched uranium fuel, including a 2010 agreement between the U.S. Argonne National Laboratory and the China Institute of Atomic Energy for a new facility in China to produce LEU replacement cores in MNSR's.
- Nuclear Supplier Group (NSG) members, including the United States, saw enough improvement in China's nuclear export behavior that they extended membership to China in 2004.
 - Nonetheless, China has sold reactors to Pakistan, as was revealed in a 2010 agreement between the two nations. This trade, however, contravenes NSG guidelines.
- China's bid to join the Missile Technology Control Regime failed in 2004, citing continuing concerns about Chinese missile and missile technology transactions. China, however, maintains that it voluntarily abides by the regime's guidelines.
- The United States has also, at various times, imposed sanctions on Chinese entities for missile and chemical weapons related transfers to Pakistan and Iran such as the provision of dual-use chemical weapons precursors and production equipment to Iran beginning in 1997.

Nuclear Doctrine

China was the first nuclear-weapon state to declare publicly that it will not be the first to use nuclear weapons. Beijing has emphasized that this vow stands "at any time or under any circumstances."

China has always kept its nuclear capabilities at the minimum level required for maintaining its national security. China will optimize its nuclear force structure, improve strategic early warning, command and control, missile penetration, rapid reaction, and survivability and protection, and deter other countries from using or threatening to use nuclear weapons against China.

Regardless, some theorize that the modernization of China's nuclear arsenal, its intent on increasing its nuclear warfare capabilities, and its posturing demonstrate a doctrine of counter nuclear coercion or limited deterrence.

TESTING:

China has conducted 45 nuclear tests. The first test occurred Oct. 16, 1964, and the last test took place July 29, 1996

Other Arms Control and Nonproliferation Activities

CONFERENCE ON DISARMAMENT (CD)

At the 65-member CD, China expressed support for negotiation of an "effectively verifiable" fissile material cutoff treaty (FMCT) while declaring its top priority to be the prevention of an arms race in outer space (PAROS). In 2003, China said it would accept discussions on outer space rather than formal negotiations but that formulation remained unacceptable to the United States. China, however, did not agree to a 2007 compromise formula, including talks on outer space, which the United States said it would not oppose. China refused to participate in Australian and Japanese-led side meetings at the CD in 2011, insisting that the CD was the only proper conduit for FMCT negotiations. The U.S. has stated that the lack of support by China and other key countries resulted in the failure of the side meetings to make progress. China believes that a FMCT should not restrict the use of existing fissile material for weapons purposes.

NUCLEAR WEAPONS FREE ZONES

China has ratified additional protocols to the Latin American and Caribbean, South Pacific, African, and Central Asian nuclear weapons free zone treaties pledging not to use or threaten to use nuclear weapons against the treaty's member states.

SIX-PARTY TALKS

China has played a key role in hosting and helping mediate the so-called six-party talks to achieve North Korea's nuclear disarmament as a direct result of its withdrawal from the Nuclear Nonproliferation Treaty (NPT). Although those talks broke down in 2008 and have yet to resume, China maintains that they remain an effective mechanism for achieving disarmament in North Korea.

NORTH KOREA

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Arms Control Agreements and Treaties

	Signed	Ratified
Nuclear Nonproliferation Treaty		1985 (Announced withdrawal in 2003)
Comprehensive Test Ban Treaty		
Convention on the Physical Protection of Nuclear Material (CPPNM)		
CPPNM 2005 Amendment		
International Convention for the Suppression of Acts of Nuclear Terrorism		

The Nuclear Arsenal, an Overview

- North Korea has the fissile material for an estimated 10-16 nuclear weapons
- North Korea has an estimated 6-8 plutonium-based warheads, based on its known plutonium production. North Korea is also known to have a uranium-enrichment program using centrifuge technology, revealed in 2010, although its enrichment capacity is unknown. It is unclear if North Korea is enriching uranium to weapons grade.
- North Korea was party to the NPT, but withdrew in 2003. Not all states, however, recognize the legality of North Korea's withdrawal from the treaty.
- North Korea has conducted two nuclear tests. After the first test in 2006, the UN Security Council adopted resolution 1718, enacting a variety of multilateral sanctions and demanding that Pyongyang return to the NPT and halt its nuclear weapons activities.
- On Oct. 9, 2006, North Korea conducted its first nuclear test with an estimated yield of about one kiloton.
- North Korea then conducted its second nuclear test on June 25, 2009 with the underground detonation of a nuclear device estimated to have a yield of 2 to 6 kilotons.

Fissile Material

PLUTONIUM

- Experts assess that North Korea's 2006 and 2009 nuclear tests likely used plutonium, which North Korea was known to have produced at weapons-grade levels.

HIGHLY ENRICHED URANIUM

- While Pyongyang has constructed a gas centrifuge facility, it is unknown if the facility is producing uranium enriched to weapons-grade.

- In November 2010, North Korea unveiled a large uranium-enrichment plant to former officials and academics from the United States. The plant contained approximately 2,000 gas centrifuges that were claimed to be operating and producing low-enriched uranium (LEU) for a light-water reactor (LWR) that North Korea is constructing. This plant is estimated to be capable of producing two metric tons of LEU each year, enough to fuel the LWR reactor under construction, or to produce 40 kg of highly-enriched uranium (HEU), enough for one to two nuclear weapons.

Proliferation Record

MISSILES

- North Korea has been a key supplier of missiles and missile technology to countries in the Middle East and South Asia including Egypt, Iran, Libya, Pakistan, Syria and Yemen.
- Such transfers are believed to be one of Pyongyang's primary sources of hard currency.
- Although clientele for North Korea's missile exports appear to have dwindled in recent years due to U.S. pressure and UN sanctions, Iran and Syria remain customers of North Korean missile assistance.
- Pyongyang is widely believed to have provided missile cooperation to Burma.

NUCLEAR

- North Korea has a history of circumventing sanctions to import and export dual-use materials relevant to nuclear and ballistic missile activities and to sell conventional arms and military equipment. A UN panel of experts reports annually on adherence to UN Security Council sanctions and illicit trafficking. A few examples include:
 - North Korea helped Syria to build an undeclared nuclear reactor in al-Kibar based on its own Yongbyon reactor. In 2007, the reactor, which was under construction, was destroyed by an Israeli airstrike.

Nuclear Doctrine

Given that North Korea typically does not describe its nuclear activities accurately, it is unclear to what extent Pyongyang would abide by its declaration that they would avoid using nuclear weapons unless its sovereignty is impacted upon by hostile forces with nuclear weapons.

Other Arms Control and Nonproliferation Activities

Joint Declaration on the Denuclearization of the Korean Peninsula

- In December 1991, the two Koreas signed a Joint Declaration on the Denuclearization of the Korean Peninsula. Under the declaration, both countries agreed not to “test, manufacture, produce, receive, possess, store, deploy or use nuclear weapons” or to “possess nuclear reprocessing and uranium enrichment facilities.” The parties also agreed to mutual inspections for verification, but they were never able to reach an agreement on implementation.
- In light of North Korea's flagrant violations, this agreement holds little weight in Seoul, which has called for an end to the prohibition on South Korean reprocessing from its bilateral nuclear agreement with the United States.



Arms Control Agreements and Treaties

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Nuclear Nonproliferation Treaty		
Comprehensive Test Ban Treaty	1996	
Convention on the Physical Protection of Nuclear Material (CPPNM)	1983	2002
CPPNM 2005 Amendment		
International Convention for the Suppression of Acts of Nuclear Terrorism	2006	

The Nuclear Arsenal, an Overview

Israel has never officially acknowledged that it possesses nuclear weapons and is not party to the nuclear Nonproliferation Treaty. Israel officially maintains that it “will not be the first country to introduce nuclear weapons in the Middle East.” Experts estimate that Israel has nuclear arsenal of about 80 warheads, with enough additional material for up to 200 nuclear weapons. Israel is believed to have developed a nuclear triad for delivering its nuclear warheads.

Fissile Material

- Very little is known about Israel’s fissile materials production or stockpiles. The Israel Atomic Energy Commission (IAEC) is responsible for overseeing the country’s nuclear activities.

PLUTONIUM

- Israel may still produce plutonium for weapons via its 50 year old Dimona (Negev Nuclear Research Center) plutonium production reactor constructed by France.
- Israel may possess weapons-grade plutonium.

Highly Enriched Uranium

- Stockpile of HEU is estimated at approximately 300 kg; this stockpile may have been transferred from the United States in the 1960s, although that is not publically acknowledged by either government.

Proliferation Record

- Although a major exporter of conventional arms and military equipment, Israel is not known to have deliberately or significantly contributed to the spread of biological, chemical, or nuclear weapons to other states, although the extent of Israel’s involvement in South Africa’s previously secret, now abandoned, nuclear weapons program is uncertain.
- Under U.S. President Dwight Eisenhower’s “Atoms for Peace” program, Israel received nuclear training and technology potentially utilized in its nuclear weapons program.

- In 1994, the United States placed sanctions on Nahum Manbar, an Israeli business man accused of supplying Iran with chemicals for its chemical weapons program.
- The Israel Institute for Biological Research IIBR has regularly published defensive chemical weapon research openly, along with other Israeli institutions such as the Hebrew University of Jerusalem, Tel Aviv University, and the Weizmann Institute of Science.
- In June 1981, the Israeli Air Force bombed and destroyed an Iraqi nuclear reactor that it perceived as a threat. Similarly, in September 2007, the Israeli Air Force conducted an airstrike on a Syrian reactor after it failed to declare and provide design information to the International Atomic Energy Agency (IAEA).
- Israel has also made public threats to attack nuclear facilities in Iran to prevent the Iranians from acquiring nuclear weapons.
- Israel is not party to the Nuclear Nonproliferation Treaty (NPT).

Nuclear Doctrine

Israel has long maintained a policy of ambiguity about its nuclear arsenal. Israeli officials never confirmed or denied the existence of nuclear weapons. Therefore, Israel has not made any statements about its willingness to use nuclear weapons. Israel maintains, however, that it will not be the first country to introduce nuclear weapons to the Middle East. Israel generally abstains from voting on an annual UN General Assembly resolution that would establish international arrangements to assure non-nuclear-weapon states that the use or threat of use of nuclear weapons would not be used against them

TESTING

Israel has never conducted an official nuclear weapons test. Israel may have jointly conducted a nuclear test with South Africa in 1979, but some experts argue that the observed phenomenon was not caused by a nuclear explosion. Israel has signed but not yet ratified the Comprehensive Test Ban Treaty (CTBT) and Israeli officials have made several statements indicating the country's support for the treaty and ongoing efforts to ratify.

Other Arms Control and Nonproliferation Activities

NUCLEAR SECURITY SUMMITS

Israeli participation in Nuclear Security Summits includes the 2010 Nuclear Security Summit (NSS) in Washington, DC.

RUSSIA

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CPPNM 2005 Amendment		2008
International Convention for the Suppression of Acts of Nuclear Terrorism	2005	2007

The Nuclear Arsenal, an Overview

Under New START, Russia is required to reduce its deployed treaty accountable warheads to 1,550 by 2018. Estimates place Russian nuclear arsenal at 7,000 warheads, including approximately 700 strategic warheads in reserve, roughly 2,000 tactical warheads, and approximately 2,510 warheads that have been retired and are awaiting dismantlement.

Fissile Material

HIGHLY ENRICHED URANIUM (HEU)

- The Kremlin announced a halt to HEU production for weapons in 1989 and the cessation of plutonium production for weapons in 1994.
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PLUTONIUM

- In April 2010, Russia closed its last plutonium production facility, although it has not discounted a return to producing separated plutonium for fast-breeder reactors in the future.
- Russia committed to disposing of 34 metric tons of excess plutonium under a 2000 agreement with the United States entitled the Plutonium Management and Disposition Agreement (PMDA).
- The project was delayed for several years, but in April 2010 the two nations signed a protocol that amended and updated the 2000 agreement, with the goal of beginning disposition in 2018.

Proliferation Record

- The United States and independent analysts have long cited Russia as a key supplier of nuclear and missile-related goods and technology to a variety of countries, including states of proliferation concern such as Iran and Syria.
- In response, the United States has often levied sanctions on Russian entities believed to be involved in such proliferation activities.
- Beginning in the mid-2000s, the number and frequency of Russian entities placed under U.S. proliferation sanctions declined, possibly as a result of an increasing Russian commitment to controlling sensitive exports

- Russia remains a source of illicit sensitive technology pertaining to missile proliferation.
- The vast former Soviet biological, chemical, and nuclear weapons complexes, including their former scientists, have also been seen as a potential source of arms, materials, and knowledge for other regimes or non-state actors.
- The United States and other countries have pursued programs dedicated to mitigating this potential threat by helping Russia and other Soviet states secure or destroy facilities, materials, and weapon systems, and gainfully employ former scientists in non-arms related work.

Nuclear Doctrine

NATO and U.S. officials have expressed concern over Russian nuclear doctrine, particularly as it pertains to the limited use of nuclear weapons. Defense Department officials have said that Russian doctrine includes a so-called “escalate to de-escalate” strategy, which envisions the limited first use of nuclear weapons to attempt to end a large-scale conventional conflict on terms favorable to Russia. However, some experts have called into question whether “escalate to de-escalate” is part of Russian doctrine.

Other Arms Control and Nonproliferation Activities

INTERMEDIATE-RANGE NUCLEAR FORCES (INF) TREATY

The 1987 INF Treaty between the United States and the Soviet Union requires the United States and Russia to eliminate and permanently forswear all of their nuclear and conventional ground-launched ballistic and cruise missiles with ranges of 500 to 5,500 kilometers. The treaty resulted in the United States and the Soviet Union destroying a total of 2,692 short-, medium-, and intermediate-range missiles by the treaty’s implementation deadline of June 1, 1991.

NEW START

In April 2010, the United States and Russia signed a successor to the original START accord. The new treaty, known as New START, entered into force on Feb. 5, 2011 and requires that both sides reduce their arsenals to 1,550 deployed strategic nuclear weapons on no more than 700 ICMBs, SLBMs, and bombers by 2018. In addition, the treaty contains rigorous monitoring and verification provisions to ensure compliance with the agreement.

CONFERENCE ON DISARMAMENT (CD)

Established in 1979 as a multilateral disarmament negotiating forum by the international community, Russia has been a regular and active participant in the CD. Russia, along with China, has attached significant priority in the CD to negotiating an agreement on the prevention of an arms race in outer space (PAROS).

NUCLEAR WEAPONS FREE ZONES

The Russian government has signed and ratified protocols stating its intent to respect and not threaten the use of nuclear weapons against states-parties to the Latin America and South Pacific nuclear-weapon-free zone treaties. In 2011 Russia signed and ratified Protocol I and II for the African zone.

Arms Control Agreements and Treaties

	Signed	Ratified
Nuclear Nonproliferation Treaty	1968	1970
Comprehensive Test Ban Treaty	1996	
Convention on the Physical Protection of Nuclear Material (CPPNM)	1890	1982
CPPNM 2005 Amendment		
International Convention for the Suppression of Acts of Nuclear Terrorism	2005	

The Nuclear Arsenal, an Overview

Under President Barack Obama, the United States began declassifying the size of its military nuclear stockpile. While the United States and Russia maintain similarly sized total arsenals, the United States possesses a much larger number of strategic warheads and delivery systems while Russia possesses a much larger number of non-strategic (or tactical) nuclear warheads.

Under the 2010 New Strategic Arms Reduction Treaty (New START), the United States will reduce its deployed treaty accountable strategic warheads to 1,550 by the treaty implementation deadline of 2018.

The United States has conducted 1,030 total nuclear tests, far more than any other nuclear-armed state. The United States is the only nation to have used nuclear weapons against another country, dropping two bombs (one apiece) on the Japanese cities of Hiroshima and Nagasaki in August 1945.

Fissile Material

HIGHLY ENRICHED URANIUM (HEU)

- The United States has publicly declared that it no longer produces fissile material for weapons purposes. It stopped production of HEU in 1992.
- Estimates in 2010 placed the U.S. HEU stockpile at around 260 metric tons

PLUTONIUM

- The United States ended production of separated plutonium in 1988
- U.S. military plutonium stockpiles in 2010 amounted to a total of 94.8 declared metric tons (80.7 metric tons of which is weapons grade and 49.3 metric tons are declared as surplus to defense needs).

Proliferation Record

- Beginning with President Dwight Eisenhower's 1953 "Atoms for Peace" initiative, the United States has engaged in extensive worldwide trading and exchanging of fissile materials and technical information for nuclear science research and the peaceful use of nuclear technology. In 1954, an amendment to the Atomic Energy Act allowed

- bilateral nuclear agreements with U.S. allies to proceed, with the intent of exporting only low enriched uranium (LEU) fuel; however, this soon expanded to include HEU.
- Under the “Atoms for Peace” program a number of former, aspiring, and current nuclear weapon-states such as South Africa, Iran, India, Pakistan, and Israel all received, directly or indirectly, training and technology transfers utilized in their nuclear weapons programs. For example, in 1967, the United States supplied Iran with a 5 megawatt nuclear research reactor along with HEU fuel. Iran admitted to using the reactor in the early 1990s for the production of small amounts of Polonium-210, a radioactive substance capable of starting a chain reaction inside a nuclear weapon.
- Since the end of the Cold War the United States has tried to mitigate the adverse effects of the “Atoms for Peace” initiative and returned exported HEU and plutonium to the United States.

Nuclear Doctrine

In April 2009, President Obama declared in a speech in Prague that it was the policy of the United States “to seek the peace and security of a world without nuclear weapons.” In the 2010 Nuclear Posture Review (NPR), the Obama administration announced that it “will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the Nuclear Non-Proliferation Treaty (NPT) and in compliance with their nuclear non-proliferation obligations.” The administration reserved the right to make any adjustments to this assurance “that may be warranted by the evolution and proliferation of the biological weapons threat.” The President was not prepared to make a declaration that the “sole purpose” of its nuclear weapons was to deter a nuclear attack, but added that it would “work to establish conditions under which such a policy could be safely adopted.”

Other Arms Control and Nonproliferation Activities

NEW START

In April 2010, the United States and Russia signed a successor agreement to the original Strategic Arms Reduction Treaty (START) accord. The 2010 agreement, known as New START, commenced on Feb. 5, 2011. It requires that both sides reduce their arsenals to 1,550 deployed strategic nuclear weapons on no more than 700 ICMBs, SLMBs, and bombers by 2018. In addition, it contains rigorous monitoring and verification provisions to ensure compliance with the agreement.

CIVILIAN NUCLEAR TRADE WITH INDIA & THE 123 AGREEMENT

In July 2005, the United States signed a controversial agreement with India to repeal most U.S. and multilateral civilian nuclear trade restrictions on India. In 2006, Congress amended its own domestic legislation to allow nuclear trade with India to proceed. The two governments later concluded a “123 Agreement,” which was approved by Congress and signed into law in October 2008. In September 2008, India received a waiver from the Nuclear Suppliers Group (NSG).

CONFERENCE ON DISARMAMENT (CD)

Established in 1979 as a multilateral disarmament negotiating forum by the international community, the United States has been a regular and active participant in the CD. At the 65-member CD, the United States has expressed support for continuing discussions on the CD’s core issues: nuclear disarmament, a fissile material cut-off treaty (FMCT), prevention of an arms race in outer space (PAROS), and negative security assurances. The United States has been a prominent supporter of a proposed FMCT.

In March 1995, the CD took up The Shannon Mandate which established an ad hoc committee directed to negotiate an FMCT by the end of the 1995 session. A lack of consensus over verification provisions, as well as desires to hold parallel negotiations on outer space arms control issues, prevented negotiations from getting underway. Later, in May 2006, the United States introduced a draft FMCT along with a draft mandate for its negotiations. However, following an impasse in negotiations on a FMCT in 2010, the United States (and others) signaled its desire to look at alternative approaches outside the CD and called for negotiations to be moved to the United Nations General Assembly where the agreement could be endorsed by a majority vote. However, the United States no longer makes comments to this effect.