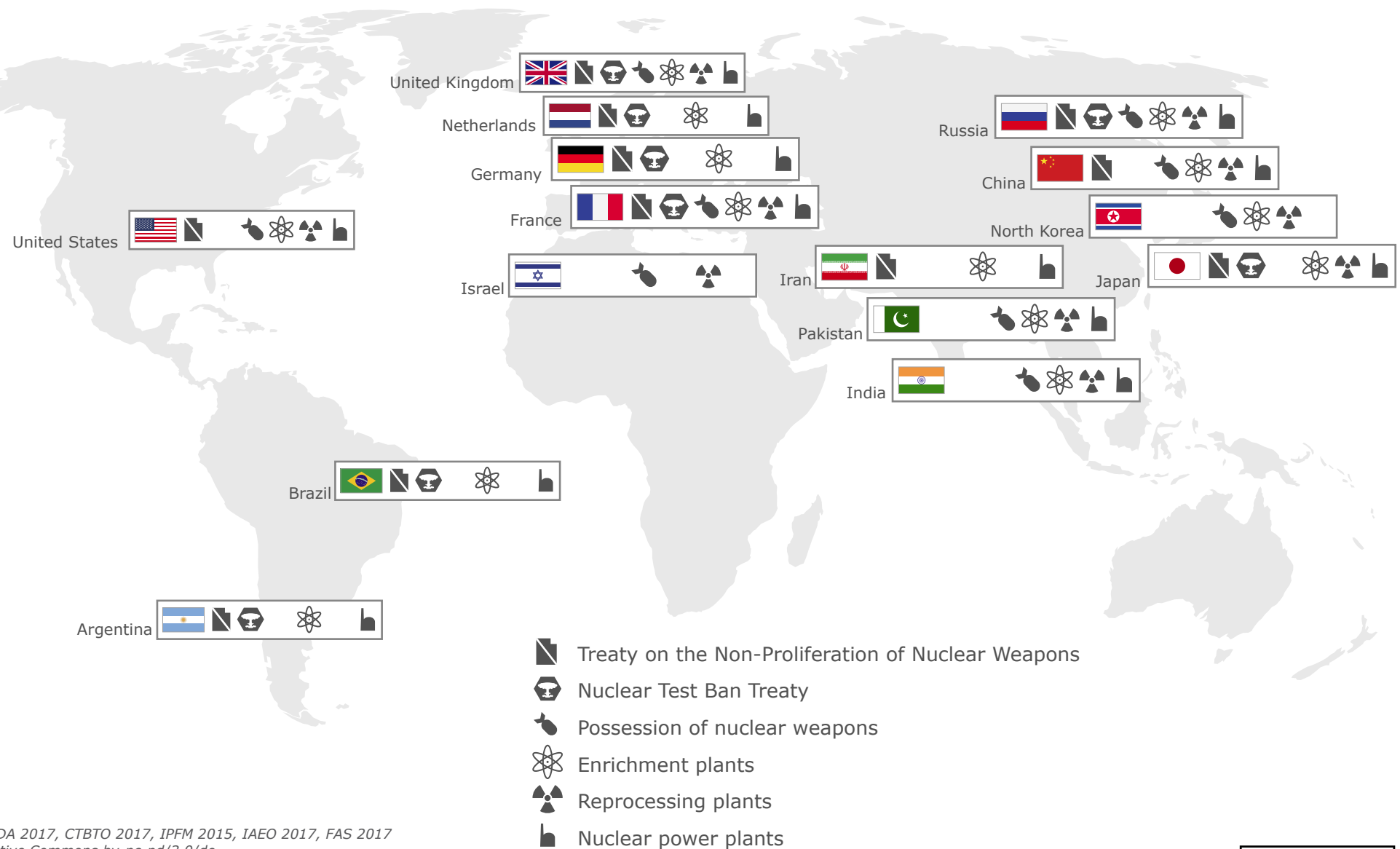


■ Global nuclear powers 2017

Treaty on the Non-Proliferation of Nuclear Weapons, Nuclear Test Ban Treaty, nuclear weapons, enrichment plants, reprocessing plants, nuclear power plants



Source: UNODA 2017, CTBTO 2017, IPFM 2015, IAEA 2017, FAS 2017

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bpb/BICC, 2017, warpp.info

Global nuclear powers 2017

This map shows the current status of the civilian and military use of nuclear energy and also points out the states that have signed the Non-Proliferation Treaty and the Comprehensive Nuclear Test Ban Treaty.

Facts

Since the United States dropped nuclear weapons in August 1945 for the first and only time, more than 125,000 nuclear warheads have been produced. While 97 percent of these are in the possession of the two superpowers United States and Russia, further nuclear weapons were produced and tested by Great Britain, France, China, India, Pakistan, Israel and North Korea. After the United States and the Soviet Union entered into a disarmament agreement in the mid-1980s, the global number of operational nuclear weapons is decreasing. At the time of writing, the number of warheads owned by the nine nuclear powers is a little more than 10,000 warheads (discarded but still intact warheads of the United States and Russia not included). While the absolute number of nuclear weapons is diminishing, one has to take into account that the stockpiles are being modernized and that some nuclear powers continue to increase their weapons holdings.

The history of the civilian use of nuclear energy began in 1954, when the first nuclear power plant came into operation. In the late 1960s, more and more nuclear power plants were connected to the grid, spurred on by the oil crisis in the 1970s. While as early as in 1986, Italy already decided to phase out nuclear power and Germany finally followed suit in 2011 as a result of the nuclear accidents in Chernobyl and Fukushima, nuclear power is increasingly becoming more important due to the increasing prices of fossil fuels worldwide. At the time of writing, 448 nuclear power plants are in operation for energy production in 31 countries, while 58 are being built. Besides nuclear power plants for energy production, another 216 research reactors are in operation spread across 51 countries.

While the first generation of nuclear power plants in the 1950s and 1960s used naturally occurring uranium, reprocessing and enrichment plants are of great importance for the generation of nuclear energy today. In international security policy, these plants play a major role as they -as locations with large amounts of nuclear material -constitute a latent but potent source of danger for environmental impacts, technical errors, human error or even terror attacks. Worldwide, there are **21 enrichment facilities** (1 in the United States, 4 in Russia) and **19 reprocessing plants**.

The current 93 states parties to the **Non-Proliferation Treaty** make a strong commitment to disarm or not to acquire nuclear weapons. Since the entering into force of the Treaty, four new countries have become nuclear powers (India, Israel, North Korea and Pakistan); the IAEA (International

Atomic Energy Agency) with its seat in Vienna, monitors adherence to the Treaty by announced in-situ inspections. None of the four new nuclear powers has signed the Treaty; North Korea became party to the Treaty in 1985 - and left in 2003.

To monitor civilian and military nuclear weapons tests and, ultimately, to ban them, the international community agreed in 1996 on the **Comprehensive Nuclear Test Ban Treaty** - CTBT. This Treaty, however, has still not entered into force, as first all 44 countries that had operated research reactors in 1995 would have to ratify the Treaty (missing countries are Egypt, China, India, Iran, Israel, North Korea, Pakistan and the United States).

Data sources

UNODA (UN Office for Disarmament Affairs)

The United Nations Office of Disarmament Affairs was founded in 1998 with the intention of nuclear disarmament and the limitation of the proliferation of nuclear weapons. Furthermore, the intention was to limit general weapons of mass destruction, such as chemical and biological weapons and to reduce the use of conventional weapons, particularly landmines and small arms and light weapons. It also supports the disarmament and reintegration of ex-combatants into civilian life. By means of more dialogue, higher transparency and confidence-building measures, one hopes to achieve these goals.

Status of the Non-Proliferation Treaty
<http://disarmament.un.org/treaties/t/npt>

CTBTO (Comprehensive Nuclear-Test-Ban Treaty Organization)

Founded in 1997 and located in Vienna, the CTBTO has set itself the task to make first development and the further development of nuclear weapons more difficult. A global net of sensors serves as surveillance mechanism; furthermore it intends to carry out on-site inspections after the Treaty has actually come into force.

Status of the Comprehensive Nuclear Test Ban Treaty
<http://www.ctbto.org/the-treaty/status-of-signature-and-ratification/>

IPFM (International Panel on Fissile Materials)

The IPFM initiative, founded in January 2006, has as its mandate to reduce the global production, storage and use of highly enriched uranium and plutonium. These two elements are the main components of nuclear weapons, and their reduction is intended to lead to more security with respect to the risks of a nuclear war and of terrorists being able to obtain access to these materials. These materials are used in nuclear power plants or are a by-product of electricity generation. There is enough uranium and plutonium around to double the amount of nuclear weapons.

IPFM: Global Fissile Material Report 2013

<http://fissilematerials.org/library/gfmr13.pdf>

IAEO (Internationale Atomenergie Organisation, eng. International Atomic Energy Agency - IAEA)

The IAEA was founded in 1957 and is connected with the United Nations by various treaties. Its mandate is to promote the safe, secure and peaceful use of nuclear technologies. The use of atomic energy worldwide is not perceived to be critical. The IAEA is the monitoring organization for the compliance with the Non-Proliferation Treaty and is mandated to check on the ground whether the nuclear programmes pursued in all signatory countries are exclusively peaceful in nature. The annual Nuclear Safety Review publishes the global state-of-art of all nuclear power stations that are operating, pausing, shut down, planned or being decommissioned and their current status. The data base PRIS (Power Reactor Information System) was used as a source for the number of reactors that supply electricity; the data base RRDB (Research Reactor Data Base) was used as a source for the number of research reactors. Both are data bases set up by the IAEA.

IAEO: Power Reactor Information System

<http://www.iaea.org/pris/>

FAS (Federation of American Scientist)

The Federation of American Scientists was founded in 1945 as a think tank intent on fostering the civilian use of nuclear energy and on protecting mankind of a nuclear war. Regular publications critically describe current nuclear developments and address the issue of nuclear weapons from a global and country-specific perspective. They offer information on nuclear weapons holdings classified according to strategic and non-strategic nuclear weapons, reserves of nuclear weapons, the stockpile of nuclear weapons and the full inventory of each country. They also provide information on which countries have the technical means to develop nuclear weapons in the near future.

Status quo of nuclear weapons holdings worldwide

<http://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>