

# Global Inventory of Highly Enriched Uranium

(Data: End of 2019)

[Russia](#)

[US](#)

[France](#)

[China](#)

[UK](#)

[Israel](#)

[Pakistan](#)

[India](#)

[North Korea](#)

[Non-nuclear Weapon Countries](#)

Country	Military Use (ton)	Non-military Use (ton)
Russia	<b>672.0</b>	<b>6.0</b>
	<p>Production was started in 1949 but appears to have been halted around 1987 to 1988. It was officially announced that production had been halted in 1989. The cumulative production amount of highly-enriched uranium (HEU) is estimated to be 1,130-1,370 tons. Subsequently 500 tons obtained from the dismantling of nuclear weapons was diluted into low enriched uranium by 2013 in line with a 1993 agreement with the US. A further 16.8 tons was diluted under a separate program.</p> <p>As a result, it is estimated that Russia has 550-790 tons of military use uranium. Of this, 20 tons is fuel for reactors on nuclear-powered ships. There is also a very small amount used as fuel in military research reactors. One ton was consumed for naval ships in 2019.</p>	<p>Fuel for naval ice-breaker reactors, and civilian research reactors. There are four uranium enrichment plants. The stockpile of 90% HEU is equal to 6 tons.</p>
US	<b>480.0</b>	<b>82.0</b>
	<p>The US finished production of HEU for nuclear weapons in 1964 and the production of fuel for nuclear-powered ships in 1992. The total amount produced is about 850 tons (excluding that recycled on nuclear-powered ships). So far, more than 150 tons have been diluted. According to figures released on March 31, 2016, including non-military use uranium as of the end of September 2013 the total US inventory was 585.6 tons (of which 499.4 tons was for military use, 41.6 tons is planned for disposal through dilution or as low-level radioactive waste, and 44.6 ton is contained in spent fuel). An additional 20 tons was diluted between September 2013 and September 2019. The usable amount has decreased from 499.4 tons to 477 tons (almost all of which was consumed as nuclear-powered ship and submarine fuel).</p>	<p>The amount scheduled for dilution and contained in spent fuel is 66 tons. 16 tons were included in the 20 tons thought to be for research reactor use.</p>

France	<b>25.0</b>	<b>5.4</b>
	Production was halted in 1996. The total amount produced thus far has not been made public. 5 tons to 7 tons has been used for tritium production in reactors, 2 tons to 4 tons in nuclear tests, and the current stockpile is between 19 tons and 31 tons.	The figure is as announced in 2020. France has one uranium enrichment plant. 3.736 tons are unirradiated HEU.
China	<b>14.0</b>	<b>0.24</b>
	China has two uranium enrichment plants, and it is thought that these stopped military production in 1980 and 1987 respectively. The latest estimate of cumulative production is 13-19 tons. Of this, 0.5 tons are in research reactors, and 0.85 tons were used in nuclear testing. The current stockpile is 11-17 tons.	At least 240kg of uranium enriched to 66.4% has been provided by Russia for fast reactor fuel, but this has not been made public (Zhang 2012). China has one domestic production plant, and two centrifugal separation plants imported from Russia. These have been used in making HEU for research reactors and LEU for ship or submarine reactors. One unit is still operational.
UK	<b>21.9</b>	<b>0.7</b>
	The cumulative production of HEU in the UK is 9-13 tons. The amount of HEU provided by the US is 14-16 tons. In total, the UK got around 25 tons by 2002. The UK announced it had 21.86 tons on March 31, 2002. In 1995, the UK announced that it stopped the production of nuclear material for military use. After that, 3.3 tons were used as fuel for nuclear vessels and 0.7 tons for research. Then 0.7 tons were used.	The stockpile figure is published in 2020. 0.598 tons are unirradiated and the material is mainly used in research reactors. The UK has one large-scale uranium enrichment plant.
Israel	<b>0.3</b>	<b>0.02</b>
	There is information that Israel secretly obtained several hundred kilograms of HEU from a US factory producing fuel for nuclear-powered ships.	The US has provided 34kg, of which 12kg has been returned.
Pakistan	<b>3.9</b>	<b>0.02</b>
	Pakistan started production of HEU in 1974. It appears that they stole technology from the URENCO factory in the Netherlands. There is also information that they obtained 50 kg of HEU from China. It appears that Pakistan has produced a total of around 3 tons, but the exact details are unclear. Production appears to be still underway. The current estimated inventory is 3.5-4.3 tons.	Provided by the US.
India	<b>5.2</b>	<b>0.00</b>
	HEU is still being manufactured, it appears to be produced mainly to fuel submarines. India possesses a pilot plant at the Bhabha Atomic Research Centre (BARC), in operation since 1985. A large-scale centrifugal enrichment facility has been in operation since 1990 (Rare Materials Project). The enrichment rate of the HEU is between 30% and 45%, and the stockpile is 3.8 tons to 6.6 tons at an enrichment rate of 30%.	Provided by former Soviet Union. A civilian facility is planned for construction in Chitradurga.

North Korea	<b>0.70</b>	
According to the estimates of Kang et al. (2021), the estimates are 230kg to 1,180kg; the IPFM estimates are 0.4 tons to 1.0 ton.		
Non-nuclear Weapon Countries*		<b>15.0</b>

\*13 countries : Kazakhstan, Japan, Germany, Canada, Netherlands, Belgium, South, Africa, Italy, Belarus, Iran, Norway, Australia, Syria

According to NTI (November, 2018)	
Kazakhstan	10.43~10.78
Japan	1.75
Germany	1.27
Canada	1.038
Netherlands	0.55~0.65
Belgium	0.70~0.727
South, Africa	0.70~0.75
Italy	0.100~0.119
Belarus	0.08~0.28
Iran	0.006
Norway	0.001~0.009
Australia	0.002
Syria	0.001

<b>Total</b>	<b>1,220</b>	<b>110</b>
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