Introduction

A Guide to the World's Nuclear Warheads Count

"The World's Nuclear Warheads Count" is an easily understood illustration of the current state of the world we live in, showing more than 13,000 nuclear warheads in the world by country and by type.

The PCU Nagasaki Council for Nuclear Weapons Abolition (PCU-NC) and the Research Center for Nuclear Weapons Abolition, Nagasaki University (RECNA) began producing this poster in 2013 as an educational resource for all audiences, from elementary school students to adults.

As part of the peace education efforts toward Hiroshima's and Nagasaki's Atomic Bomb Memorials in August, we present annual updates on the latest information every June.

We hope this guide will aid those using the poster in understanding background information and terminology in simple, plain terms. It should be especially useful in the education field, particularly in schools.

The detailed data of this poster, which was compiled by the "RECNA Nuclear Warhead Data Monitoring Team," including RECNA staff, has been published on our website:

https://www.recna.nagasaki-u.ac.jp/recna/en-nwdata

Please see the website for further details. This data is updated from time to time.

June 2021

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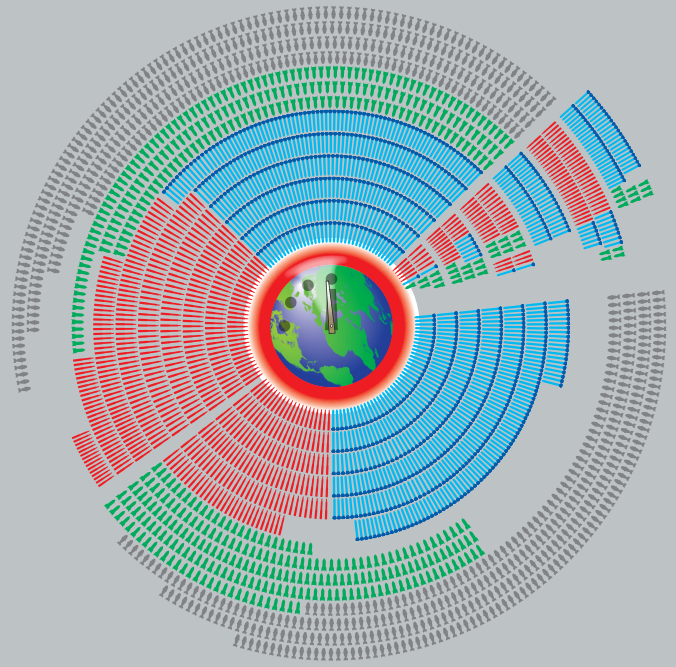
June 2021

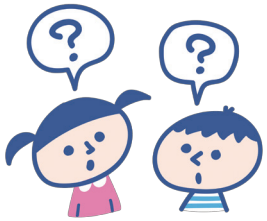


13,130

核兵器廃絶長崎連絡協議会
PCU-Nagasaki Council

RECNA 長崎大学核兵器廃絶研究センター Nagasaki University Research Center for Nuclear Weapons Abolition

Frequently Asked Questions



Q1 What is the difference between a “nuclear warhead” and a “nuclear weapon”?

A“warhead” is the part of a nuclear weapon that causes an explosion. In general the combination of the warhead and the missiles onto which it is loaded are referred to as a “nuclear weapon.”

Q2 What is the difference between a “nuclear weapon” and an “atomic bomb”?

An atomic bomb (A-bomb) is a type of nuclear weapon. It uses the energy released by the fission of a uranium or plutonium nucleus. In addition, there is a hydrogen bomb (H-bomb), which uses the more powerful energy from the fusion of hydrogen nuclei.

Q3 What is the difference between a nuclear weapon and other weapons?

Nuclear weapons generate explosive force of tens of thousands to hundreds of thousands of times the power of conventional bombs, and high temperatures that can even melt steel. Moreover, they result in many fatalities due to their power radiation, and cause long-lasting physical and mental pain and suffering to those exposed to them. This is why they are also referred to as “weapons of mass destruction” and “inhumane weapons.”

Q4 Is nuclear testing still being conducted?

Since 1945 over 2,000 nuclear tests have been conducted over the world, causing massive damage to humans and the environment. The latest nuclear test was conducted by North Korea in September 2017. The Comprehensive Test Ban Treaty (CTBT) that prohibits any kind of nuclear explosion testing has still not come into effect even though 20 years have now elapsed since its establishment. The United States and other nations have carried out “subcritical nuclear tests” that do not cause the nuclear fission chain reactions that lead to nuclear explosions and are therefore not an infringement of the CTBT, earning the criticism of the atomic-bombed cities as well as the international community.

Q5 North Korea’s nuclear weapons: How advanced are they?

The nuclear force of the Democratic People's Republic of Korea (North Korea) is continuing a trend of expansion. The details of the nation’s nuclear plans are unclear but they continue to produce the nuclear material required as the ingredients of nuclear weapons, and they have repeatedly tested a variety of missiles that could be mounted with nuclear weapons. Diplomatic efforts are underway with the first ever US-North Korea summit held in 2018, but the realization of the promised complete denuclearization of the Korean Peninsula is stagnating.

Q6 Does Iran possess nuclear weapons?

Iran does not possess any nuclear weapons. However, since it had been furtively proceeding with uranium enrichment activities that could lead to the acquisition of nuclear weapons the intentions of the nation’s nuclear development have been under suspicion. In an attempt to arrive at a diplomatic solution the Joint Comprehensive Plan of Action was concluded in 2015 between Iran and the six major nations. In return for complying with restrictions, inspections and monitoring of its nuclear development capability, there was to be a comprehensive lifting of economic sanctions on Iran. However, the United States unilaterally withdrew from the agreement in 2018 and restarted its sanctions on Iran, which in turn relaunched its enrichment program, and US-Iran relations have deteriorated.

Q7 Will the Treaty on the Prohibition of Nuclear Weapons lead to the nuclear weapons abolition?

The Treaty on the Prohibition of Nuclear Weapons (TPNW), which entered into force in January 2021, is the treaty which prohibits state parties from developing, testing, possessing, using, or threatening to use nuclear weapons. Of course, the establishment of the TPNW does not automatically mean that we will immediately achieve the goal of abolishing nuclear weapons. Countries with nuclear weapons and those under the “nuclear umbrella” are unlikely to join it, at least for the time being. However, the adoption of the TPNW, which clearly brands nuclear weapons as illegal, inhumane weapons will help to stigmatize such weapons. Nuclear weapons are now immoral and illegitimate. It is expected that this fact could exert further pressure on those countries relying on nuclear deterrence to review their policies, by influencing public opinion.

Q8 What does the abandonment of nuclear weapons involve?

First of all the components of nuclear weapons are dismantled but the problem is the nuclear material, which cannot be easily disposed of. Subsequently, nuclear material has to be managed and processed in a way that will make it impossible to ever use again for weapons. Unfortunately the amount of nuclear material in the world is continuing to increase.

Q9 What can Japan do?

In order to achieve a world free from nuclear weapons the cooperation not only of the nuclear powers but of all nations is essential. Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) obligates all nations to strive towards the realization of nuclear disarmament. It is particularly vital that nations such as Japan that are dependent on the nuclear umbrella change their policies and aim for a security that does not rely on nuclear weapons. One aspect of striving for this is to move towards the creation of a Northeast Asia Nuclear Weapon-Free Zone.

Highlights of the 2021 World's Nuclear Warheads Count

- "100 seconds" to the end of human civilization
- The total number of warheads has decreased slightly, but military stockpiles are on the rise
- UK announced it will lift its cap on nuclear warheads
- Nuclear capabilities of China, India, Pakistan and North Korea have continuously increased

Introduction

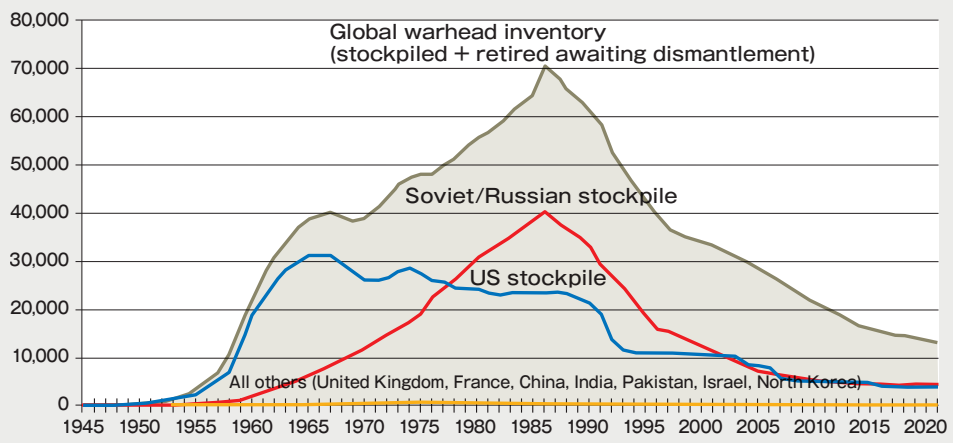
Drawn on the image of the Earth in the center is the "Doomsday Clock." Continuously published since its first publication in the Bulletin of the Atomic Scientists in 1947, this countdown to midnight represents the countdown to annihilation of humankind by nuclear weapon use, symbolizing how close we are to a global crisis.

Since the January 2020, the Doomsday Clock has been set at 100 seconds to midnight. The closest the world has ever been before to doomsday was in 1953, when the countdown was two minutes to midnight, due to the success of a hydrogen bomb test by the Soviet Union. Against the background of the increasing risks of nuclear weapon use and modernization of the nuclear arsenals of nuclear armed countries, experts warn that the human civilizations is facing a grave crisis.

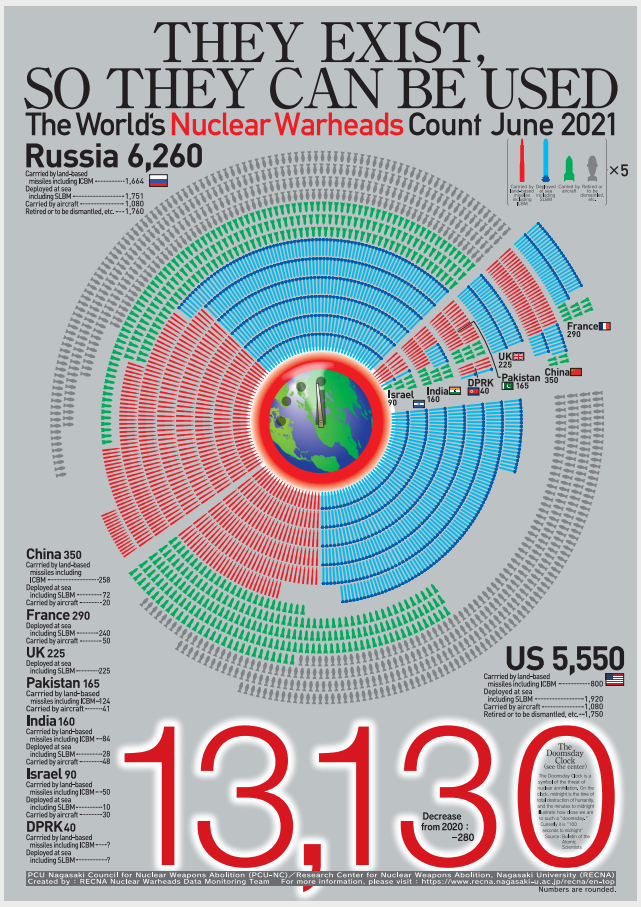
As of June 2021, the total number of nuclear warheads in the world is estimated to be13,130. The nine countries that possess nuclear warheads are the United States, Russia, France, the United Kingdom, China, Pakistan, India, Israel, and North Korea. At the peak time around 1987, the world had nearly 70,000 nuclear warheads. The number of nuclear warheads has been significantly reduced since the end of the Cold War (Figure 1). Most of these reductions were achieved through bilateral or unilateral measures taken by the United States and (or) Russia, which together possess more than 90% of the world's stockpile.

However, this is not a simple situation. All nuclear powers, most notably the U.S. and Russia, are running counter to nuclear disarmament. The below is a detailed explanation.

【Figure 1】
Estimated Global Nuclear Warhead Inventories 1945-2021



Source : Hans M.Kristensen and Matt Korda.
Federation of American Scientists 2021



Since figures in the poster are rounded, some totals may differ from the actual total.

Types of Delivery Vehicles and Nuclear Warheads

The types of delivery vehicles for nuclear warheads are divided into the following three categories. Each icon represents five nuclear warheads.

- Nuclear warheads deployed at sea; e.g.,Submarine-Launched Ballistic Missiles (SLBMs) [1]
- Nuclear warheads deployed on land; e.g., Intercontinental Ballistic Missiles (ICBMs) [2]
- Nuclear warheads carried by aircraft; e.g., bombers

All three of these categories contain nuclear warheads that are either "**operationally deployed** [4] **strategic nuclear warheads** [5] ", "operationally deployed non-strategic nuclear warheads", or "**reserve/non-deployed nuclear warheads**". [3]

In addition the above, we have established a category for "retired and to-be-dismantled" warheads. Although these nuclear warheads have been retired from military stockpiles and stored for dismantlement, this does not necessarily eliminate the possibility of their reuse.

United States and Russia

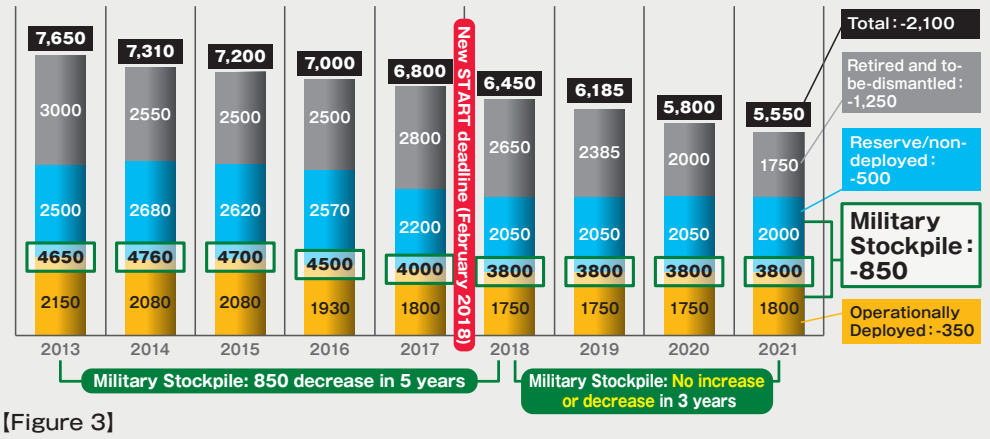
While the tension and confrontation between these two nations, as well as with China, has become more obvious, the nuclear arms race between the U.S. and Russia has been rekindling. Both countries are vigorously implementing their modernization plans with a huge budget to upgrade their aging nuclear weapons systems, while accelerating their efforts to develop and deploy new types of weapons utilizing state-of-art technology. As exemplified by the fact that the Intermediate-Range Nuclear Forces (INF) Treaty expired in August 2019, bilateral and multilateral arms control regimes have also been deteriorating.

Against this background, the U.S. and Russia's efforts to reduce their nuclear arsenals continue to stall. Figure 2 and Figure 3 show the change in the number of U.S. and Russian warheads over the eight-year period from 2013, when this poster first appeared, to 2021. Over the past eight years, the total number of U.S. nuclear warheads has been reduced by 2,100, but in terms of the military stockpiles (the total number of **operationally deployed nuclear warheads** [4] and **reserve/non-deployed nuclear warheads** [3]), the reduction has been limited to 850. When it comes to Russia, the total number of nuclear warheads has been reduced by 2,259, but most of them were among retired and to-be-dismantled warheads, and the military stockpile reduction amounts to only 19 warheads. Moreover, the Russian military stockpile in 2021 contains 4,495 warheads which is an increase from 4,306 in the previous year.

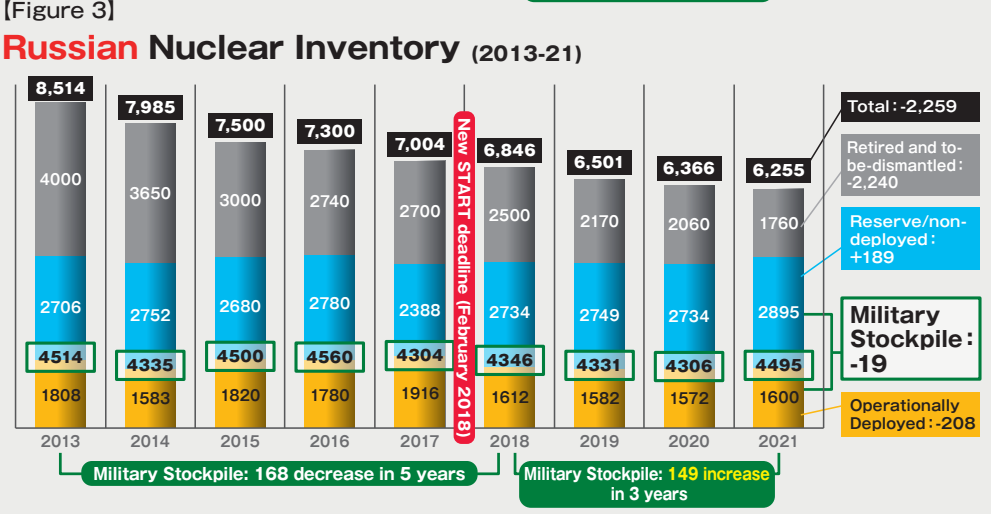
In sum, even though world's nuclear warheads count is on the decline, the reduction in military stockpiles including deployed and non-deployed warheads is extremely limited, indicating that nuclear disarmament is far from advancing.

This situation clearly shows the urgent need for a further agreement between the U.S. and Russia, so that they commit themselves to significant reductions of their nuclear arsenals. In February 2021, the U.S. and Russia agreed on the 5-year-extension of the New START Treaty. Under this treaty, which entered into force in February 2011, the two nations committed to reduce the number of deployed strategic nuclear warheads held by each country to 1,550 or less. The reduction levels envisaged by the treaty were achieved by both countries before the deadline in February 2018. However, as shown in Figure 2 and Figure 3, the pace of reduction in military stockpiles in both countries has slowed further, and the number has even started to increase in Russia as described earlier. The two governments must hurry to agree on a successor treaty with higher goals. And, upon the conclusion of such a treaty, both countries should make efforts in good faith to reduce their nuclear arsenals in accordance with their nuclear disarmament obligations under Article VI of the Nuclear Non-Proliferation Treaty (NPT).

【Figure 2】 ●Military Stockpile ●Operationally Deployed ●Reserve/non-deployed ●Retired and to-be-dismantled
The United States' Nuclear Inventory (2013-21)



【Figure 3】
Russian Nuclear Inventory (2013-21)



United Kingdom and Others

The United Kingdom has the smallest nuclear arsenal among the five nuclear weapon states under the NPT. One of the major events of this year was that the country stopped making progress on nuclear reductions. The British government had announced its plan to reduce the number of its nuclear warheads to 180 by mid-2020. Accordingly, the numbers of the U.K. warheads has been on the decline on our posters since 2013. However, in an official paper released in March 2021, the British government announced that it would raise the limit on its nuclear warhead stockpile to 260, citing the growing international threats. In this poster, we estimate the number to be 225, an increase of 30 from the previous year. The fact that three countries among the five nuclear weapon states with NPT disarmament obligations – Russia, U.K. and China – are actually increasing their military stockpiles will lead to a wider gap between the nuclear weapon states and non-nuclear weapon states, which have been calling for the acceleration of nuclear disarmament efforts.

Continuing from previous years, China, India, Pakistan and North Korea have been expanding their nuclear capabilities. In the past eight years, China, India, Pakistan, and North Korea are believed to have increased their nuclear warheads by 100, 50-70, 45-65, and at least 30, respectively (Table 1). In addition, the development and deployment of various types of missiles and other delivery means are also in progress at a rapid pace. There is currently no sign of a halt to these trends.

【Table 1】
Changes in the estimated number of nuclear warheads of nuclear armed countries (2013-21)

	2013	2021	increase/decrease
North Korea	<10	40	30 or more increase
India	90-110	160	50-70 increase
Pakistan	100-120	165	45-65 increase
Israel	80	90	10 increase
United Kingdom	225	225	No increase or decrease
China	250	350	100 increase
France	300	290	10 decrease
United States	7,650	5,550	2,100 decrease
Russia	8,514	6,255	2,259 decrease

1 **"Submarine-Launched Ballistic Missiles (SLBM)"**
Ballistic missiles capable of being launched from submarines.

2 **"Intercontinental Ballistic Missiles (ICBM)"**
Land-based ballistic missiles with a range of 5,500 km or more.

3 **"Reserve/non-deployed nuclear warheads"**
Reserved warheads which are not operationally deployed, but are stored for possible future use.

4 **"Operationally Deployed Nuclear Warheads"**
Nuclear warheads which are deployed at a military unit and are capable of use.

5 **"Strategic Nuclear Weapons"**
Nuclear warheads to be mounted on nuclear weapons for the purpose of attacking enemy cities and major military installations. Non-strategic nuclear weapons, by contrast, have a more limited usage in battlefield situations. Non-strategic nuclear weapons include "tactical nuclear weapons" and "theater nuclear weapons."