

# Russia

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The structure and composition of Russia's nuclear forces largely reflect the evolution of the force that was created by the Soviet Union during the cold war. Russia maintains and modernises the strategic triad of land-based intercontinental missiles, submarines with sea-launched ballistic missiles, and long-range bombers. The modernisation programme also includes a number of non-traditional delivery systems, such as a hypersonic glider vehicle, a nuclear-powered cruise missile, and an underwater nuclear-powered vehicle. In addition, Russia has kept its arsenal of tactical nuclear weapons, which is believed to include weapons that could be deployed on submarines, short – and intermediate-range aircraft, and air-defence missiles.

Russia also maintains the infrastructure that was built to support operations of nuclear forces—an early-warning system that includes satellites and radars, and a command and control system that could allow the strategic forces to operate in the extreme conditions of a nuclear attack.

## Current status

According to the most recent New Strategic Arms Reduction Treaty (New START) data exchange, in September 2021 Russia had 527 operationally deployed strategic launchers that carried 1,458 nuclear warheads.<sup>1</sup> The actual number of delivery systems and warheads in the strategic arsenal is somewhat higher, mostly because New START does not accurately account for warheads associated with strategic bombers. Overall, as of 2021, Russia was estimated to have about 1,600 deployed warheads in its strategic arsenal. The total number of warheads associated with strategic launchers is estimated to be about 2,600.<sup>2</sup>

The number of warheads associated with non-strategic delivery systems is somewhat harder to estimate, for Russia never disclosed information about its tactical nuclear forces. It is believed to have about 1,900 non-strategic warheads that could be considered operational.<sup>3</sup> All these warheads are consolidated at centralised storage facilities.<sup>4</sup> In addition to warheads that are associated with operationally deployed strategic and non-strategic systems, Russia has a substantial number of warheads that are awaiting dismantlement. This category is estimated to include about 1,800 warheads.<sup>5</sup>

These estimates suggest that Russia has a total arsenal of about 6,300 nuclear warheads. Non-deployed nuclear warheads and the warheads that are awaiting dismantlement are stored at centralised facilities managed by the 12th Main Directorate of the Ministry of Defence.<sup>6</sup>

Russia does not maintain a large stock of reserve inactive warheads that could be operationally deployed at a relatively short notice. Instead, it has traditionally relied on its capability to remanufacture warheads as necessary. It is estimated that Russia remanufactures about 200 warheads each year.<sup>7</sup>

The number of warheads associated with operationally deployed strategic and non-strategic systems is unlikely to change significantly, since the deployment of new systems in the course of strategic modernisation will be balanced by withdrawal of old warheads. The total number of warheads will probably decline in the coming years as Russia will continue its warhead dismantlement programme. The current dismantlement rate is believed to be about 400–500 warheads a year (this number includes warheads that are being remanufactured).<sup>8</sup>

## Delivery systems

Russia maintains the strategic nuclear triad that that was built during the Soviet years—land-based intercontinental ballistic missiles (ICBMs), strategic nuclear submarines with submarine-launched ballistic missiles (SLBMs), and long-range bombers.

### Land-based intercontinental missiles

The Strategic Rocket Forces that operate the ICBM leg of the strategic triad has historically been the largest component of the Soviet and Russian strategic forces. As of 2020, it included about 320 operationally deployed ballistic missiles of five different types that carry up to 1,180 warheads.<sup>9</sup>

The oldest ICBMs in the force are liquid-fuel silo based missiles that carry multiple independently-targeted reentry vehicles (MIRV)—R-36M2 (Western designation SS-18) with ten warheads each. As of 2020, the Strategic Rocket Forces were estimated to have 46 R-36M2 missiles that could carry 460 warheads. In addition, Russia has two



types of single-warhead missiles—72 road-mobile Topol (SS-25) missiles and 78 missiles of the Topol-M (SS-27) type, which are deployed both as road-mobile and as silo-based missiles. In 2010 Russia also began deployment of a MIRVed RS-24 Yars missile, on road-mobile launchers and in silos. This missile, which is believed to carry up to four warheads, is expected to become the main missile system of the Strategic Rocket Forces. By 2020, the Strategic Rocket Forces deployed 149 missiles of this type—135 road-mobile missiles and 14 missiles in silos.

Russia appears to be determined to preserve the leading role of land-based ICBMs in its strategic triad. In addition to the deployment of new missiles, RS-24 Yars in particular, it has undertaken a programme to extend the service life of older missiles. For example, the modification of the currently deployed SS-18 missile, known as R-36M2 or RS-20V, was produced and deployed in the late 1980s-early 1990s, and will probably stay in service as long as until 2026, provided its service life is extended to 33 years, which seems likely as Russia has substantial experience with extending the service of its liquid-fuel ICBMs.

To replace the SS-18 missile, Russia began development of a new heavy ICBM, Sarmat. The development programme reached the stage of ejection tests from a silo, which were conducted in 2017-2018. The first flight tests of the missile are expected to take place in 2021. According to the current plan, the serial production and deployment of Sarmat will begin in 2022, although given the history of delays in the programme, this seems unlikely.<sup>10</sup> Like the ICBM it is intended to replace, SS-18,

Sarmat will carry ten warheads and will be deployed in the same silos.

By 2021, the Strategic Rocket Forces received the first four Avangard missile systems that include a UR-100NUTTH ICBM equipped with a hypersonic glider vehicle.<sup>11</sup> Avangard is one of the “non-traditional” strategic systems that Russia has been working on in recent years. The glider is expected to provide Russia with the capability to penetrate the US missile defence system. It is expected that Russia will deploy 12 systems of this type by 2027.<sup>12</sup>

This composition of the force will allow Russia to maintain the size of the ICBM leg of the strategic triad at the level of about 1,000 warheads through at least the mid-2020s. The Rocket Forces would therefore preserve their status as the key component of the strategic triad.

## Strategic submarines

As of 2020, Russia’s strategic submarine force included six Project 667BDRM (Delta IV) submarines; one submarine of the older Project 667BDR (Delta III) class; and three new Project 955 Borey submarines. A new submarine of the Project 955A Borey-A class, a moderate upgrade of the Project 955, will enter service in the first quarter of 2020. All submarines carry 16 SLBMs each. Delta IV carries R-29RM missiles with four warheads each and Delta III carries R-29R missiles with three warheads. Borey and Borey-A submarines are built to carry new Bulava solid-propellant SLBMs with up to six

warheads per missile. Overall, in 2020, Russia had an estimated 144 deployed SLBMs that were capable of carrying up to 656 nuclear warheads.

The Delta IV/Project 667BDRM submarines and the lead submarine of the Project 955 Borey class are based at the Northern Fleet. They will be joined by the lead Project 995A submarine, Knyaz Vladimir, which entered service in June 2020. Two submarines of the Project 955 class as well as the old Delta III/Project 667BDR submarine are currently based at the Pacific Fleet base Vilyuchinsk at the Kamchatka Peninsula.

Most of the Delta IV/Project 667BDRM submarines underwent an overhaul in the last decade or so and would probably be able to stay in service for additional ten years, approximately. As part of the overhaul the submarines are receiving newly manufactured missiles of the R-29RM/SS-N-23 type. These missiles, known as Sineva, are essentially a moderate modification of the original liquid-fuel R-29RM missiles that submarines of this class were carrying before the overhaul. Russia has also tested a modification of the R-29RM Sineva SLBM that can carry up to ten warheads.<sup>13</sup>

As the submarines of the older types—Project 667BDR and Project 667BDRM—reach the end of their service lives, they will be replaced by Borey and Borey-A submarines. In addition to the four submarines that entered service by the end of 2020, Russia has four more ships under construction and is planning to build at least two more by 2028, for the total of ten. This would allow it to maintain the number of deployed SLBM at the level of 160 missiles, which could carry as many as 960 warheads. The actual number of deployed warheads is likely to be smaller, especially if Russia and the United States (US) preserve their arms control dialogue.

## Strategic bombers

Strategic bombers have traditionally played a secondary role in Soviet and then Russian nuclear postures. Although the nuclear role of strategic bombers is unlikely to change in the future, Russia has been investing in a modernisation programme that will expand the range of their conventional missions. In 2015, strategic bombers launched long-range conventional cruise missiles against targets in Syria.<sup>14</sup>

As of 2020, Russia is estimated to have 66 heavy bombers—11 Tu-160 aircraft and 55 turboprop Tu-95MS. Together, these bombers are capable of carrying more than 800 air-launched cruise missiles, although the actual number of cruise missiles that are available for deployment is probably somewhat smaller. Most

open estimates assume that Russia allocates about 200 nuclear warheads to its bombers.<sup>15</sup>

Most of the bombers that are currently operational were built in the late 1980s and are currently undergoing an overhaul to extend their service life. In addition, in 2015 Russia announced the plan to resume production of Tu-160 aircraft. The current plan is to build about 50 new bombers, which will be known as Tu-160M2. In addition to this, the Russian defence industry is working on a completely new aircraft, PAK DA (Advanced Long-Range Aviation System). The first aircraft of this type is expected to begin flight test in around 2025.<sup>16</sup>

## Early warning and command and control

In addition to maintaining the full strategic triad, Russia has preserved key elements of the infrastructure that supports operations of strategic nuclear forces—the early-warning and command and control systems. It also operates a missile defence system deployed around Moscow that is supposed to protect the capital from a limited missile attack.

The early-warning system is designed to include two tiers—a network of radars that could detect incoming missiles and a constellation of satellites that could provide early detection of missile launches.

In the last decade Russia has initiated an extensive programme to build a network of new early-warning radars. The new radars almost completely replaced old ones that were built during the Soviet time and were located outside of Russia. By 2020, Russia discontinued the use of all but two early-warning radars that are not located in Russia. The last two radars—in Belarus and Kazakhstan—will eventually be replaced as well. The new radar network currently includes eight operational radars, with three more under construction and at least two—at the planning stage.<sup>17</sup>

While the modernisation of the radar network has been a largely successful programme, replacement of old early-warning satellites has encountered significant delay. The last satellite of the old early-warning constellation completed its mission in 2015.<sup>18</sup> The deployment of a new space-based early-warning system, known as EKS, began in November 2015.<sup>19</sup> In November 2021 Russia launched the fifth satellite of this type. The satellites, known as Tundra, appear to provide continuous coverage of the key potential missile launch regions.

The command and control system that provides communication between the central command authority and individual launchers has been undergoing almost

continuous modernisation. The currently deployed system has been described by the Russian military as a “fifth-generation” system. According to the official account, this system provides the Strategic Rocket Forces not only with the capability to control individual launchers, but also with the flexible targeting capability.<sup>20</sup>

The missile defence system deployed around Moscow, known as A-135, includes the Don-2N battle-management radar in Pushkino and 68 short-range interceptors of the 53T6 (Gazelle) type, deployed in silos at five sites near Moscow. In the past, the system also included 32 long-range interceptors, but they were withdrawn from the system. The short-range interceptors are believed to be equipped with nuclear warheads. The system has only a limited capability against a ballistic missile attack. According to Soviet estimates made at the time the system was being built, A-135 is able to intercept one or two “modern ICBMs”.<sup>21</sup> In 2017 Russia began tests of a new modernised interceptor of the A-135 system. The new interceptor will be operationally deployed in the near future.

## Fissile materials

Russia’s stock of weapon-grade materials is far larger than it would be necessary to support the current nuclear force. At of 2020 Russia was estimated to have about 128±8 tonnes of weapon-grade plutonium, of which 88 tonnes is either in weapons or available for military purposes. Russia’s stock of highly enriched uranium (HEU) was estimated to include about 646±120 tonnes of HEU. Of this amount, about 640 tonnes are available for weapons and for fueling naval, research, and civilian reactors.<sup>22</sup>

The total amount of weapon-grade plutonium produced in Russia is estimated to be 145±8 tonnes. About 17 tonnes have been used in nuclear tests or lost in waste or lost nuclear warheads.<sup>23</sup> Russia shut down most of its plutonium production reactors in the early 1990s. Three reactors, however, continued to operate until 2008–2010, since they provided heat for nearby cities. About 15 tonnes of plutonium that were produced by these reactors after September 1994 are covered by Russia’s pledge not to use it for military purposes. Russia also declared 25 tonnes of plutonium from its pre-1994 stock as excess to national security needs. This material is also not available for military purposes, leaving a potential military stock of 88 tonnes.

The 25 tonnes of excess military plutonium and 9 tonnes of the plutonium produced after 1994 were to be eliminated as part of Russia’s obligations under the US-Russian Plutonium Management and Disposition Agreement (PMDA) that was concluded in April 2010.<sup>24</sup> However, in 2016 Russia suspended the implementation

of that agreement, citing “unfriendly” US policies and the inability of the United States to fulfil its plutonium disposition obligations. Importantly, while suspending the agreement, Russia pledged not to use the PMDA plutonium for weapons or any other military purpose.<sup>25</sup>

The plutonium disposition programme in Russia will include elimination of the weapon-grade plutonium in fast reactors. Only one of these reactors, BN-600, is currently operational. The second one, BN-800, began initial operations in 2014. In order to begin the plutonium elimination activities, Russia has developed the technology to produce plutonium-containing fuel assemblies for the BN reactors and has built a facility that will manufacture the fuel.

In addition to the weapon-grade plutonium, as of the end of 2019 Russia had 63 tonnes of unirradiated separated civilian plutonium.<sup>26</sup> Virtually all this material is stored at a dedicated storage facility at the RT-1 reprocessing plant at the Mayak Combine. This material will be used to manufacture fuel of the BN-800 fast-neutron reactor.

The Soviet Union stopped production of highly enriched uranium (HEU) for weapons in 1988. Before that it had produced about 1470±120 tonnes of 90 per cent HEU equivalent. About 287 tonnes of HEU have been used in various applications, military as well as civilian.<sup>27</sup> In addition to the weapons complex, among the largest users of HEU in Russia are the submarine fleet, civilian nuclear-powered ships, and the two tritium production reactors. Also, Russia operates about 60 research reactors and critical and subcritical assemblies that use highly enriched uranium.<sup>28</sup>

There were two major HEU elimination programmes in Russia—the US-Russian HEU-LEU deal, also known as the Megatons to Megawatts programme, and the Material Conversion and Consolidation project. The HEU-LEU programme blended down military-origin HEU to produce low-enriched uranium that is then used to fuel US nuclear reactors. The programme, which began in 1996, eliminated 500 tonnes of HEU by the end of 2013, when it was successfully completed. The Material Conversion and Consolidation project is also a joint US-Russian effort. It provides Russian research facilities with US financial assistance in order to eliminate their stocks of HEU by blending it down. By the time the program was terminated in 2015, it eliminated about 17 tonnes of HEU.

Most of the military nuclear material that is not in use is stored at one of the large storage facilities managed by the Rosatom State Corporation. These facilities are located in so-called closed cities—Ozersk, Seversk, Zheleznogorsk, Sarov, and Snezhinsk.<sup>29</sup> The weapon-origin plutonium that Russia declared excess to its



national security needs has been moved to the Fissile Material Storage Facility at Mayak, which Russia built with US assistance.

## Infrastructure

The work on nuclear weapons development is the responsibility of nuclear weapon laboratories that are subordinated to the State Corporation Rosatom—the All-Russian Scientific Research Institute of Experimental Physics (VNIIEF) in Sarov (formerly Arzamas-16) and the All-Russian Institute of Technical Physics (VNIITF) in Snezhinsk (Chelyabinsk-70). The third laboratory, the All-Russian Institute of Automatics (VNIIA) in Moscow, is involved in weapon research that does not deal with fissile material components. The laboratories also take part in civilian research programmes.

The weapon laboratories conduct research that allows them to maintain the current nuclear arsenal and develop new nuclear warheads. In particular, they developed warheads for new ballistic missiles that are introduced to active service. The new warheads are reportedly based on the designs that were tested before the end of nuclear testing in Russia. To support the weapon development process Russia conducts subcritical experiments at the nuclear test site at Novaya Zemlya and relies on computer models.

In addition to weapon development, Rosatom is responsible for all aspects of fissile material production and for storage of military-related nuclear material that is not used in weapons or in other military applications (e.g. fuel of naval reactors).

In the past, Rosatom operated plutonium production reactors at the Mayak Plant in Ozersk (Chelyabinsk-65), Siberian Chemical Combine in Seversk (Tomsk-7), and the Mining and Chemical Combine in Zheleznogorsk (Krasnoyarsk-26). All these reactors have been shut down. The chemical reprocessing plants that were extracting weapon-grade plutonium from spent fuel of production reactors have been either shut down or converted for non-military applications.

The Mayak Plant continues to operate two production reactors, Ruslan and LF-2 Lyudmila, that were built to provide tritium for the weapon program. Since Russia has plenty of tritium from dismantled weapons, these reactors have been converted to the production of isotopes for civilian purposes. However, they maintain the capability to produce tritium if necessary.<sup>30</sup>

Russia's uranium enrichment complex includes the Urals Electrochemical Plant in Novouralsk (Sverdlovsk-44),

Siberian Chemical Combine in Seversk (Tomsk-7), Electrochemical Plant in Zelenogorsk (Krasnoyarsk-45), and Electrolyzing Chemical Combine in Angarsk. All these facilities operate gas centrifuges to enrich uranium. With the exception of Angarsk, all of them were involved in production of HEU for the military programme, which was discontinued in 1988. Today, these enrichment plants produce low-enriched uranium for civilian purposes. The plant in Zelenogorsk is also producing some highly enriched uranium for non-military applications.<sup>31</sup>

Russia operates two major warhead assembly and dismantlement facilities—the Electrochemical Instrument Combine in Lesnoy (Sverdlovsk-45) and the Instrument Building Plant in Trekhgornyy (Zlatoust-36).<sup>32</sup> The plant in Lesnoy has the capability to produce and handle HEU components for nuclear weapons. Plutonium components of nuclear charges are handled at the metallurgical facilities of the Mayak Plant, which can also produce HEU components. The weapon laboratories, VNIIEF and VNIITF, also have small-scale material handling and warhead assembly and disassembly facilities. All these facilities provide Russia with the capability to maintain its current active nuclear arsenal by providing the necessary remanufacturing capability.

Development of land-based and sea-based ballistic missiles is mostly concentrated in two design bureaus that act as primary contractors for a strategic system. The Moscow Institute of Thermal Technology (MIT) is the lead design organisation for solid-propellant ballistic missiles. It has developed Topol (SS-25), Topol-M (SS-27), RS-24 Yars ICBMs, and the Bulava SLBM. It is also working on a range of other projects. The second design bureau, the Makeyev State Missile Center in Miass, is the lead developer of submarine-launched ballistic missiles. The Center designed the R-29R and R-29RM SLBMs that are currently deployed on Project 667BDR and Project 667BDRM submarines. It also designed the new modifications of the R-29RM missile—Sineva and Liner. The Makeyev design bureau is the primary contractor for the development of the Sarmat ICBM.

All solid-propellant ballistic missiles are produced at the Votkinsk Plant. There are three types of strategic missiles that are currently in production—Topol-M and its RS-24 Yars modification, and Bulava. Liquid-fuel missiles are produced at the Krasnoyarsk Machine-Building Plant. Today, the plant is manufacturing Sineva and Liner modifications of the R-29RM missile. It will be producing the Sarmat ICBM as well.

The lead design organisation responsible for development of strategic submarines is the Central Design Bureau for Marine Engineering "Rubin" in St.-Petersburg. This design bureau developed all ballistic missile submarines

of the Russian Navy—Project 667BD, Project 667BDRM, and Project 955. The only class of ballistic missile submarines that is currently in production is Project 995 Borey (and its modifications). These submarines are built at the Sevmash ship-building plant in Severodvinsk.

Strategic bombers that are currently in service—Tu-95MS and Tu-160—were developed by the Tupolev design bureau, which remains the leading developer of long-range bomber aircraft. It is responsible for the development of the Tu-160M2 and PAK DA bombers. The new aircraft are produced by the Kazan Aviation Plant. The Taganrog Aviation Plant participates in the modernisation of Tu-95MS bombers.

## Modernisation

The Russian government has not published a full account of specific strategic weapons modernisation programmes or their cost. Nevertheless, the publicly available information allows one to outline the key elements of the strategic modernisation effort.

Rearmament of the ICBM leg of the strategic triad concentrates on deployment of multiple-warhead RS-24 Yars and Sarmat missiles. Deployment of multiple-warhead missiles allows Russia to keep the number of deployed warheads at a relatively high level without the need to produce a large number of missiles. At the same time, if future arms control agreements would require it, Russia could quickly reduce the number of deployed warheads without decommissioning its ICBMs.

As of 2020 there are no plans to extend modernisation of the strategic fleet beyond the planned construction of ten Project 955 and Project 955A submarines. Depending on the progress with construction of new submarines the six older ships of the Project 667BDRM class might stay in service longer than previously planned, probably well beyond 2020.

As far as the strategic aviation is concerned, in the next few years Russia will continue an overhaul of its current strategic bomber fleet, construction of Tu-160M2 bombers and the development of the PAK DA aircraft.

Russia's strategic modernisation plans demonstrate that it is determined to maintain its strategic nuclear forces and to preserve the parity with the United States in the number of warheads and delivery systems. Arms control and disarmament efforts could change these plans and result in a smaller force, but it is likely that most of the reductions would be done by reducing the number of deployed warheads rather than by eliminating strategic launchers.

In addition to the delivery systems that traditionally constituted a strategic nuclear triad—ICBMs, SLBMs, and heavy bombers—Russia is working on a number of new systems that were unveiled in the presidential address to the parliament in 2018.<sup>33</sup>

One of these systems, Sarmat, is a new ICBM that will replace the R-36M2/SS-18 missile. Another system, Avangard, while different from traditional delivery systems in some respects, is essentially a UR-100NUTTH/SS-19 missile that carries a new type of payload—a hypersonic glide vehicle. As noted earlier, the first two Avangard missiles were deployed in 2019, followed by another two in 2020. Sarmat is expected to begin flight tests in 2021, but the program has been consistently behind the schedule.

Less traditional systems mentioned in the 2018 presidential address were Burevestnik nuclear-powered cruise missile and Poseidon underwater vehicle. These are apparently still at the development stage, although both systems appear to have undergone some testing.

## Economics

Modernisation of the strategic forces is part of the broader rearmament programme. The 2011–2020 State Armament Program allocated 20 trillion rubles (about US \$600 billion at the exchange rate at the time) for various military systems. About 10 per cent of the total funds allocated for rearmament, or 1.9 trillion rubles, was spent on the modernisation of the strategic forces. The current State Armament Program, signed into law in 2017, covers the period from 2018 to 2027. Originally, the military requested a significant increase in funding, up to 35 trillion rubles, but in the end the programme was scaled down to 19 trillion rubles, similar to the funds allocated to the previous programme.<sup>34</sup>

The difficult process to approve the new programme illustrates that financial constraints could affect the scale of strategic modernisation. The Russian economy is heavily dependent on export of natural resources, so a fall in oil and gas prices has already forced the government to reconsider its spending priorities. The economic growth has also slowed down in the last decade or so, reflecting the difficulty to implementing economic reforms. The sanctions imposed on Russia in 2014 after the annexation of Crimea also have an effect on the economic outlook. Some enterprises of the defence industry struggled to find an appropriate substitute to technologies and components that can no longer be imported. However, the rearmament effort appears to have strong support of the political leadership, so significant cuts of the modernisation programme are unlikely.

## International law and doctrine

The issues relating to the legitimacy of nuclear weapons under international law are rarely discussed in Russia. Although official documents and statements do not question Russia's right to possess nuclear weapons, they also recognise its responsibilities as a nuclear-armed state party to the nuclear Non-Proliferation Treaty (NPT). The National Security Strategy approved in 2015 recognises the goal of building a world free of nuclear weapons as part of overall progress toward "strategic stability" with equal security for all.<sup>35</sup> The strategy also gives high priority to nuclear disarmament and to nuclear non-proliferation.

The military doctrine adopted in 2014 emphasises the role of Russia's nuclear forces in maintaining "strategic stability" in the world.<sup>36</sup> According to the military doctrine, Russia reserves the right to use nuclear weapons "in response to a use of nuclear or other weapons of mass destruction against her and (or) her allies, and in a case of an aggression against her with conventional weapons that would put in danger the very existence of the state." While this policy assumes the right to a first use of nuclear weapons, the doctrine suggests that the range of scenarios in which Russia would consider using nuclear weapons is somewhat limited.

In its 2018 Nuclear Posture Review, the United States asserted that Russia maintains an option of using nuclear weapons to "de-escalate" a conflict on favourable terms.<sup>37</sup> However, this assertion has been questioned by many experts and there is no evidence that Russia indeed considers using its nuclear weapons in this manner.<sup>38</sup>

As part of the bilateral US-Russian nuclear arms reduction process, Russia has substantially reduced its strategic nuclear arsenal. Both countries consider these reductions to be their contribution toward the goals of article VI of the NPT. In addition, Russia periodically reiterates its commitment to the US-Russian Presidential Initiatives of 1992, in which the two countries declared their intent to substantially reduce their arsenals of non-strategic nuclear weapons. Russia concentrated all its non-strategic nuclear weapons at centralised storage facilities on its national territory.<sup>39</sup> However, Russia has been reluctant to discuss legally binding measures related to its non-strategic nuclear weapons before the United States removes its nuclear weapons from Europe.

Russia has stated<sup>40</sup> that it does not intend to sign the Treaty on the Prohibition of Nuclear Weapons and has further explained that it views the TPNW as failing to promote nuclear disarmament and undermining the NPT.<sup>41</sup>

## Public discourse

Public opinion in Russia tends to support the nuclear status of the country—according to a poll conducted in 2006, 76 per cent of all the respondents believed that Russia "needs nuclear weapons." More than half of the population consider nuclear weapons to be the main guarantee of the security of the country and about 30 per cent of respondents believe that nuclear weapons play an important, although not a decisive, role.<sup>42</sup>

Two other recent polls discovered a range of opinions about nuclear weapons and nuclear proliferation. In 2017, at the height of tensions around North Korea, over 40 per cent of respondents suggested that states should be allowed to build their own nuclear weapons if they choose to do so. The share of those who believe that the international community should be sanction and isolate such states was comparable, but somewhat smaller.<sup>43</sup> A public opinion poll conducted in 2019 explored attitudes toward the dangers associated with nuclear weapons found that only about half of the respondents, 52 per cent, are to various degrees afraid of a new nuclear war. About 60 per cent of respondents named the United States as the main nuclear threat to Russia, with China a distant second with 13 percent. About 11 per cent of participants do not believe that any state poses a nuclear threat to Russia.<sup>44</sup>

Public discussion of issues relating to nuclear weapons rarely questions the role of these weapons in Russia's national security. The strategic modernisation programme described above is also rarely criticised, despite its potentially very substantial cost. The government has presented the programme as an essential element of the strategy that would allow Russia to maintain its nuclear arsenal and to preserve approximate parity with the United States. This strategy, in turn, has been described as the only way to preserve the sovereignty of the country and its status in international affairs. It should be noted that the arguments about the modernisation as a way to maintain safety and security of nuclear weapons is almost never used as a justification for the modernisation efforts.

In general, public opinion in Russia tends to view favourably the efforts to support the military industry and introduce modern equipment to the armed forces. Government policy and public attitudes combine to ensure that the strategic modernisation efforts undertaken by the Russian government will continue as one of the high-priority programmes that are unlikely to be affected by budgetary pressures.

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