

# LEARN ABOUT NUCLEAR WEAPONS

## *Russia*

Russia has reduced its total nuclear weapon stockpile by about 1,000 warheads during the past year, but it still has the largest arsenal in the world. As of early 2008, we estimate that Russia has approximately 5,200 nuclear warheads in its operational stockpile and 8,800 in reserve or awaiting dismantlement, for a total of 14,000 nuclear weapons. The Russian nuclear programme consists of three parts - a so-called nuclear triad:

- **Intercontinental Ballistic Missiles (ICBM):** This is the largest part of the Russian nuclear arsenal - currently (May 2008) a total of 1,600 nuclear warheads on 430 ICBMs. The total fire power is slightly over 1,000 megatons. A large number of the missiles carry more than one warhead, so-called Multiple Independently Targetable Re-entry Vehicle (MIRV). The different warheads on a MIRVed missile can reach different, independent targets. For example, the SS-18 missile carries 10 warheads and the SS-19 carries six warheads, each with a fire power of 550-750 kilotons. The Topol-M missile is based on a truck and is constantly moved to avoid being targeted in case of a sudden attack.
- **Submarine-Launched Ballistic Missiles (SLBM):** Currently, Russia holds about 624 operational nuclear warheads based on 11 nuclear-powered ballistic missile submarines. During the Cold War, the Soviet Union had as many as 62 strategic nuclear submarines. The Russian SLBMs are of SS-N-18 M1 and SS-N-23 types, with a total firepower of about 85 megatons. The Russian submarines patrol under water far less than the American submarines. While the US constantly keeps a large number of submarines on patrol, Russian nuclear submarines do occasional deterrence patrols.
- **Bombers and bomber weapons:** Russia holds a total of 884 nuclear warheads to be delivered by 79 bombers. All bombers are fit to deliver both conventional and nuclear-armed air-launched cruise missiles. In addition to its strategic nuclear arsenal, Russia has an estimated 5,390 tactical nuclear weapons, of which 2,080 are operational, while the remaining 3,310 are in reserves or awaiting

dismantlement. The warheads arm cruise missiles, antisubmarine rockets, anti-air missiles, torpedoes, and depth bombs. In 1992, President Boris Yeltsin committed to significant reductions in Russia's nonstrategic nuclear arsenal. In October 2007, a Ministry of Defense spokesman provided an update, stating that 100 percent of ground-force warheads (tactical missiles, artillery shells, mines) had been eliminated, as had 60 percent of missile defense warheads (10 percent more than Yeltsin had pledged), 50 percent of air force warheads, and 30 percent of naval warheads.<sup>1</sup>

### *Nuclear weapon upgrades*

While Russia has reduced the number of warheads in its nuclear arsenal, it has also developed new land and sea-based forces and has modernised its air force. In November 2006, President Vladimir Putin announced that "it is not the number of weapons and nuclear warheads that is important; it is the quality of weapons that is important".<sup>2</sup>

In June 2006 Putin recommended that the US and Russia should replace START I with a new treaty as the old one expires in December 2009. He expressed particular concern over the prevailing stagnation in disarmament processes. Even though START I prohibits states from increasing the number of warheads on existing missiles, Russia is upgrading its Topol M missiles, today equipped with single warheads, to MIRVed missiles. Increasing the number of warheads per missile is a deliberate Russian response to what it considers a provocative US missile defense system. Russia will increase flight-testing of long-range ballistic missiles in the future. The number of launches will almost double after 2009 or 2010.<sup>3</sup>

After more than a decade under construction, the first Borey-class SSBN, *Yuri Dolgoruki*, will finally become operational in 2008. Russia aims to someday have six Borey-class SSBNs, but the second one will probably not be ready until 2010.<sup>4</sup> The Russian navy increased the number of submarines on patrols to seven in 2007 (compared to 4 in 2006). All patrols, however, seem to have been conducted at about the same time instead of being evenly distributed over the year, indicating that Russia does not maintain continuous nuclear submarine patrols like the United States, Britain, and France, but rather occasionally deploys a few submarines for training purposes.<sup>5</sup> This differs from the US, which keeps a larger number of submarines on patrol at all times, and whose submarines can communicate and find position to launch nuclear weapons from below the surface. The US has advanced technology to keep track of Russian submarines, while Russia has no similar system to monitor US submarine activity.

### *Reduction of nuclear arsenals*

The Nuclear Notebook estimates that in 2015, Russia will have a total of 2,490 strategic nuclear weapons, a 20 percent decrease from today. This comprises 844 ICBM warheads (depending on future warhead loadings), which is a 47 percent reduction; 896 SLBM warheads, a 23 percent

increase; and 878 warheads on the bomber force, a slight decrease. <sup>6</sup>

Under SORT, Russia has withdrawn approximately 60 ballistic missiles from operational service. Russia also plans to withdraw most of the multiple-warhead SS-18 and -19 missiles, decreasing the total number of ICBMs by nearly 70% over the next five years. By 2008, all heavy SS-18 R-36MUTTH missiles will be withdrawn from service. Remaining heavy missiles, the SS-18/RS-20V, will remain in service for 10-15 years.<sup>7</sup>

In 2005, Russia's Strategic Rocket Forces completed retiring all SS-24 rail-mobile missiles - more similar launching systems are scheduled to be decommissioned after 2007-2009. Several submarine types have been decommissioned. New types, however, are being developed.<sup>8</sup>

### *Role of nuclear weapons in national security strategy*

Russian officials have continued and deepened what appears to be a revival of the prominence of nuclear weapons in Russian national security. Gen. Yury Baluyevsky, chief of the general staff of the armed forces and first deputy minister of defense, said in January that Russia's "partners should clearly understand" that Russia would use force to protect its territory and allies, "including on a preventative basis, including the use of nuclear weapons," a declaratory policy that resembles that of the Bush administration.<sup>9</sup>

In May 2006, Russian President Vladimir Putin told Russia's Federal Assembly that nuclear deterrence and the "strategic balance of forces" are still central to Russian nuclear policy. In November, however, Putin clarified that balance means the capability to destroy "any potential aggressor, no matter what modern weapon systems this aggressor possesses," and not necessarily numeric parity.

At a conference on maintaining stable operation of the nuclear weapons industry in Novo-Ogarevo, 30 March 2006, President Putin said Russia "view[s] its nuclear deterrent as a fundamental element guaranteeing its security". He also said that "maintaining the minimum level of nuclear armaments required for nuclear deterrence remains one of the top priorities of Russian Federation policy." However, in June 2006, Russia published a white paper on non-proliferation saying terrorist use of weapons of mass destruction is the "greatest threat faced by Russia".<sup>10</sup>

On 10 January 2000, Acting President Vladimir Putin signed the new National Security Concept (NSC) of the Russian Federation, an updated version of the NSC signed by President Boris Yeltsin in 1997. The broad guidelines outlined in the NSC are developed in further detail in the Military Doctrine, approved in May 2000.

The key articles of the NSC pertaining to nuclear weapons are the following:

- 1) "The most important task of the Russian Federation is to implement deterrence in the interests of preventing aggression on any scale, including with the use of nuclear weapons, against Russia and its allies."
- 2) "The Russian Federation should possess nuclear weapons capable of guaranteed infliction of a predetermined damage to any aggressor state or coalition of states under any circumstances."
- 3) It also upholds the right to "the use of all forces and means at its disposal, including nuclear weapons, in case it needs to repel an armed aggression, if all other measures of resolving the crisis situation have been exhausted or proved ineffective."<sup>11</sup>

The third article implies a provision of use of nuclear weapons to deter smaller-scale wars that do not necessarily threaten Russia's existence and sovereignty- a revision from the previous concept outlined in 1997. The new mission also implies a limited use of nuclear weapons in contrast to an all-out nuclear strike in response to a massive attack.

The cornerstone of current Russian nuclear policy focuses on defending the country from a nuclear attack by NATO.<sup>12</sup> On March 25, 2004, Defense Minister Sergei Ivanov announced that Russia is considering revising its nuclear policy in light of NATO expansion and its "current offensive military doctrine". In February 2008, outgoing President Putin issued a warning to neighbouring Ukraine, that Russia would target Kiev with nuclear missiles if Ukraine would choose to try for a NATO membership.<sup>13</sup>

### *Fissile material*

#### **Military Stocks of Fissile Materials**

Plutonium: 95 tons

HEU: 1070 (+/- 300) tons<sup>14</sup>

#### **Declared Excess**

Plutonium: 50 tons

HEU: 500 tons originally; 300 tons remaining<sup>15</sup>

**Unseparated Civil Plutonium:** 88 tons

**Separated Civil Plutonium:** 38.2 tons (38.2 tons in country, 0.0006 tons in other countries)

Estimated by 2010: 45 tons nationally-owned

Estimated by 2015: 42 tons nationally-owned

Estimated by 2020: 38 tons nationally-owned<sup>16</sup>

**Civil HEU:** 15-30 tons<sup>17</sup>

This means Russia holds large stockpiles of fissile materials, which can – if desired – be used to produce new nuclear weapons. 20 kilograms of highly enriched uranium (HEU) is enough to build a primitive nuclear device. Russia holds close to 1,000 tonnes of HEU in its stockpile. Large amounts of weapon grade material increases the risk of the material ending up in the wrong hands – but clearly also makes it possible for the state itself to produce new nuclear weapons or upgrade existing warheads. Russia also has large stockpiles of plutonium – both military and civilian. The atom bomb that was dropped over Nagasaki in 1945 consisted of about six kilograms of plutonium. Today, nuclear weapons of that small size are hardly even produced – but Russian stockpiles hold enough fissile material to produce thousands of modern nuclear warheads.

- 
- 1 Norris, Robert C and Kristensen, Hans M. *Russian Nuclear Forces 2008*. Nuclear Notebook, Bulletin of the Atomic Scientist vol 64, Nr. 2 2008, p. 54-57, 62
  - 2 [http://www.kremlin.ru/eng/speeches/2006/11/16/2143\\_type82913type84779\\_113908.shtml](http://www.kremlin.ru/eng/speeches/2006/11/16/2143_type82913type84779_113908.shtml)
  - 3 Norris, Robert C and Kristensen, Hans M. *Russian Nuclear Forces 2008*. Nuclear Notebook, Bulletin of the Atomic Scientist vol 64, Nr. 2 2008, s. 54-57, 62
  - 4 Ibid.
  - 5 Ibid.
  - 6 Ibid.
  - 7 Reaching Critical Will <http://www.reachingcriticalwill.org/about/pubs/Inventory07/Russia.html>
  - 8 Norris, Robert C and Kristensen, Hans M. *Russian Nuclear Forces 2008*. Nuclear Notebook, Bulletin of the Atomic Scientist vol. 64, Nr. 2 2008, p. 61-64
  - 9 Ibid. p. 54-57, 62
  - 10 James Martin Center for Nonproliferation Studies <http://cns.miis.edu/pubs/week/060726.htm>
  - 11 Arms Control Association <http://www.armscontrol.ru/start/nsc.htm>
  - 12 Berlin Information Centre for Transatlantic Security <http://www.bits.de/EURA/natsecconc.pdf>
  - 13 Harding, Luke. “*Putin issues nuclear threat to Ukraine over plan to host US shield*”. The Guardian, 13 February, 2008. <http://www.guardian.co.uk/world/2008/feb/13/russia.putin>
  - 14 Institute for Science and International Security [http://www.isis-online.org/global\\_stocks/end2003/military\\_pu.pdf](http://www.isis-online.org/global_stocks/end2003/military_pu.pdf)
  - 15 Institute for Science and International Security [http://www.isis-online.org/global\\_stocks/end2003/military\\_excess\\_heu.pdf](http://www.isis-online.org/global_stocks/end2003/military_excess_heu.pdf)
  - 16 Institute for Science and International Security [http://www.isis-online.org/global\\_stocks/end2003/plutonium\\_watch2005.pdf](http://www.isis-online.org/global_stocks/end2003/plutonium_watch2005.pdf)
  - 17 Institute for Science and International Security [http://www.isis-online.org/global\\_stocks/end2003/civil\\_heu\\_watch2005.pdf](http://www.isis-online.org/global_stocks/end2003/civil_heu_watch2005.pdf)