



# **THE GREAT STRATEGIC TRIANGLE**

**Alexei Arbatov and  
Vladimir Dvorkin**

**APRIL 2013**

**CARNEGIE MOSCOW CENTER**

**CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE**

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## Summary

The “Great Triangle” of the Asia-Pacific region formed by the United States, Russia, and China is particularly important in both geopolitical and military-strategic terms. The strategic arsenals and military programs of the two traditional superpowers and the steady buildup of the nuclear and missile capabilities of China, the newly emergent superpower of the twenty-first century, give global significance to the Great Triangle they form.

### Key Features of Great-Triangle Relations

- The United States and Russia maintain a relationship based on nuclear parity, mutual nuclear deterrence, and a forty-year experience of arms limitation and reduction agreements.
- Unlike the United States and Russia, China’s approach to strategic stability is not based on missile and nuclear parity and mutually assured destruction. China is the only one of the “big five” nuclear powers that does not provide information on its nuclear forces.
- If China’s nuclear forces are as limited as they are believed to be, they would be unable to deliver a retaliatory strike and are operationally most likely oriented toward a preemptive attack. The Chinese second-strike capability is only viable if China has hidden missile reserves.
- China must be taken into consideration when discussing subsequent U.S.-Russian initiatives on arms limitations and reductions.
- China would join the disarmament process only if its concessions regarding transparency and weapons limitations are offset by U.S. and Russian concessions.

### Incentives for China to Participate in the Disarmament Process

- The United States could commit to cease its buildup of sea- and land-based ballistic missile defense (BMD) assets in the Pacific Ocean.
- The United States and Russia must assume an obligation that China will be able to take part, in a format acceptable to Beijing, in BMD cooperation projects that the two superpowers agree upon.

- One such project might be an Asia-Pacific joint center for the exchange of missile launch data. This center would be similar to the Russia-United States and Russia-NATO centers, which were initiated or discussed in relation to Europe but never became operational.
- The United States and Russia could proceed with negotiations on the next strategic arms reduction treaty including limitations on conventionally armed strategic weapon systems. This would fulfill the necessary precondition for China to also limit its precision-guided missiles armed with conventional warheads that are indistinguishable from nuclear warheads.
- Progress must be made in limiting U.S. and Russian nonstrategic nuclear weapons (excluding, in spite of the NATO position, their redeployment from Europe to Asia). This would establish the necessary conditions for limiting the Chinese intermediate- and shorter-range missile systems.

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Even a journey of 1,000 *li* starts with a first step.

—Ancient Chinese Proverb

## Introduction

The shift of the nuclear disarmament process from bilateral (between Russia and the United States) to multilateral has increasingly drawn the attention of politicians and experts across the world. At a meeting with experts at the Sarov Federal Nuclear Center on February 24, 2012, president-to-be Vladimir Putin declared: “We will not disarm unilaterally. . . . All nuclear powers should participate in this process. We cannot disarm while other nuclear powers are building up their arms.”<sup>1</sup>

In this context, the “Great Triangle” of the Asia-Pacific region formed by the United States, Russia, and China is of particular importance, both in geopolitical and in military-strategic terms. Although such a geostrategic construction may naturally appear to be rather arbitrary, the parameters of the nuclear arsenals and major military programs of the two traditional superpowers, combined with the steady improvement of the nuclear missile capabilities of the newly emergent superpower of the twenty-first century, attach global significance to the triangle they form.

This triangle has an important regional dimension as well, in that other nuclear states (India, North Korea, and Pakistan) adjoin it in Asia. It is directly or indirectly linked to military, political, territorial, and economic issues of both international and intranational relations in the Western Pacific and Southeast Asia.

For the foreseeable future, the Asia-Pacific region will play an increasingly important role in both the global economy and international security. Both Russia and the United States have officially announced that their national strategies are being redirected to focus on this region. The course of events in the region will greatly influence the level of conflicts across the globe, the dynamics of military competition among nations, and the prospects for arms limitation and nonproliferation. Thus, the nature of the military and political relations among China, Russia, and the United States merits closer examination, particularly with respect to strategic and other nuclear weapons, which will have a decisive impact on regional and global security.



## The Peculiarities of Relations Based on Nuclear Deterrence

Military-strategic relations within the Great Triangle are intertwined into a complex knot of common interests and disagreements relating to offensive and defensive strategic (and nonstrategic) weapons.

### Russia and the United States

Russia and the United States possess the largest arsenals of nuclear weapons in the world. The total number of nuclear weapons that each side possesses exceeds the combined total number belonging to the remaining seven nuclear-weapon states. At the same time, nuclear stockpiles in both Russia and the United States have consistently been reduced (and the weapons of the two countries modernized at quite a moderate pace), while the nuclear capabilities of third countries (primarily of China, India, and Pakistan) have been growing steadily both in quantity and quality.

#### The United States

According to data exchanged under the 2010 New Strategic Arms Reduction Treaty (START), the U.S. strategic nuclear forces (SNFs) consist of 806 deployed ballistic missiles and heavy bombers armed (under the treaty's counting rules) with 1,722 warheads.<sup>2</sup> The land-based component of the U.S. nuclear triad consists of 500 silo-based Minuteman III intercontinental ballistic missiles (ICBMs), some of which have single warheads while others have three multiple independently targeted reentry vehicles (MIRVs) for a total of about 550 warheads. Under the framework of the 2010 New START Treaty, all of these ICBMs are to be reconfigured for single warheads between 2013 and 2017.<sup>3</sup>

The sea-based component of the triad consists of fourteen Trident Ohio-class nuclear-powered ballistic missile submarines, each of which can carry 24 Trident II submarine-launched ballistic missiles (SLBMs) with eight MIRVs apiece. Four other submarines of this type have been converted to carry sea-launched cruise missiles (SLCMs) armed with conventional payloads (154 missiles aboard each submarine, 616 in total). With two submarines currently under repair, the SLBMs are not considered deployed. Finally, Trident II SLBMs are counted as carrying not eight warheads but an average of four. This amounts to twelve submarines with 288 missiles and 1,152 warheads. Of these submarines, eight are based in and patrol the Pacific Ocean and six patrol the Atlantic Ocean.

The air component consists of heavy bombers, of which 93 are B-52H Stratofortresses and 21 are B-2 Spirits. There are currently 44 B-52H and sixteen B-2 bombers in service, armed with 350 air-launched cruise missiles

and 150 air bombs. In addition, 67 B-1B bombers have been converted to conventional bombers. There are currently no combat-ready heavy bombers on combat alert (in the past, a number of them have always been held ready, fueled, and armed), and their nuclear bombs and missiles have been placed into storage at Air Force bases. In consideration of this circumstance, the new treaty counts heavy bombers as having one nuclear warhead each. At a realistically probable immediate heavy bomber loading, the U.S. SNFs would actually have about 2,000 warheads, rather than 1,722.

The United States currently has about 500 nonstrategic or tactical nuclear weapons, although official information on this subject has been rather ambiguous. They consist of 100 Tomahawk sea-launched cruise missiles for nuclear attack submarines (according to the 2010 announcement, all of these missiles were to have been scrapped) and 400 free-fall air bombs, of which about 200 are stored at six U.S. Air Force storage facilities in five NATO countries (Belgium, Germany, Italy, the Netherlands, and Turkey). These bombs are designed to be delivered by F-16 U.S. Air Force fighter-bombers, as well as by the analogous Belgian and British aircraft and German-Italian combat Tornado-type aircraft. About 2,800 strategic warheads are stored in reserve, while up to 3,100 await decommissioning.<sup>4</sup>

The U.S. nuclear forces development program does not provide for building any new ballistic missiles, bombers, or strategic submarines for the foreseeable future. The service life of the Minuteman III missile has been extended to 2030. The modified Trident II SLBMs and Ohio-class submarines must stay in service until 2030–2040. The U.S. Air Force is developing a new advanced cruise missile (Experimental Cruise Missile) and has begun the development of a next-generation bomber for the period beyond 2020.

According to the Department of Defense, once it reaches the limits stipulated under the New START Treaty, the U.S. nuclear triad will consist of 420 Minuteman III ICBMs, fourteen Ohio-class submarines with 240 Trident II SLBMs, and up to 60 nuclear-capable heavy bombers.<sup>5</sup> In terms of nonstrategic nuclear arms, the decision has been made to decommission all nuclear-armed Tomahawk SLCMs but to retain and upgrade the B61 air bombs. It is possible that the F-35 fifth-generation fighter will be certified for these bombs.

In recent years, the United States has shifted its emphasis somewhat from the traditional nuclear deterrence strategy to strategic ballistic missile defense (BMD) and strategic conventional precision-guided munitions (cruise missiles, advanced hypersonic weapons of the Prompt Global Strike program). Although these systems are directed at third countries, they will still have an effect upon the strategic balance and negotiations between Russia and the United States.

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## The Russian Federation

In contrast to the United States, Russia has increased its emphasis on nuclear deterrence both at the global level and regionally (judging from some indirect indications).<sup>6</sup>

According to data exchanged under the New START Treaty, Russia's strategic nuclear forces comprise 491 deployed launchers and 1,499 warheads.<sup>7</sup> The Stockholm International Peace Research Institute (SIPRI) estimates that Russian ground missile forces as part of the strategic nuclear forces have 322 launchers and ICBMs equipped with 1,087 warheads, including 50 silo-based heavy RS-20 (SS-18 Satan) ICBMs (each with ten MIRVs), 48 RS-18 (SS-19) missiles (each with six warheads), 135 road-mobile RS-12M *Topol* (SS-25) single warhead missiles, 56 silo-based and eighteen road-mobile RS-12M2 *Topol-M* (SS-27) missiles with single warheads, and fifteen RS-24 *Yars* (SS-27 Mod 2) MIRVed missiles with six warheads each.<sup>8</sup>

The Russian sea-based strategic leg consists of twelve strategic missile submarines carrying 144 missiles and 512 warheads, including six Delta IV-class submarines (Project 667BDRM, *Delfin*) with 96 RSM-54 (SS-N-23 Skiff) missiles, each carrying four warheads. With one of the submarines currently being overhauled, only five submarines and 80 deployed missiles are included in the count.<sup>9</sup> The Pacific Fleet has three older (Project 667BDR, *Kalmar*) submarines carrying R-29R (SS-N-18) missiles armed with three warheads each. In addition, one Typhoon-class submarine (Project 941 *Akula*) serves as a test platform for the RSM-56 *Bulava* (SS-NX-32). One Yuri Dolgorukiy-class submarine (Project 955 *Borei*) completed sea trials in 2010 and was commissioned in January 2013. It is equipped with the same *Bulava* missiles.<sup>10</sup> Another submarine of this class, Alexander Nevsky, is undergoing tests.

The strategic air force component consists of 76 aircraft: 63 Tu-95MS6 and Tu-95MS16 (Bear H) and thirteen Tu-160 (Blackjack) bombers.<sup>11</sup> Under the provisions of the new treaty, they are counted as 76 launchers and 76 warheads; however, in reality they can carry a total of 820 X-55 (AS-15 Kent) air-launched cruise missiles.<sup>12</sup> Thus, the Russian strategic nuclear forces are actually armed not with 1,499 warheads but with more than 2,000.<sup>13</sup>

Information relating to Russian nonstrategic nuclear forces is even scarcer than information relating to those of the United States. According to foreign sources, Russia currently possesses about 730 tactical nuclear air-launched missiles and bombs that can be delivered by 150 medium-range Tu-22M (Backfire) bombers and Su-24 (Fencer) and Su-34 (Fullback) fighter-bombers. In addition, there are about 700 antiship, antisubmarine, and anti-aircraft missiles, as well as depth charges and ship and submarine torpedoes, including long-range submarine-launched cruise missiles. About 430 nuclear warheads are attributed to the S-300 (SA-10 Grumble) and other air defense systems, and approximately 160 warheads to tactical missiles of the ground forces.<sup>14</sup>

The overall nonstrategic nuclear arsenal that could be operationally deployed is estimated to be about 2,000 warheads, with another approximately 2,000 explosive devices in storage and slated for disposal.<sup>15</sup> According to Russian military and political leaders, all nonstrategic nuclear weapons have already been placed into storage at central storage facilities.<sup>16</sup>

Unclassified sections of the development program for the Russian strategic nuclear forces provide above all for the continued deployment of the silo-based and road-mobile MIRV-equipped RS-24 *Yars* ICBMs. In addition, plans have been announced to develop a liquid-fueled, silo-based heavy ICBM with multiple warheads.<sup>17</sup>

At the heart of Russia's naval strategic program lies the new submarine design, Project 955, one of which has already entered service, with three more at various stages of construction. Plans call for building eight new ballistic missile submarines by 2020, to be equipped with the RSM-56 *Bulava* (SS-NX-32) SLBMs. Six submarines from the previous design, Project 667, have been equipped with the modified RSM-54 *Sineva* (SS-N-23 Skiff) SLBMs.<sup>18</sup>

The Tu-160 (Blackjack) strategic bomber continues to be built for the Air Force (one every couple of years). In addition, a new air-launched cruise missile system is under development in both a nuclear and conventional payload configuration (X-555 and X-101/102).<sup>19</sup> Next-generation strategic bombers (the PAK DA) are at the early stages of development and are for the long-term future.

The future composition of Russia's strategic nuclear forces will depend upon the rate at which outdated systems deployed in the 1980s and 1990s can be decommissioned, as well as how quickly new weapons can be deployed. Since more weapons are being withdrawn from service than are being deployed, the overall number of nuclear arms is declining. The New START Treaty therefore does not affect Russia's nuclear capability to any great extent. By 2020, for example, Russia could have about 1,500 warheads on land- and sea-launched missiles, including about 900 on 300 ICBMs (RS-12M2 *Topol-M*, RS-23 *Yars*, new heavy ICBM) and approximately 600 on 100 RSM-54 *Sineva* and RSM-56 *Bulava* SLBMs, deployed on Project 667 and Project 955 (Yuri Dolgorukiy-class) submarines.<sup>20</sup>

Thus, the Russian strategic nuclear forces comprise at most 450 launchers and 1,550 warheads overall (based on the counting rules of the new treaty). If the new heavy ICBM is deployed, it would add a certain number of carriers and warheads to the total for the year 2020 but could destabilize the strategic balance due to the greater concentration of warheads on a smaller number of relatively vulnerable launchers.

Based on the two countries' arsenals and the decisions that underlie them, the conclusion may be made that Russia and the United States have maintained a classic relationship based on mutual nuclear deterrence (the concept of mutually assured destruction) and approximate strategic parity. For the past forty years, this has also served as the foundation for their arms control

negotiations and agreements on principles of “equality and equal security” and “strategic stability.”

The New START Treaty once again codified this relationship, at reduced quantitative levels. Each side was limited to a maximum of 700 deployed missiles and bombers (800 counting non-deployed missile launchers and heavy bombers) and 1,550 nuclear warheads. These numbers were to be achieved by 2018, and the treaty itself is to expire in 2021. In comparison with START I (signed more than twenty years ago), the new treaty reduces the number of warheads nearly fourfold and the number of delivery vehicles by two and a half times. In addition, the new treaty is structured much more simply, and its verification regime is more modest.<sup>21</sup>

However, even in this regard asymmetry between the sides has been growing, which will create difficulties in further negotiations. Russia has linked the prospects for conducting future negotiations with its demand to resolve disagreements over missile defense and with the prohibition of space weapons, while the United States has linked them with the limitation of nonstrategic nuclear arms. Both powers have raised the question of including third states in the nuclear arms limitation process, with Russia suggesting the UK and France (since they are allied with the United States), while the United States has raised the issue of China (as an independent party in the strategic balance). Russia’s position with regard to China has been ambiguous and has not distinguished it from other nuclear states.

Nevertheless, within the framework of the new treaty (or outside of it), the strategic relationship between Russia and the United States will undergo essentially no significant change for the foreseeable future, leaving neither side with the capability to conduct a disarming first strike under any scenario of nuclear conflict. According to models advanced by independent experts, under any conditions of a counterforce attack the defending side would still have several hundred nuclear warheads with which to retaliate, which would be sufficient to inflict unacceptable levels of damage on the hypothetical aggressor. Following deployment of the U.S. ballistic missile defense and Russian Air-Space Defense systems, the retaliatory capacity of the opponent could be diminished by at most a dozen or slightly more warheads.<sup>22</sup>

Thus, the strategic relationship between Russia and the United States will continue to be relatively stable for the foreseeable future, despite the impact of perturbing military and political factors. Moreover, discounting the influence of third-country nuclear states, strategic stability under the bilateral framework will be secured even if the two countries succeed in concluding the next arms reduction treaty by limiting the number of warheads for each country to 1,000 (provided that the high survivability of strategic forces is ensured).

## The United States and China

A state of mutual nuclear deterrence exists between these two powers, although it very asymmetrically favors the United States. In recent years, the United States has been shifting the emphasis of its nuclear strategy in the direction of the Pacific Ocean, primarily with China in mind (as noted above, eight of the fourteen Trident Ohio-class ballistic missile submarines are deployed in the Pacific). In focusing on this area, Washington has made developing its missile defense a much higher priority there than in the Euro-Atlantic area (90 percent of the BMD radars and interception assets are situated in the Asia-Pacific), and it is also concentrating on the deployment and development of high-precision conventional strategic systems, including Prompt Global Strike programs.

At the same time, in contrast to its relations with Russia, the United States has never officially acknowledged a relationship with China based on mutual nuclear deterrence or accepted that China will eventually achieve parity with the United States. It would appear that Washington has no intention of offering such relations as a “gift” to China, the new superpower of the twenty-first century (similar to the way that the United States at one time had not wanted to recognize mutual deterrence with the Soviet Union, which then had to win parity for itself after first passing through three different cycles of the arms race and the very dangerous Cuban Missile Crisis of 1962).

China, for its part, insists on its right to mutual deterrence with the United States, with an emphasis on “minimum nuclear deterrence,” and thus has been gradually increasing the number of its ICBMs and SLBMs. Along the way, China has been building precision-guided conventional intermediate-range ballistic missiles that could potentially be used against Taiwan and the U.S. Navy and tactical ballistic missiles, and it is also conducting experiments with missile defense and antisatellite weapons.

According to independent experts, China’s strategic forces (based on the New START Treaty’s classification) consist of 93 land- and sea-launched ballistic missiles.<sup>23</sup>

The land-based component of the Chinese nuclear forces consists of the Strategic Missile Force and missile systems of the People’s Liberation Army’s (PLA) ground force. China’s Strategic Missile Force is represented by the so-called Second Artillery of the PLA and includes eighteen obsolete silo-based liquid-fueled *DongFeng* 5A (CSS-4) missiles as well as 30 new solid-fueled, road-mobile *DongFeng* 31 and *DongFeng* 31A (CSS-9) ICBMs.

The sea-based component includes two types of ballistic missile submarines: one *Xia*-class (type 092) with twelve single-warhead *Julang*-1 (CSS-N-3) SLBMs and two *Jin*-class (type 094) submarines, each carrying twelve single-warhead *Julang*-2 missiles. Although the construction of *Xia*-class submarines and *Julang*-1 SLBMs was discontinued in the 1990s, construction of type 094 submarines began in 2001 with at least four planned to be built (other sources say at least five). The two type 094 submarines that are already serving with



the Chinese Navy patrol the waters adjacent to China. Thus, the sea-based component of China's nuclear forces consists of 36 single-warhead *Julang-1/2* SLBMs, the combat loads of which consist of 45 nuclear warheads.

China has a significant number of intermediate-range ballistic missiles (IRBMs) as well as tactical ballistic missiles. The 1987 Intermediate-Range Nuclear Forces (INF) Treaty eliminated all Russian (Soviet) and U.S. weapons of this class. China has eleven obsolete *DongFeng-4* (CSS-3) IRBMs and 88 new road-mobile intermediate-range *DongFeng-21/21A* (CSS-5) missiles, as well as 60 *DongFeng-15/15A/15B* (CSS-6) and *DongFeng-11A* (CSS-7) (the latter does not match the INF classification, having a range of 300 kilometers). Overall, China has 160 intermediate- and shorter-range missiles. Some IRBMs and tactical ballistic missiles, apparently, are conventionally armed.

The air-based component of China's nuclear forces consists of the strategic air force, which has 60 *Xian* H-6 medium-range bombers, and the tactical air force, represented by 300 *Jian-5* fighter-bombers and fighter aircraft derived from the Russian multirole Su-30 fighter. In addition, 120 strategic nuclear B-5 bombs and 320 B-4 nuclear bombs are allocated to them, for an overall total of 440.

The PLA ground forces are armed with two types of road-mobile systems capable of launching either nuclear-armed or conventional-armed missiles. One system is based on use of the solid-fueled *DongFeng-11* (CSS-7—about 100 units), the other on the *DongHai-10* ground-launched cruise missiles (up to 500 units). Up to 150 nuclear warheads may be assigned to these missiles as nuclear payload.

Thus, as many as about 360 nuclear reentry vehicles could come under the land-based component of the Chinese nuclear forces. During peacetime, most of these warheads would be stockpiled separately from the missiles. However, contrary to the opinion of many experts, the Second Artillery is now adopting a continuous duty cycle for the *DongFeng-31/31A* (CSS-9) ICBM missile brigades, clearly readying these systems for immediate use upon the authorization of the Chinese political leadership. This means that the missiles in their launch containers will have nuclear warheads permanently mounted on them.

According to leading Russian experts, China has about 800 to 900 nuclear warheads in its current stockpile that are available for rapid deployment.<sup>24</sup> In addition, approximately the same number could be held in storage as backup weapons and for spare parts or be earmarked for disposal.

There is yet another aspect of utmost importance. Foreign news agencies and independent experts have periodically reported that the Chinese military has been building an extensive system of underground tunnels that could store large items of military hardware. These tunnels, which extend for several thousand kilometers, could be capable of accommodating significant numbers of backup launchers with ballistic and cruise missiles or of storing nuclear weapons. No other purpose has yet been identified for such extensive earthworks.

Unofficial sources report that new versions of the *Xian* H-6 medium-range bomber are being produced and that those already in service are undergoing modernization. They are equipped with new targeting and navigation equipment and will have an enlarged armament payload, including air-launched cruise missiles with nuclear warheads. The prototype for this missile is the *DongHai* ground-launched cruise missile. In an effort to modernize the land-based component of its nuclear forces, China has placed the emphasis on fitting ballistic missiles with MIRV warheads and with BMD penetration aids. In addition, two new ballistic missiles are under development: the *DongFeng-25* IRBM and *DongFeng-41* (CSS-10) ICBM. The *DongFeng-25* is built using the first and second stages of the *DongFeng-31*, arming it with MIRVs (as many as three reentry vehicles). This system is intended to replace the outdated *DongFeng-4* (CSS-3) IRBM. The *DongFeng-41* ICBM was developed to be a versatile missile that could be deployed on road-mobile and rail-based launchers. It is believed to be equipped with six to ten MIRVs.

As far as the sea-based component is concerned, the main effort is being applied to increasing the speed and improving the quality of the type 094 class ballistic missile submarines. The JL-2 SLBM is undergoing modernization and being equipped with MIRV warheads. In addition, the necessary infrastructure for nuclear submarines is being built at a naval base on Hainan Island in the South China Sea. A new type 096 nuclear-powered ballistic missile submarine, which is to be equipped with 24 JL-2 MIRVed SLBMs, is being planned for the longer term. It is expected that the first such submarine will be launched in 2014–2015.

Thus, the Chinese nuclear capability has clearly been underestimated by the international community. It appears in all likelihood that China, which is already the third-largest nuclear state after the United States and Russia, is in a class of its own. In terms of its nuclear force levels, China surpasses all of the other six nuclear states combined (excluding the two superpowers). In addition, China is the only state aside from Russia and the United States that has the technical and economic capability to build up its nuclear arsenal rapidly and manyfold.

However, the balance is hugely asymmetrical in favor of the United States with respect to the quantitative and qualitative parameters of the strategic nuclear forces, as well as their command, control, and information management systems. As a consequence, there is no parity in the strategic balance of the two countries and also no state of mutually assured destruction (by retaliatory attack under all conditions of conflict), which is the basis of strategic stability.

The United States has an excess of such capacity while, so far, China lacks it, based on the aforementioned description of its nuclear forces (in terms of their “operationally deployed capability”). In a hypothetical disarming (counterforce) strike against China’s identified strategic and nonstrategic nuclear forces, the United States could destroy (in all probability within a single launch) more than 90 percent of these military targets.<sup>25</sup> The missile defense



system that is being deployed and enhanced in Asia and the Pacific by the United States (including the elements in Alaska and California) and its allies would be capable of intercepting the vast majority of the surviving Chinese nuclear missiles. For the foreseeable future, the strategic balance between the two powers will be defined by their strategic and theater offensive and defensive programs and by possible agreements in this area.

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**Within the U.S.-China strategic balance, mutual nuclear deterrence is not only highly asymmetrical but is also further “diluted” by scenarios of regional conflict and by the weapons systems deployed in support of U.S. commitments to its allies and partners.**

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As has been noted above, the United States has never acknowledged any degree of mutual nuclear deterrence or parity with China, nor has it ever admitted that such a situation could possibly emerge in the future. As applied to China, the American concept of strategic stability reduces to ensuring transparency for the strategic nuclear forces, rather than maintaining a mutual second-strike capability. Within the U.S.-China strategic balance, mutual nuclear deterrence is not only highly asymmetrical but is also further “diluted” by scenarios of regional conflict and by the

weapons systems deployed in support of U.S. commitments to its allies and partners (Japan, South Korea, and Taiwan). The political ambiguity and strategic asymmetry discussed above will greatly complicate any potential negotiations between the two under the classic model.

### **Russia and China**

Sino-Russian strategic relations have been even more controversial and ill-defined. Officially, neither of these two strategic allies recognizes a mutual nuclear deterrent component in its relations.

However, it may be assumed that Russia’s strategic nuclear forces, as well as some of its nonstrategic nuclear weapons, do serve a mission of containing China, as markedly implied in Russia’s 2010 Military Doctrine:

Nuclear weapons will remain an important factor for preventing the outbreak of nuclear military conflicts and military conflicts involving the use of conventional means of attack (a large-scale war or regional war). In the event of the outbreak of a military conflict involving the utilization of conventional means of attack (a large-scale war or regional war) and imperiling the very existence of the state, the possession of nuclear weapons may lead to such a military conflict developing into a nuclear military conflict.<sup>26</sup>

In terms of military logic, to mention a regional war in such a context can only suggest a hypothetical conflict with China. Given the geostrategic reality, a non-nuclear war with the United States/NATO would not be regional, since the United States is present in both the Asia-Pacific and the Euro-Atlantic regions, while Russia’s existence as a state would not likely be put at risk in a conventional war with any other state in the region aside from China (in light

of its increasing superiority in conventional forces near the Russian border in Eastern Siberia and the Far East).<sup>27</sup>

A portion of China's 50 ICBMs may target European Russian territory. All (or at least most) of China's 60 IRBMs in the Shenyang and Lanzhou military regions could be aimed at Siberia and the Far East, as could some of China's 150 nuclear tactical ballistic missiles and ground-launched cruise missiles.

At the same time, Russia retains a significant superiority over China in strategic and tactical nuclear weapons, given the state of China's deployed nuclear forces (as discussed above). Judging from the information available, it can be assumed that this quantitative superiority—as well as the Russian ability to deliver a first or retaliatory strike—will continue for the foreseeable future.

It must be noted that, similarly to the United States, Russia has not recognized the Chinese claim to mutual nuclear deterrence since the Soviet period. During the Sino-Soviet split that lasted from the 1960s to the mid-1980s, in addition to the large conventional army deployed along the Soviet border with China and in Mongolia, the Soviet Union also sought to secure absolute nuclear superiority in offensive and defensive weapons. Once the bilateral relationship had improved and a “strategic partnership” had been formed, the issue of mutual nuclear deterrence was shelved in political relations between the two powers.

In any case, considering the political and strategic nuances of their relations, Russia and China have even less of a sound basis for initiating mutual nuclear arms limitation talks between them than do the United States and China.

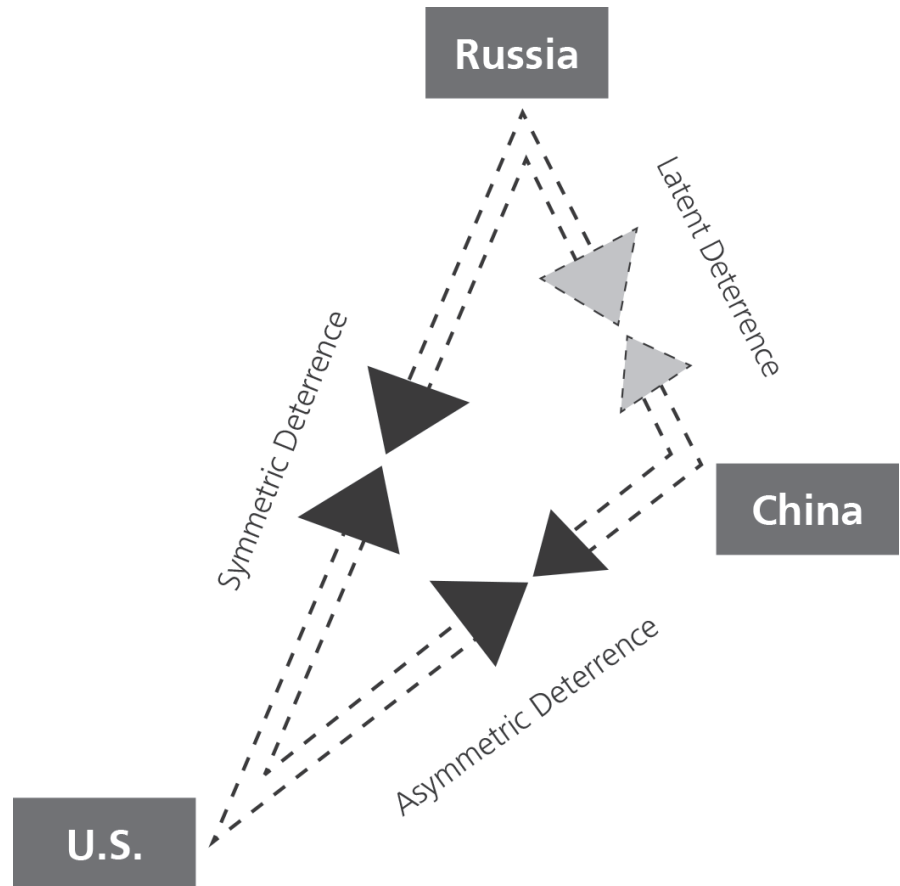
Strategic relations between the three countries are thus very asymmetrical and lack any political or strategic common ground in terms of such principles as stability and parity. The “triangle” turns out to be not only not equal sided but also not regular (figure 1).

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**Russia retains a significant superiority over China in strategic and tactical nuclear weapons.**

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Figure 1. The Strategic Triangle: Russia, the United States, and China



In addition, China keeps the size and composition of its nuclear forces and nuclear development program secret, which renders the possibility of any three-party strategic arms reduction or nuclear arms limitation talks highly tenuous, at least for the foreseeable future.

## The Role of Nuclear Weapons and the Nuclear Doctrines

Of the three powers, it is the Russian national security concept and military doctrine that assigns nuclear weapons the greatest role. Due to the relative inferiority of its general purpose forces, Russia feels vulnerable to both the West and the East. In relations with the United States/NATO, Russia has been most concerned about lagging behind in missile defense and strategic non-nuclear weapons, while in its relations with Beijing, Moscow has been quietly

apprehensive about the improving conventional capabilities of the People's Liberation Army, especially of the ground forces in China's northern districts.

In light of its superiority in the most advanced conventional armaments, missile defense, and non-nuclear strategic weapons, the United States has put less emphasis on nuclear weapons than has Russia, although the U.S. nuclear capability remains an attribute of its great-power status and the pillar of its security commitments to its allies.

Of the three states, China emphasizes nuclear weapons the least. Beijing is not concerned about its balance of general purpose forces with Russia or with the United States (or India), and China accepts its inferiority in nuclear weapons as a long-term reality, although it does take the U.S. missile defense program and the Prompt Global Strike initiative seriously.

The Russian and American nuclear doctrines (both published in 2010) are very similar. Each of these documents treats nuclear weapons as a means of last resort, but at the same time reserves the right to use them first.

## The United States

The U.S. Nuclear Posture Review report says that “The fundamental role of U.S. nuclear weapons, which will continue as long as nuclear weapons exist, is to deter nuclear attack on the United States, our allies and partners. . . . The United States wishes to stress that it would only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners.”<sup>28</sup> The role of nuclear weapons in deterring an attack with the use of conventional, chemical, or biological weapons declines. The United States is ready to declare that it “will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the Nuclear Non-Proliferation Treaty (NPT) and in compliance with their nuclear non-proliferation obligations.”<sup>29</sup> However, this obligation does not apply to NPT nuclear powers or states that violate the NPT or are not party to the treaty.

Apparently implying security commitments to Japan and South Korea, the United States reserves the right to deter attacks with conventional weapons or chemical or biological weapons (as noted within “a narrow range of contingencies”). In other words, nuclear weapons are seen as applicable not only globally (as the basis for deterring nuclear attack against the United States), but also for regional deterrence: to respond to a nuclear attack against U.S. allies or, in some cases, to respond to conventional attack or one using chemical or biological weapons.

Given this reasoning, “the United States is . . . not prepared at the present time to adopt a universal policy that deterring nuclear attack is the sole purpose of nuclear weapons, but will work to establish conditions under which such a policy could be safely adopted.”<sup>30</sup>

## The Russian Federation

Russia's most recent military doctrine stipulates that "the prevention of a nuclear military conflict and likewise any other military conflict, is the Russian Federation's main task."<sup>31</sup> The document provides that "the Russian Federation reserves the right to use nuclear weapons in response to the utilization of nuclear and other types of weapons of mass destruction against it and (or) its allies and also in the event of aggression against the Russian Federation involving the use of conventional weapons when the very existence of the state is under threat."<sup>32</sup>

In other words, Russia's nuclear forces serve first of all to deliver a second strike to retaliate for an adversary's first nuclear strike against Russia or its allies; second, to launch a first strike in response to an aggressor's chemical or biological attack against Russia or its allies; and third, to make a first strike in the face of imminent national catastrophe resulting from a conventional attack on Russia (but not on its allies). The last option was obviously meant to counter threats posed by the superiority of the expanded NATO in conventional forces and precision-guided munitions, as well as potential threats stemming from the strategic situation in the East, which is changing in a way not favoring Russia.

In the sections dealing with nuclear issues, there are only three major differences between the two military doctrines. First, the United States retains the option of using nuclear weapons against nuclear powers and non-nuclear-weapon states that violate the NPT (that is, theoretically against seven states: Russia and China, as well as Iran, North Korea, Pakistan, Israel, and India, of which the last two, understandably, would not be potential targets of such a strike). Russia retains this right against nuclear-weapon states and their allies and partners (that is, a hypothetical total of about 40 countries).

The second difference is that the United States allows for a first nuclear strike to defend its allies (referring to Japan, South Korea, Taiwan, and several NATO countries) from an attack by conventional troops and forces, while Russia does not plan for such a contingency. For its part, Moscow envisions using nuclear weapons first to retaliate against a large-scale attack with the use of general purpose forces, while the United States says nothing about this scenario (for understandable geostrategic reasons, it is not vulnerable to such an attack).

Third, in its deterrent strategy the United States has announced increasing emphasis on non-nuclear offensive and defensive systems, while decreasing the role of nuclear weapons. Russia considers this approach to be destabilizing and recently (with a view to the future) has increased the role of nuclear deterrence in ensuring its national security: the decision to create a new heavy ICBM system was a particularly clear expression of this. At the same time, Russia places great priority on the development of defensive systems under the Air-Space Defense program, and of precision-guided offensive conventional

weapons. However, these programs have not been written into the overall concept of strategic stability.

## China

The situation with China is much more complicated. Despite its seemingly cohesive and lapidary appearance, Beijing's position and policies in the nuclear field are quite contradictory.

On the one hand, China is the only one of the great powers that has officially undertaken an obligation, with no reservations, to not use nuclear weapons first. The section of the Chinese "White Book," titled "Arms Control and Disarmament,"<sup>33</sup> carries an appeal to all nuclear-weapon states to "abandon any nuclear deterrence policy based on first use of nuclear weapons, make an unequivocal commitment that under no circumstances will they use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones . . . nuclear-weapon states should negotiate and conclude a treaty on no-first-use of nuclear weapons against each other."<sup>34</sup> China's approach to strategic stability differs from those of Russia and the United States in that it is not based on approximate missile/nuclear parity and the concept of mutually assured destruction (by a retaliatory strike). Concerning the size of the nuclear forces that China needs, it has been said that they will be kept to the minimum level "required for national security."<sup>35</sup>

On the other hand, China is the only one of the five great powers—permanent members of the UN Security Council and the recognized five nuclear powers in the NPT—that does not provide any official factual information on its nuclear forces and their development programs.

In the past, when the Chinese GDP, military expenditures, and nuclear forces had been rather modest, this situation was quietly accepted by other powers, but this attitude has changed over the past decade in view of China's economic growth, its military budget (which has become second only to that of the United States), large-scale nuclear and conventional weapon modernization programs, impressive military parades in Tiananmen Square, and increasingly ambitious foreign and military policies.

Now, provisions such as "no first use of nuclear weapons at any time and under any circumstances," "purely defensive military doctrine," and "will limit its nuclear capabilities to the minimum level" will not be taken for granted. Moreover, in the absence of any official information—even of the most general nature—on the Chinese nuclear forces and their development programs, such statements may produce the opposite effect: they will be seen as an indication of wanting to hide the truth and lull other states into lowering their vigilance.

Millennia-old Chinese traditions seem to have been revived in many areas of China, perhaps becoming more important than any euphonious provisions of current official policy of the People's Republic. In this light, it would be

useful to recall the thoughts of the great Chinese military strategist Sun Tzu in his treatise *The Art of War*. Two and a half thousand years ago, when the inhabitants of what today is Russia and the NATO states were still wearing animal hides and fighting with clubs, he wrote, “All warfare is based on deception. Hence, when we are able to attack, we must seem unable; when using our forces, we must seem inactive; when we are near, we must make the enemy believe we are far away.”<sup>36</sup>

Reputable Russian experts have estimated that since the early 1960s China has generated 40 tons of enriched weapons-grade uranium and ten tons of plutonium, which would be enough to produce 3,600 nuclear warheads.<sup>37</sup> However, it is most probable that half of this fissile material is being held in stocks and that half of the 1,500 to 1,800 warheads that have been produced are in storage. Thus, as indicated above, up to 800 to 900 warheads and bombs could be available for operational deployment on carriers of various types,<sup>38</sup> all of which could reach Russia, and approximately 90 of which could reach the United States.

In addition, China has been trying to improve the survivability and effectiveness of its land-based and space-based ballistic missile early warning system and command and control systems, and it has conducted research and development in the fields of missile defense and antisatellite weapons. There is also a great degree of uncertainty about the tunnel structures being built in China as their purpose has not yet been officially explained.<sup>39</sup>

This factor becomes especially important in view of the overall modernization of the PLA's conventional forces and China's superiority in these forces over its regional neighbors. India is greatly concerned about this situation. It may cast doubt on U.S. security commitments to Japan, South Korea, and Taiwan and encourage those states to adopt a policy of appeasement with regard to Beijing, or push them to seek military (including nuclear) independence (information about the growth of such sentiments in Japan has recently caused a sensation).<sup>40</sup>

China's military buildup has also been a source of concern for the countries of Southeast Asia with which China faces disputes over the South China Sea oil shelf.

Despite Russia's ongoing plans of “strategic partnership” with China, the tendencies described above can have disturbing implications for Russia's national security. The increasing Chinese capability of launching a nuclear strike on European Russian territory would diminish Russia's advantage in intermediate-range and tactical nuclear weapons, which continue to compensate for China's superiority in conventional forces close to the area of Russian Siberia and the Far East.

China's unambiguous pledge of no first use of nuclear weapons is also rather questionable. It is commonly believed that a nuclear power that makes a pledge not to use nuclear weapons first instead relies on the second-strike capability.



However, according to information available to other countries, China's deployed nuclear forces are generally estimated to be too vulnerable and not efficient enough to ensure a retaliatory capability after a hypothetical disarming attack by the United States or Russia. Moreover, Chinese strategic nuclear forces would be incapable of launching on a warning received from an early warning system due to the high vulnerability and inadequate effectiveness of the Chinese early warning system as well as its command and control system.

The main paradox of China's nuclear doctrine is that if its nuclear forces are indeed as limited as most foreign experts seem to think, they would be unable to deliver a retaliatory strike and would operationally most likely be oriented toward landing a preemptive attack.

The Chinese second-strike capability would be viable only if a large number of nuclear weapons are stored in the underground tunnels, which would be highly survivable and unknown to a potential adversary. This stockpile would not be available for immediate use but might be partially revealed to the world in a crisis in order to reinforce its deterrent effect and disrupt an opponent's plans.

In such a case, China could be considered the largest nuclear power after the United States and Russia. Moreover, China's nuclear capability is apparently stronger than those of the next six nuclear states combined. It can be speculated that the real motives behind China's complete secrecy about its nuclear forces lie not in their "weakness" and "small size" but in the much larger strength of China's actual nuclear arsenal than can be construed from observing the weapons deployed on its surface. In addition, China's economic and technical potential would allow it to build up its nuclear arms rapidly.

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## China and Missile Defense Systems

The fact that China could build up its nuclear forces establishes a significant, though unspoken, incentive for the United States and its allies to develop a missile defense system in the Far East. Although the immediate justification of this system is to intercept North Korean missiles, Washington quite probably seeks to deploy a BMD system in the region to obstruct and delay China's acquisition of a nuclear deterrent potential (not to mention strategic parity with Washington) based on the guaranteed capability for a retaliatory strike against the United States. For obvious reasons, China has been even more concerned about these developments than Russia has been concerned about NATO's BMD system. China's response will center on developing BMD penetration aids, an antisatellite system, and its own BMD.



Negotiations between Russia and the United States/NATO on the cooperative development of the European missile defense elicited some consternation in Beijing, which perceived them as representing military rapprochement between the two powers against China. Russia's proposal to develop a common "sectoral" BMD system under which each side would intercept missiles flying over its own territory in the direction of the other left quite a few fundamental questions unanswered. For example, should Russia intercept Chinese missiles flying over Russian territory toward the United States or Western Europe?

By definition, strategic missile defense is global in nature, and its elements (especially information systems) must all be integrated into a single complex. As Mikhail Khodarenok, one of the developers of the Soviet BMD system, put it:

Even more confusing from an engineering and technical point of view was the "sectoral" principle of BMD development that Moscow proposed. Such a system, even if applied only to BMD on the European continent, would still require at least a common command center, computer complex, and data communication lines, and the entire system would have to be controlled using unified combat algorithms.

This would mean that all detection and tracking facilities, computer and command nodes, and interceptor launch sites would need to be linked by high-speed, automated, and reliable lines of communication. With a margin of only a few minutes to intercept BMs [ballistic missiles] between the moment they are detected and identified as targets and the detonation of the interceptor's warhead, such a "super-system" requires extremely comprehensive and exceptionally complex software to control.<sup>41</sup>

In any case, although the United States had allowed for the possibility of BMD cooperation with Russia, U.S. politicians and experts have never mentioned the possibility of carrying out such collaborative efforts with China. Beijing may perceive the construction of a joint or collaborative U.S.-Russia

BMD system as an "anti-Chinese conspiracy," which could result in serious complications for military and political relations between Russia and China, lead to an accelerated buildup of China's nuclear forces, and directly damage Russian national security.

That is why China has always seemed to be invisibly present at BMD talks between Russia and the United States, although the problem has never been openly discussed either in Brussels or at the bilateral summits.

The failure of the negotiations temporarily eased Chinese concerns on this matter, but the possibility that the talks will resume continues to be an important factor in Chinese strategic planning, especially in light of the

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fact that both Russia and the United States have made the development of advanced defense systems a strategic priority in their military policies and continue to pursue these programs on a rather wide scale.

## The United States

In addition to space-based global information systems, as of the beginning of 2012 the U.S. missile defense system included:

- Four early warning radars: the L-band radar in Shemya (Alaska) and UHF-band radars in Beale (California), Fylingdales (UK), and Thule (Greenland);
- Five transportable forward-based X-band AN/TPY-2 radars, three of which are on combat alert: Shariki (Honshū Island, Japan), Nevatim Desert (Israel), and Malatya Province (Turkey) (of the other two, the radar at Wake Island is used for BMD tests, while another radar is operated by the U.S. Central Command);
- The mobile sea-based X-band SBX radar mounted on a drilling rig in the Pacific Ocean near Adak Island (Alaska);
- Thirty ground-based interceptor missiles (GBIs), 26 of which are in Alaska at Fort Greely (deployed at six experimental sites and twenty combat sites), and four of which at Vandenberg Air Force Base in California, with combat control centers at Fort Greely and Colorado Springs;
- Twenty-four ships (five cruisers and eighteen destroyers) of the Aegis BMD version 3 system, carrying a total of 158 interceptor missiles, of which 72 are the SM-2 Block IV and 86 are the SM-3 (three of these are the new SM-3 IB variant). Sixteen ships belong to the Pacific Fleet (five at Yokosuka, six at Pearl Harbor, and five at San Diego) and eight to the Atlantic Fleet (seven at Norfolk and one at Mayport);
- Two THAAD units equipped with two AN/TPY-2 radars, six launchers for eight missiles each currently equipped with eighteen interceptor missiles;
- Patriot missile systems: 56 launchers for sixteen missiles each, and 903 PAC-3 missiles.

These data show that two of four large-scale early warning radars and two of the five transportable radars are directed at the Asia-Pacific region; all 30 GBI strategic interceptors can reach missiles launched from the Asia-Pacific region; sixteen of 23 Aegis-equipped ships are deployed there.

In addition, BMD radars and interceptors are deployed within the borders and on the fleets of local partners and allies of the United States. Joint research and development is conducted with Japan, South Korea, Taiwan, Australia, and the Philippines (in the latter two cases it is planned).<sup>42</sup> Specifically, there is a sea-based BMD layer in Yokosuka, Japan, consisting of Aegis-equipped ships with SM-3 1A (two cruisers) and SM-2 (seven destroyers), as well as a

transportable AN/TPY-2 radar and a command, control, battle management, and communications unit (C2BMC). In addition to American warships, an Aegis combat system with SM-3 1A and SM-2 missiles is installed on four Japanese *Kongo*-class destroyers and two *Atago*-class destroyers. The second Japanese BMD layer consists of Patriot theater BMD systems of the Japanese Self-Defense Forces, equipped with PAC-3 missiles. In addition, Japan plans to purchase THAAD systems.

In September 2009, President Obama canceled the deployment plan of the third BMD site in Europe in favor of the “European Phased Adaptive Approach,” which focused more on medium- and intermediate-range ballistic missile threats as opposed to threats from ICBMs (Iran had recently tested a 2,000–2,500 km range solid-fueled missile). The phased European approach envisions a four-phase deployment starting with sea-based SM-3 Block IA interceptors on ships at sea in Phase I by 2011, SM-3 Block IB interceptors at sea and on land in Deveselu, Romania, in Phase II by 2015, SM-3 Block IIA interceptors on land in Poland and on ships by 2018 in Phase III, and finally SM-3 Block IIB sea- and land-based interceptors in Europe by 2020.<sup>43</sup>

The strike components of the U.S. missile defense system by 2020 will include 50 GBI silo launchers in two basing areas where up to 40 GBI missiles will be deployed, 44 Aegis-equipped ships and two land bases, at least nine THAAD squadrons (27 launchers) and fifteen Patriot squadrons (60 launchers). As a minimum 474 missiles will be able to intercept targets at midcourse phase: up to 40 GBI, 21 SM-3 IA, 373 SM-3 IB, 25 SM-3 IIA, and 25 SM-3 IIB. At the terminal phase about 1,770 missiles will be available: 70 SM-2 Block IV, 503 THAAD, and 1198 PAC-3.

Despite such impressive plans, by 2020 only as many as 40 GBI missiles on U.S. territory and 50 SM-3 IIA and SM-3 IIB interceptors in Europe will have strategic capabilities, in other words, would be theoretically capable of intercepting Russian ICBMs at the boost and midcourse phases of their trajectory.<sup>44</sup> However, this assumption ignores the effect of the penetration aids with which Russian missiles would be able to minimize interception attrition over the midcourse phase to no more than a few.

## Russia

In addition to the space-based missile early warning system and command-control layer, Russia’s Air-Space Defense system includes the A-135 BMD system around Moscow with three radars, as well as the short-range 53T6 (Gazelle) and long-range 51T6 (Gorgon) silo-based missile interceptors.<sup>45</sup> According to retired Colonel General Viktor Esin, once the United States withdrew from the Anti-Ballistic Missile Treaty in 2002, the Russian military and political leadership decided to initiate a thorough modernization of all structural elements of the A-135 BMD system, which will remain an area missile defense system, albeit with greatly enhanced combat capabilities.<sup>46</sup>

In the three Air-Space Defense brigades (transferred from the Air Defense Forces) that defend Russia's central industrial region are twelve regiments (32 squadrons), armed mostly with the S-300 SAM missile system in three modifications.<sup>47</sup> The two Air Defense regiments (with two squadrons each) that defend the Moscow region are armed with the S-400 new-generation mobile SAM missiles.<sup>48</sup>

The obsolete S-300PS system, which had been introduced in 1982 and has not been supplied to the Russian Armed Forces since 1994, needs to be replaced, while the S-300PM, introduced in 1993, awaits modernization under the *Favorit* program up to the level of the S-300PMU.<sup>49</sup>

As Viktor Esin has noted, the part of Russia's State Armaments Program for 2011–2020 that deals with the provision of S-400 SAM complexes to the troops and the development and introduction of future surface-to-air systems provides for supplying nine S-400 SAM regiments to the armed forces by 2015 and for bringing the 40H6 SAM regiments to the armed forces by 2015 and for bringing the 40H6 SAM long-range guided missile up to required standards.<sup>50</sup> The design and development of the *Vityaz* SAM system that began in 2007 is scheduled for completion in 2013.<sup>51</sup> State tests will be conducted so that the new system will enter operational service by no later than 2014. The development of a new-generation S-500 SAM system (started in 2011) should be completed in 2015.<sup>52</sup>

It is not yet clear what portion of the Air-Space Defense system will cover Russia's Asian territory, but given China's ICBM development, the defense of European Russia could also have an impact on the effectiveness of the Chinese nuclear deterrent potential.

Overall, it should be noted that such authoritative Russian experts as Yuri Solomonov and Sergei Rogov of the Russian Academy of Sciences, Viktor Esin, retired Major General Pavel Zolotarev, and Rear Admiral Valentin Kuznetsov, as well as others, have clearly stated that neither the current American missile defense system nor that projected over the next ten to fifteen years will be capable of having any significant impact on the Russian nuclear deterrent potential.<sup>53</sup> This conclusion holds for the Russian strategic nuclear forces both under the limits set by the New START Treaty (700 delivery vehicles and 1,550 warheads) and under a hypothetical subsequent treaty that would reduce the ceiling to (for example) 1,000 warheads on deployed delivery vehicles.<sup>54</sup>

Any attempt to create a BMD system that could defend against attack by Russian strategic forces would consume such colossal resources and bring such questionable results that it would likely damage the national security of United States itself. Naturally, this will remain true as long as Russia continues to maintain a sufficient arsenal of survivable strategic nuclear forces and to carry out effective modernization of its strategic nuclear forces within the limits set by arms reduction treaties.

The same is true in evaluating the capabilities of the Russian Air-Space Defense system and its capability to defend against a first or retaliatory attack initiated by American nuclear forces. In other words, the Russian system will also not undermine the U.S. nuclear deterrent, despite the fact that its official purpose is to defend against “means of air-space attack,” which only the United States and its allies currently possess. However, in contrast to Russia, which has been very concerned about the American BMD system and program, the United States does not appear apprehensive about such a prospect.

## China

The situation with regard to China is not as clear. The degree to which the U.S. ballistic missile defense and Russia’s Air-Space Defense system will put China’s nuclear deterrent capability into question will largely depend both on the effectiveness of these systems and the survivability of China’s nuclear forces. As noted above, the current survivability and combat readiness of the approximately 50 Chinese ICBMs and 100 medium- and intermediate-range ballistic missiles leave little hope that there would be enough missiles to penetrate the U.S. BMD system in the aftermath of a hypothetical massive nuclear strike under any conflict scenario (if the Chinese tunnel storages have no missiles in reserve).

Apparently aware of this situation, China has been heavily investing in creating a sea-based component for its nuclear triad. However, access to the open ocean from China’s naval bases is restricted by the Japanese, Ryukyu, Taiwanese, Philippine, Malaysian, and Indonesian island chains, which the United States and Japan, with their powerful antisubmarine capabilities, as well as the South Korean and Taiwanese navies, can use to their advantage.

Still, China probably expects to ensure the combat survivability of its nuclear-powered ballistic missile submarines at sea by using other naval assets and coastal systems designed for countering the U.S. Navy. According to available sources,<sup>55</sup> during the first stage of its naval buildup (up until 2015) China plans to create naval capacity (including coastal missiles) to effectively counter the fleets of the United States, Japan, and other nations in the Chinese “near zone”—the Yellow Sea, East China Sea, and South China Sea (there is a nuclear submarine naval base on Hainan Island). During the second stage (2015–2020) China would establish complete military superiority in those waters, while enabling its Navy to effectively counter the U.S. Navy in the “middle zone,” that is, the Sea of Okhotsk, the Sea of Japan, and the seas of the Indonesian Archipelago, as well as within the ocean space up to the Marianas, the Caroline Islands, and New Guinea. During the subsequent phase (after 2020) China would expect to acquire military dominance in the “middle zone,” while in the “far zone” (to the Hawaiian Islands) it would counter the U.S. Navy.

China's ambitious naval modernization plans also include the acquisition of naval bases and deployment of naval forces in the Indian Ocean in order to control the supply lines of energy resources from the Persian Gulf and Africa.

The American-Japanese antisubmarine warfare systems are not the only threat to China's strategic navy. China is also very concerned about the fact that U.S. BMD systems in Alaska and California (where GBIs are based) and Aegis-equipped U.S. warships, as well as Japanese military bases and ships (Aegis/SM-3), are able to counter Chinese SLBMs. A study conducted by Chinese experts, unique in its detail and technical calculations, shows that such a multilayered BMD would be quite effective against Chinese SLBMs launched from shallow coastal waters, where the submarines would be under the protection of the Chinese fleet and where they would be more difficult for the antisubmarine warfare systems of the United States and Japan to detect.<sup>56</sup>

Although the Chinese nuclear-powered ballistic missile submarines would be easier for an antisubmarine warfare force to counter if they should enter the open ocean, the BMD system described above would be incapable of intercepting SLBMs launched against U.S. territory from southern azimuths. For the system to gain such a capability, it would have to be significantly strengthened with new space- and sea-based detection and tracking systems, as well as upgraded land- and sea-based interceptors. However, if the United States should set its goal as continuing to impede the growth of the Chinese missile potential, the United States will be capable of creating such a BMD system.

## Conventionally Armed Strategic Missiles

The United States has striven to reduce its reliance on nuclear weapons to meet its commitments to its allies by developing not only defensive weapons, but also offensive conventional weapons.

This is a source of major concern in China, especially with regard to the development by the United States of long-range, conventionally armed precision-guided weapons: sea- and air-based cruise missiles combined with space-based reconnaissance, targeting, and communication systems.

The prospects that hypersonic precision conventional boost-glide systems could be created within the framework of the U.S. Prompt Global Strike concept cause no less concern for China. The Chinese are also worried about the U.S. experiments with the X-37B spacecraft that took place in April 2010<sup>57</sup> and the tests of various boost-glide systems.

Eugene Miasnikov has provided a detailed description of current and prospective precision-guided conventional weapons.<sup>58</sup> Under the 2010 U.S. Nuclear Posture Review, all nuclear sea-launched cruise missiles are to be decommissioned. At the same time, long-range Tomahawk SLCMs will come to play an increasingly important role. They can be launched from the torpedo launchers and vertical launch systems on nearly all U.S. attack submarines.



The greatest striking power is held by the four Ohio-class ballistic missile submarines that have been converted to launch SLCMs.<sup>59</sup> Each of the subs, two of which have been deployed to the Pacific, can carry up to 154 Tomahawk SLCMs. The U.S. Navy has 53 strategic submarines in service, of which 30 are deployed in the Pacific Ocean.<sup>60</sup>

The DDG-51 (Arleigh Burke-class) destroyers and CG-47 (Ticonderoga-class) cruisers are equipped with vertical launchers and can launch BMD, anti-aircraft, and antisubmarine warfare missiles. At the end of 2010, the U.S. Navy had 59 destroyers and 22 cruisers in service, of which 34 destroyers and twelve cruisers are deployed in the Pacific.<sup>61</sup> CG-47 cruisers can carry a maximum of 122 SLCMs. DDG-51 and DDG-1000 destroyers can have up to 90 and 80 SLCMs, respectively, though the operational load of these missiles is usually a third to a half of their maximum size.<sup>62</sup>

By 2020, the number of deployed SLCMs could reach as high as 1,600 aboard U.S. Navy submarines and 4,700 aboard surface ships.<sup>63</sup> At least 60 to 70 percent of these will be deployed in the Pacific Ocean.

Conventional high-precision strikes against the territory of an adversary can also be carried out by U.S. Navy carrier-based aircraft. Eleven U.S. aircraft carriers are currently in service, which is expected to continue to 2020. The air wing of an aircraft carrier usually consists of 36 attack aircraft.<sup>64</sup>

The air-launched cruise missiles are deployed on heavy bombers. Conventionally armed bombers do not count in the New START Treaty's allowed numbers of delivery vehicles and warheads, and the transparency and verification measures that apply to such weapons are very limited.<sup>65</sup>

According to Eugene Miasnikov, the main disadvantage of the cruise missiles currently in service with the U.S. Air Force is their relatively low speed. In an effort to address this, the U.S. Navy has been developing hypersonic missiles under the RATTLRS program (Revolutionary Approach to Time-Critical Long Range Strike). These missiles, which travel at Mach 4.5, would be used to attack coastal targets at ranges of up to 1,000 km. The ArcLight project being carried out by the Defense Advanced Research Projects Agency has the goal of creating a long-range, sea-based strike system based on the Standard SM-3 interceptor missile that could be equipped with a hypersonic glider with a warhead having an operational range exceeding 3,300 km. The missiles would be loaded into vertical launch systems aboard surface ships and submarines. The U.S. Air Force has joined with Boeing to develop the X-51A WaveRider hypersonic vehicle with a scramjet engine. This vehicle is expected to serve as the prototype for an air-launched missile that would have an operational range of up to 1,200 km and a speed of at least Mach 6.<sup>66</sup>

Systems capable of delivering a payload essentially anywhere in the world within one hour are being developed within the framework of the Prompt Global Strike program. For now, only ICBMs and SLBMs with nuclear warheads would be capable of meeting this requirement, and new systems of this

kind will not enter operational service before 2020.<sup>67</sup> The development of the Prompt Global Strike program has been conducted in three main areas, aimed at testing the Hypersonic Technology Vehicle (HTV-2), the Advanced Hypersonic Weapon, and the Conventional Strategic Missile.<sup>68</sup> These systems use ballistic launchers and highly maneuverable guided hypersonic gliding vehicles. The first two flight tests of the HTV-2 were carried out in April 2010 and August 2011. Both tests were conducted under similar scenarios. The launches took place at the Vandenberg Air Force Base space complex using the Minotaur IV Lite launch system (the four-stage “light” version, three stages of which came from the MX ICBM). Despite the failure of these tests, development of these systems continues.

It is interesting to note that just as Russia does, China projects the threat of the use of such weapons on itself alone. The conflict scenario that is widely and seriously considered in China is that any attempt by China to solve the Taiwan problem by force would lead to armed conflict with the United States.<sup>69</sup> Still, the matter does not stop there. Despite the vast financial and economic interdependence between the two powers, sharp disputes can be expected between them as they vie for dominance in the Western Pacific. A growing China will consider this region its natural area of vital strategic, military, and political interest, while the United States will not give up its current dominance in a region where it has made large-scale economic and political investments and has commitments to allies and partners.

At the strategic level, Beijing’s great apprehension concerns the possibility of counterforce conventional strikes against its nuclear forces. It should be noted that Russia is also concerned about such a possibility as applied to itself, having 170 road-mobile ICBMs and 150 silo-based missiles on high alert in addition to other components of its nuclear triad and powerful tactical nuclear assets.<sup>70</sup> Aside from that, Russian military doctrine has made it clear that any massive attack on Russian nuclear forces using precision-guided weapons would invite a nuclear strike in retaliation.

Thus, it is understandable why Beijing would be so concerned, considering the fact that China has no more than 50 ICBMs that would be able to reach U.S. territory. The likelihood of a U.S. counterforce attack using precision-guided conventional weapons undercuts China’s sacramental nuclear doctrine based on an unconditional commitment not to use nuclear weapons first. This obligation implies that China would not retaliate with nuclear arms if attacked by conventional precision-guided weapons. In any case, Beijing fears that the United States would expect China to hesitate in such circumstances, unless it adjusts its doctrine.

Meanwhile, China attaches great political importance to its commitment on no first use of nuclear weapons. If Beijing makes an exception for the case of an attack against it with conventional weapons, then the Chinese nuclear



doctrine would not in essence be different from that of Russia or a number of other states, and it would lose its unique nature.

The military and political situation in the Western Pacific is further complicated by the intertwining of offensive and defensive conventional systems and potential scenarios of military combat. China probably believes that the U.S. precision-guided conventional weapons would be able to complete massive and multiple disarming strikes against its own conventional precision-guided missiles (and their command systems) designed to make strikes against the U.S. Navy, in particular against aircraft carriers and SLCM- and BMD-equipped warships. The advanced hypersonic boost-glide vehicles of the Prompt Global Strike program that are being developed by the United States could presumably penetrate the dense, multilayered air-defense system that shields China's own coastal missile launchers.

China puts great emphasis on such conventional systems in its military policy, first and foremost on medium-range ballistic missiles with precision-guided conventional warheads targeted at U.S. Navy ships (in particular, around Taiwan) and American bases on the territory of U.S. allies. These mainly include the *DongFeng-21* (CSS-5) medium-range ballistic missiles with self-guided warheads and the *DongFeng-15* (CSS-6) and *DongFeng-11* (CSS-7) short-range ballistic missiles, as well as conventional *DongFeng-10* (CSS-X-10) ground-launched cruise missiles.<sup>71</sup> According to various estimates, 300 to 500 Chinese tactical ballistic missiles are deployed at coastal areas and can make strikes on Taiwan.

China has made significant achievements in developing these weapons: Chinese *DongFeng-15* (CSS-6) missiles can reach American aircraft carriers at distances of 1,000 km from the coast, and the *DongFeng-21D* (CSS-5) medium-range ballistic missiles can hit targets as far as 2,200 km from the coast. The new conventional *DongFeng-25* medium-range missile, for instance, was designed to force the U.S. fleet to remain at a distance of 3,200 km from the coast, which is far beyond the operational range of carrier-based aircraft or even of the Tomahawk SLCMs based on cruisers and destroyers. These Chinese missiles are armed with hypersonic gliding guided warheads. To provide these missiles with targeting and guidance information, China has implemented large-scale programs aimed at developing orbital, stratospheric, and air-based reconnaissance and targeting systems.<sup>72</sup>

In this regard, the Chinese professional military literature emphasizes that in a crisis situation these offensive weapons should be used for a first strike once an adversary's warships have entered the range of the Chinese missiles.<sup>73</sup> If this tactic is applied in practice, any future crisis over Taiwan could spiral out of political control and develop into an armed conflict with subsequent unmanageable escalation.

For their part, the United States and its allies have been deploying their sea- and land-based BMD systems, which among other things are assigned

the mission of countering any Chinese attacks made by high-precision conventionally armed weapons against allied warships or land-based sites in Japan, the Philippines, South Korea, or Taiwan. This interweaving of military technical and strategic factors and contradictions significantly complicates any possible efforts to limit arms and agree on confidence-building measures in the region, and in some aspects globally.

## China and Nuclear Arms Limitations

Contrary to widespread opinion, relations between China and Russia on many arms control issues are no closer than are relations between the United States and Russia or the United States and China.

For the foreseeable future, U.S.-Russian relations will continue to share a common position that runs counter to Chinese policy in the following matters: the two powers refuse to accept the Chinese demand that they unconditionally commit to no first use of nuclear weapons; they refuse to declare that nuclear weapons will never be used or threatened to be used against a non-nuclear-weapon state; they intend (or at least proclaim they do) to develop missile defense systems jointly (China was not invited to join this process); they strive to make China's nuclear forces and development programs more transparent and open; they call for China's urgent involvement in the disarmament process; they refuse to sign any treaty (or convention) on universal nuclear disarmament within specified time limits or any declaration making nuclear weapons "illegal"; and they refuse to withdraw nuclear security guarantees to their allies.

For their part, the United States and China have joined position against Russia in trying to ensure that the next strategic arms reduction treaty will impose significant cuts in nuclear weapons; trying to limit U.S. and Russian nonstrategic (tactical) nuclear weapons (China has not yet been mentioned in this respect); and hoping to limit U.S. and Russian nuclear weapons in storage.

Finally, Russia and China, unlike the United States, agree on the need to impose limits on global and regional BMD systems; to limit conventionally armed precision-guided weapons; and to set limits on space-based and strategic boost-glide suborbital strike weapons. They have also labeled unacceptable the NATO proposal to have Russia redeploy its nonstrategic nuclear arms from west to east.

Apart from the United States and Russia, China is the only country that has the economic and technical capability to conduct a multifold buildup of its SNFs over the course of the next ten to fifteen years. Even the simple expedient of replacing single-warhead missiles with MIRVed missiles would increase the total number of warheads by five to six times (compared to the current level of 200 warheads). This is what happened with the U.S. SNFs during the

first half of the 1970s and the Soviet Union's strategic forces during the second half of the same decade.

Therefore, the need has already emerged for the Chinese nuclear forces and development programs to be taken into consideration in discussing any subsequent Russian-American strategic arms limitation agreement following the New START Treaty.

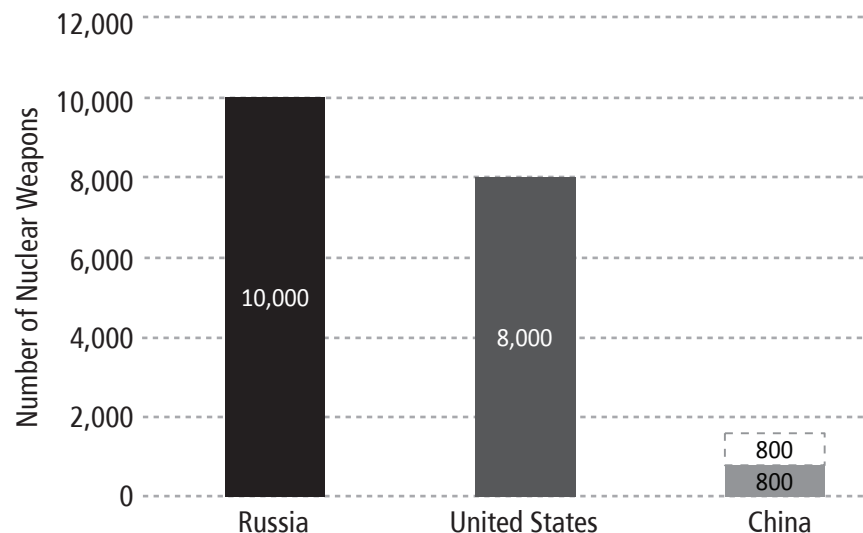
In this regard France and Great Britain are different, in that they are U.S. allies, their nuclear forces are being reduced, they are relatively open and predictable, and they lack and are not expected to have in the future the capability of rapidly increasing their nuclear arsenals.

This is why transparency is so important, as it would clarify the actual size and characteristics of China's nuclear forces and their potential for buildup.

China's official position is that "countries possessing the largest nuclear arsenals . . . should further drastically reduce their nuclear arsenals in a verifiable, irreversible and legally binding manner, so as to create the necessary conditions for the complete elimination of nuclear weapons. When conditions are appropriate, other nuclear-weapon states should also join in multilateral negotiations on nuclear disarmament."<sup>74</sup>

At first glance, the total sizes of the U.S. and Russian nuclear arsenals appear vastly greater than China's, considering all of the different classes of combat-ready and stored missiles, even with adjustment made for possible additional missiles that China may have stored in its tunnel systems (figure 2). According to independent estimates, the two great powers enjoy at least a six- to seven-fold superiority over China.

Figure 2. **Estimated Aggregate Nuclear Weapons**

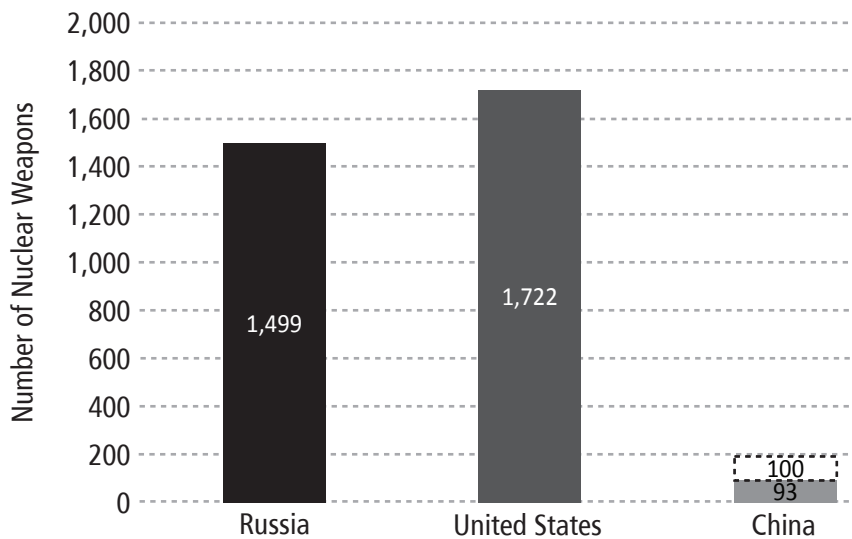


Note: Dotted lines represent possible number of weapons in tunnels

Sources: Viktor Esin, "China's Nuclear Capability," *Prospects of China's Participation in Nuclear Arms Limitations*, edited by Alexei Arbatov, Vladimir Dvorkin, and Sergey Oznobishchev (Moscow: IMEMO RAN, 2012), 26; "World Nuclear Forces," *SIPRI Yearbook 2012: Armaments, Disarmament and International Security*, edited by Bates Gill (Oxford: Oxford University Press, 2012), 308.

If only systems covered by the New START Treaty are considered, the superiority of the United States and Russia appears even more significant (see figure 3).

**Figure 3. Number of Nuclear Weapons Under the New START Treaty's Counting Rules**

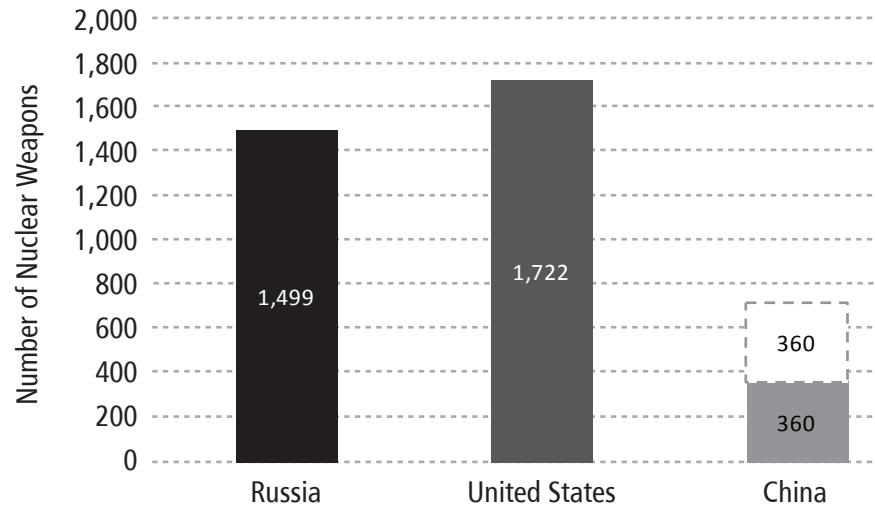


Note: Dotted lines represent possible number of weapons in tunnels

Sources: Bureau of Arms Control, Verification, and Compliance, New START Treaty Aggregate Numbers of Strategic Offensive Arms, November 30, 2012, [www.state.gov/documents/organization/201428.pdf](http://www.state.gov/documents/organization/201428.pdf); "World Nuclear Forces," *SIPRI Yearbook 2012: Armaments, Disarmament and International Security*, 328.

This ratio slightly changes in China's favor by adding intermediate-, medium-, and short-range missiles (ranges of 500–5,500 km), which were dismantled by the United States and the Soviet Union under the INF Treaty. Since China was not a party to this agreement, but the Chinese weapons of these categories can reach Russian territory and that of some American allies (such as Japan, South Korea, and Taiwan) as well as India, there is a certain logic to including intermediate- and shorter-range missiles of the three countries in the comparison, in addition to all strategic weapons (figure 4).

Figure 4. **Number of Nuclear Weapons Under the New START and 1987 INF Treaties' Counting Rules**



Note: Dotted lines represent possible number of weapons in tunnels

Sources: Viktor Esin, "China's Nuclear Capability," 26; "World Nuclear Forces," *SIPRI Yearbook 2012: Armaments, Disarmament and International Security*, 308.

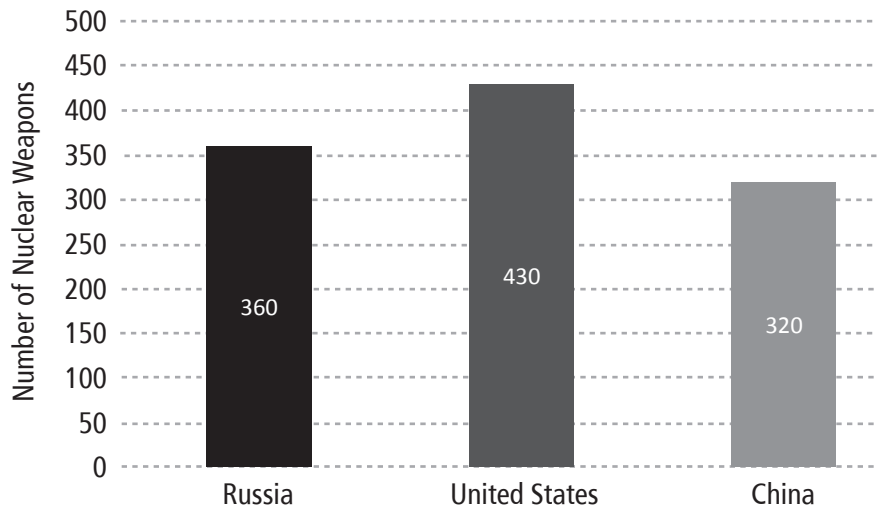
Since there is a discussion about possible further reduction of U.S. and Russia's strategic nuclear forces and about the need to take into account China's nuclear weapons, a time frame of ten to fifteen years should be taken into consideration. Over this period, China will be able not only to increase the number of its nuclear launchers but also to replace its single-warhead missiles with MIRVed missiles currently under development—*DongFeng-41* and *DongFeng-25*. Thus it makes sense to compare the three countries' three classes of land-based missiles by the number of launchers and delivery vehicles, which serve as the basis for a possible warhead buildup.

Moreover, these launchers and delivery systems are much easier to verify than warheads. That is why the first agreement between the United States and the Soviet Union—the 1972 Strategic Arms Limitation Treaty (SALT) I Interim Agreement—limited the number of missiles by restricting the number of launchers (instead of warheads). Later launchers were included in the limits set by SALT II, START I, and the Prague New START Treaty.

Thus, when comparing the three powers' nuclear weapons using the described criteria and taking into account the above considerations, the asymmetry between them turns out to be rather insignificant (see figure 5). No doubt Russia and the United States would remain hugely superior in sea- and air-based strategic weapons, which would stay out of the initial scope of arms control. However, China's right to expand these legs of its strategic triad would not be limited either. It is worthwhile to remember that the 1972 SALT I did

not put limits on aircraft because of great disparity between the two parties. It was reasonable to start with limitations on systems in which the sides had approximate equality and postpone other systems for future agreements.

**Figure 5. Number of Land-Based Missiles Under the New START and 1987 INF Treaties' Counting Rules**



Sources: Bureau of Arms Control, Verification, and Compliance, New START Treaty Aggregate Numbers of Strategic Offensive Arms; Viktor Esin "China's Nuclear Capability," 27–30; "World Nuclear Forces," *SIPRI Yearbook 2012: Armaments, Disarmament and International Security*, 328.

As the forty-year experience of U.S.-Russian negotiations has demonstrated, approximate parity in forces is an essential precondition for concluding strategic arms limitation agreements. The military balance discussed above for the categories examined, in the presence of other favorable conditions, could become a basis for agreement between the great powers.

As for the information disclosure issue, Beijing has officially demanded that the United States (and, by default, Russia) commit itself to no first use of nuclear weapons before China will agree to increase transparency with regard to its nuclear forces.

Although at first glance this demand might appear convincing, in reality it is groundless. Official information from Beijing on the numbers of its nuclear weapons would be of no assistance in targeting a disarming strike by the United States or another state, which would have to rely on its own intelligence information to plan such attacks, especially since Beijing's official information would not have to include any precise positioning data for all of its strategic assets.

However, if China were to increase the transparency of its nuclear forces and programs, it would greatly help Moscow and Washington to plan future START treaties.

In reality, China appears to see transparency as its most important bargaining chip. In addition, substantial transparency would lead to indirect limitation of China's nuclear forces due to Beijing's long-reiterated declarations about the "minimal sufficiency" of its forces, its lack of desire to achieve parity with the United States or Russia, and its reluctance to join the arms race. The situation with the notorious tunnel system will then be especially sensitive.

Therefore, it is unlikely that China could be persuaded to open up information about its nuclear forces as a gesture of goodwill, a first step, or a minimum contribution to the transition to multilateral disarmament. In the best case, Beijing can be expected to be a tough bargainer over this issue and try to trade off each specific element of transparency for the most it can get from the other parties.

## Preconditions for Chinese Participation in the Arms Reduction Process

Nevertheless, it would appear possible to gradually engage China in the nuclear arms limitation process, although this will not happen by merely announcing rhetorically that the number of participants in the process should be increased. It will not be possible to "teach" China the Russian-American lessons; Beijing will form its own position. China's involvement would be realistic on only a strictly pragmatic basis, that is, once it has concluded that its concessions with regard to transparency and specific weapons systems will be paid off by the concessions made by the United States (and, indirectly, Russia) in matters of concern to Beijing.

Beijing considers the New START Treaty to be an intermediate document that had been negotiated hastily in order to replace START I, which expired in 2009. It believes that the treaty, in a sense, is a pale imitation of real strategic arms reduction (minimal actual reductions, peculiar counting rules, reduction of warheads by stockpiling, and the like). To seriously approach at least a theoretical discussion of any limitations of its nuclear weapons, China is awaiting as a minimum a new U.S.-Russian treaty similar to START that would actually reduce the strategic forces of the two countries (for example, to 1,000 warheads).

It is clear that prospects for the next strategic offensive arms reduction treaty are in doubt due to disagreements over such issues as missile defense, nonstrategic nuclear weapons, and political matters.

In addition, China insists that the United States (and, by default, Russia) abandon the first-use concept and recognize the existence of mutual nuclear deterrence based on mutual vulnerability. For the United States, to take such

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**To seriously approach at least a theoretical discussion of any limitations of its nuclear weapons, China is awaiting as a minimum a new U.S.-Russian treaty similar to START that would actually reduce the strategic forces of the two countries.**

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steps would be fraught with complications, in that its relations with its allies depend upon security guarantees (including nuclear ones) from Washington, while Russia would perceive such a transformation as being a threat to its own security in the west and the east. This would be especially true in light of China's geostrategic advantages near Siberia and the Far East and also given China's growing superiority in conventional forces.

Therefore, to get China to participate in the nuclear disarmament process would not only be a matter of Beijing's changing its position, but also the problem of introducing fundamental and perhaps painful changes in the military policies of the United States and Russia.

If Washington and Moscow seriously wish to pursue transparency or limitation of the Chinese nuclear forces, rhetorical statements or appeals to Article VI of the NPT will remain as fruitless as before. The two leading powers must soberly assess what they would be prepared to sacrifice in terms of reducing and limiting their own weapons and modernization programs in exchange for corresponding concessions made by China. It appears that Beijing will not agree to anything short of this will continue to follow its "vicious circle" policy, demanding that the United States and Russia reduce their nuclear forces to levels closer to China's, while not revealing what these levels are.

It appears that the following conditions will need to be met before China "opens up" step-by-step and limits its strategic weapons (at least by committing itself not to increase them):

The United States must commit not to further build up its sea- and land-based BMD assets in the Pacific Ocean (this condition depends on its ally Japan as well). The current multilayered BMD system in the Pacific is adequate to counter North Korean missile launches, and any further development will be increasingly seen as having an anti-Chinese purpose.

- The United States and Russia must make a commitment that China would be able to take part in any BMD cooperation efforts that the two powers agree to conduct under the framework of specific projects (for example, on missile launch detection data exchange), in a manner it found acceptable.
- One such project might be the Asia-Pacific Joint Data Exchange Center, which would provide data on missile launches in a similar manner to the Russia-United States and Russia-NATO centers, which the countries had initiated and discussed in relation to Europe but which never became operational. Such a trilateral Russian-U.S.-Chinese facility in Asia could also be open to representatives of India, Japan, South Korea, and other states that comply with the Missile Technology Control Regime, which should officially admit both China and India.
- The United States and Russia must initiate negotiations on the next strategic offensive arms reduction treaty, which would include limitations on



conventionally armed strategic weapon systems. This would fulfill the necessary precondition for China to also limit its high-precision missiles armed with conventional warheads, which are indistinguishable from the nuclear. Thus it would be possible to regulate the unfolding regional arms race involving advanced high-precision missiles.

- Progress must be made in limiting U.S. and Russian nonstrategic nuclear weapons (excluding their redeployment from Europe to Asia in spite of the NATO position). This would establish the necessary conditions for limiting the Chinese intermediate- and shorter-range missile systems.

The first, second, and fourth points above would be indirect recognition by the two leading powers of mutual vulnerability and relations based on mutual nuclear deterrence with China. Both the U.S. commitments to its allies and the defense of Russia's eastern frontiers will need to be provided by conventional forces, as well as through political or economic means.

The most likely format for negotiations would be to conduct bilateral talks between the United States and China in parallel with START negotiations between the United States and Russia, with regular strategic consultations held between Russia and China.

Although three- or four-party negotiations would be very complicated, such a format would nevertheless be possible, for example, for cooperating in the BMD field (missile launch data exchange).

Over the longer term, trilateral agreements among the United States, Russia, and China could be possible for limiting strategic and nonstrategic weapons, for example, by imposing equal aggregate ceilings for land-based ICBMs plus medium-range and tactical missiles (with ranges over 500 km). As noted above, the aggregate levels of the three countries are approximately equal. Of course, weapons with corresponding characteristics that can presumably be stored in China's tunnel systems would also need to be included. In the spirit of the New START Treaty, additional ceilings could be set for these missiles, as for non-deployed launchers and missiles.

The fact that the United States and Russia have dismantled their intermediate- and shorter-range missiles should be considered, while China would be able to remove its intermediate-range ballistic missiles and shorter-range missiles and replace them with intercontinental ballistic missiles. Russia and (even more so) the United States would be unlikely to welcome such a prospect but would have to acknowledge that without an agreement, China would be able to do this in any case, or could even increase the number of its intercontinental missiles in addition to its intermediate-range and shorter-range missiles.

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## Conclusion

In political and military strategic terms, the Great Triangle of the Asia-Pacific region (Russia, the United States, and China) is playing an increasingly important role. For the foreseeable future, its significance in the world economy and international security of the Asia-Pacific will also continue to grow. The way events there unfold will have a tremendous impact on the level of conflicts around the world, the dynamics of military competition between states, and the prospects for arms limitation and nonproliferation.

At the same time, the strategic relationships within the troika are very heterogeneous and asymmetrical. They do not have common ground (that is, principles of stability or parity) in either political or strategic terms. Thus, the “triangle” is not only not equal-sided, but also not homogeneous.

The history of strategic relations between Russia and the United States is long and based upon approximate nuclear parity and mutual nuclear deterrence through mutually assured destruction as a result of a retaliatory strike. The two countries have forty years of experience in negotiations and agreements on arms limitation and reduction and on strengthening strategic stability.

These objectively determined relations will continue in the future, despite such “perturbing” factors as BMD systems, conventional long-range offensive weapons, and the impact of nonstrategic nuclear arms. These circumstantial factors have for now brought the negotiations to a standstill. Nevertheless, the state of the military balance over the next ten to fifteen years will remain essentially the same. Therefore, an enduring basis will remain for resuming the negotiation process and resolving the new problems that have emerged.

China’s approach to strategic stability differs from that of Russia or the United States. It is not based on approximate nuclear and missile parity and the concept of mutually assured destruction (by retaliatory strike). At the same time, China is the only one of the five great powers and permanent members of the UN Security Council and NPT-designated nuclear-weapon states that has not disclosed any official factual information on its nuclear forces or their development programs.

In the past, when China’s GDP, military budget, and nuclear forces had been rather modest, this situation was quietly accepted by the other powers, but over the last decade, China’s economic growth, its military budget (which has become second only to that of the United States), and its large-scale nuclear and conventional modernization programs argue against taking the word of the Chinese when they make assertions about their “strictly defensive nuclear doctrine,” no-first-use policy, and maintaining “minimally necessary” nuclear forces.

The main paradox of China’s nuclear doctrine is that if its nuclear forces are as limited as the majority of foreign experts think, then it will not be capable of making a retaliatory strike and operationally will most likely be

oriented toward a preemptive strike. The Chinese second-strike capability will be viable only if there is a large stockpile of nuclear weapons and missiles stored in the underground tunnels, which would need to be highly survivable and unknown to a potential adversary even if not available for immediate launch. If this is not the case, Chinese authorities should explain why the apparent vulnerability of their deployed forces to a disarming first strike neither deprives them of a second-strike capability nor implies that China has its own operational plans and capabilities to conduct a preemptive strike, in contrast to its declaratory doctrine of no first use.

This would mean that China's nuclear capability would apparently be greater than that of the next six nuclear-weapon states combined. At the same time, China's economic and technical might would allow it to build up its nuclear weapons rapidly.

The "Chinese factor" should be taken into account when developing any new U.S. or Russian nuclear arms limitation or reduction initiatives both under the framework of the negotiations process and in terms of unilateral goodwill measures. However, current U.S. and Russian policies quite naively call upon China to join the process of nuclear disarmament, "open up" its forces and programs, or, at least, commit itself to not increasing the size of its nuclear arsenal based simply on China's obligations under Article VI of the NPT or as a goodwill gesture and contribution to the noble cause of nuclear disarmament.

This situation is further complicated by regional problems, the growing disagreements between China, its neighbors, and the United States, and the deployment of advanced BMD systems in the Asia-Pacific region by the United States and its allies, as well as the new arms race in naval armaments and conventionally armed, precision-guided long-range strike systems.

This means that China will only join this process once it has concluded that its concessions with regard to transparency and specific weapons systems limitations will be paid off by the concessions made by the United States (and, by default, Russia) in matters of concern to Beijing. In particular, China will use the transparency issue as a critical bargaining chip in order to obtain significant U.S. concessions.

In a sense, the possibility of China joining the nuclear arms control process is not a matter of merely getting Beijing to change its traditional position. It also would require the United States and Russia to revise their military policies.

The following conditions must be met in order for China to gradually "open up" information on its nuclear potential and subsequently limit its strategic weapons (at least by committing itself not to increase the numbers of certain classes and types): a U.S. commitment to refrain from enhancing its sea- and land-based BMD assets in the Pacific Ocean (possibly including missile defense in Japan as well); a U.S. and Russian commitment to allow China to participate in any specific projects of cooperation on BMD development

(for example, missile detection data exchange) that the two powers may agree on, in a format that is acceptable to China; and initiation of U.S.-Russian negotiations on the next strategic offensive arms reduction treaty, which would include limits on conventional precision-guided long-range missiles.

Any negotiations most likely will be conducted in the form of a bilateral dialogue between the United States and China carried out in parallel with the START talks between the United States and Russia and accompanied by regular, strategic consultations between Russia and China.

Trilateral or four-party negotiations (by engaging India as well) would be very complicated. The only exception could be in the area of cooperation on BMD (missile detection data exchange). Trilateral agreements on the limitation of certain offensive weapons could also be possible over the longer term.



## Notes

- 1 “Prime Minister Vladimir Putin Meets With Experts in Sarov to Discuss Global Threats to National Security, Strengthening Russia’s Defenses and Enhancing the Combat Readiness of Its Armed Forces,” Official Website of the Government of Russia, February 24, 2012, <http://government.ru/eng/docs/18248>.
- 2 New START Treaty Aggregate Numbers of Strategic Offensive Arms: Fact Sheet, Bureau of Arms Control, Verification and Compliance, November 30, 2012, [www.state.gov/t/avcrs/201216.htm](http://www.state.gov/t/avcrs/201216.htm). Alexei Arbatov, “Bolshoy strategicheskiy treugolnik: pregrady na puti sokrashchenia yadernykh arsenalov” (The Great Strategic Triangle: Barriers to Reducing Nuclear Arsenals), *Nezavisimoe voennoe obozrenie* (Independent Military Review), November 2, 2012, [http://nvo.ng.ru/concepts/2012-11-02/1\\_triangle.html](http://nvo.ng.ru/concepts/2012-11-02/1_triangle.html).
- 3 *SIPRI Yearbook 2012: Armaments, Disarmament and International Security*, edited by Bates Gill (Oxford: Oxford University Press, 2012), 309–13.
- 4 *Ibid.*, 310–11.
- 5 R. Gates, “The Case for the New START Treaty: The Treaty has the Unanimous Support of America’s Military Leadership,” *Wall Street Journal*, May 13, 2010, [http://online.wsj.com/article/SB10001424052748703339304575240164048611360.html?mod=WSJ\\_Opinion\\_LEFTTopOpinion](http://online.wsj.com/article/SB10001424052748703339304575240164048611360.html?mod=WSJ_Opinion_LEFTTopOpinion).
- 6 In consideration of the new amendments to the Criminal Code of the Russian Federation adopted on November 14, 2012, that extended the definition of “high treason” to “the provision of financial, material, technical, consulting or other assistance to a foreign state ... in activities directed against the security of the Russian Federation...” all the factual information presented in this work is derived from Russia’s official sources, or from foreign official or unofficial sources that by definition cannot be classified as state secrets of Russia. Data from numerous Russian expert materials are not used in order to avoid accidental disclosure of classified information (authors’ note).
- 7 New START Treaty Aggregate Numbers of Strategic Offensive Arms: Fact Sheet.
- 8 *SIPRI Yearbook 2012*, 315–19.
- 9 *Vooruzhennyye sily Rossiyskoy Federatsii: modernizatsia i perspektivy razvitiia* (Armed Forces of the Russian Federation: Modernization and Prospects for Development), edited by Igor Korotchenko (Moscow: Natsionalnaya oborona, 2012), 236.
- 10 *SIPRI Yearbook 2012*, 316, 319–20.
- 11 Korotchenko, ed., *Armed Forces of the Russian Federation*, 240.
- 12 *SIPRI Yearbook 2012*, 318.
- 13 Because of recent changes in Russian criminal and procedural law it has now become necessary to rely exclusively upon Russian official data and foreign sources for information, thus making it impossible for the authors to present their own estimates. As a result, total numbers of weapons may differ.
- 14 Korotchenko, ed., *Armed Forces of the Russian Federation*, 316, 321.
- 15 *Ibid.*, 321.
- 16 Quoted from Viktor Litovkin, “Bezopasnost byvaet tolko ravnoy: Generalnyy shtab Rossii stavit usloviya SShA” (Security Can Only Be Equal: Russia’s General Staff Sets

- Conditions for the United States), *Nezavisimoe voennoe obozrenie* (Independent Military Review), December 19, 2008, [http://nvo.ng.ru/forces/2008-12-19/5\\_safety.html](http://nvo.ng.ru/forces/2008-12-19/5_safety.html).
- 17 Alexandr Khamchikhin, “Perspektivnaya MBR—zhidkostnaya ili tverdotoplivnaya: K 2018 godu Rossiya nachnet razvertyvanie novoy tyazhelyy zhidkostnoy MBR” (Prospective ICBM—Liquid- or Solid-Fueled: By 2018 Russia Will Begin to Deploy a New Liquid-Fueled Heavy ICBM), *Nezavisimoe voennoe obozrenie* (Independent Military Review), June 19, 2011, [http://nvo.ng.ru/realty/2011-06-17/1\\_mbr.html](http://nvo.ng.ru/realty/2011-06-17/1_mbr.html).
  - 18 Alexandr Sukhorukov, “Osnovnye kontrakty podpisany: Minoborony zavershaet dogovornuyu kompaniyu v ramkakh GOZ-2012” (The Main Contracts Have Been Signed: Defense Ministry Signs Last Contracts Within the Framework of the 2012 State Armaments Program), *Natsionalnaya oborona* (National Defense), no. 9 (September 2012): 32–25, [www.oborona.ru/includes/periodics/armedforces/2012/0910/12389122/detail.shtml](http://www.oborona.ru/includes/periodics/armedforces/2012/0910/12389122/detail.shtml).
  - 19 Korotchenko, ed., *Armed Forces of the Russian Federation*, 316, 321.
  - 20 Vladimir Pyriev and Vladimir Dvorkin, “The U.S./NATO Program and Strategic Stability,” in *Missile Defense: Confrontation and Cooperation*, edited by Alexei Arbatov and Vladimir Dvorkin; English version edited by Natalia Bubnova (Moscow: Carnegie Moscow Center, 2013), 201.
  - 21 Alexei Arbatov and Vladimir Dvorkin, “The New Treaty on Strategic Offensive Arms: One Step in the Right Direction,” Carnegie Moscow Center Briefing, vol. 12, issue 2, June 2010, [http://carnegieendowment.org/files/ArbatovBriefing\\_12-2-10\\_Eng\\_web\\_2.pdf](http://carnegieendowment.org/files/ArbatovBriefing_12-2-10_Eng_web_2.pdf).
  - 22 Pyriev and Dvorkin, “The U.S./NATO Program,” 200–201.
  - 23 See Viktor Esin, “Yadernaya moshch Kitaya” (China’s Nuclear Might), in *Perspektivy uchastia Kitaya v ogranichenii yadernykh vooruzheniy* (The Prospects of Chinese Involvement in Nuclear Arms Limitation), edited by Alexei Arbatov, Vladimir Dvorkin, and Sergei Oznobishchev (Moscow: IMEMO RAN, 2012), 27–35.
  - 24 Ibid.
  - 25 Authors’ estimate.
  - 26 *The Military Doctrine of the Russian Federation*, approved by Russian Federation presidential edict on February 5, 2010, translated by the Carnegie Endowment for International Peace, 6, [http://carnegieendowment.org/files/2010russia\\_military\\_doctrine.pdf](http://carnegieendowment.org/files/2010russia_military_doctrine.pdf).
  - 27 Alexander Rukshin, “Nekotorye itogi reformy Vooruzhennykh Sil: milliardy potracheny, a prestizh voennoy professii ne povysilsya” (The Results of the Military Reform: Billions Spent, While the Prestige of the Military Has Not Grown), *Voenno-promyshlennyy kurier* (Military-Industrial Courier), November 14, 2012, <http://vpk-news.ru/articles/13125>.
  - 28 U.S. Department of Defense, *Nuclear Posture Review*, April 2010, [www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf](http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf).
  - 29 Ibid.
  - 30 Ibid.
  - 31 *The Military Doctrine of the Russian Federation*.
  - 32 Ibid.
  - 33 *China’s National Defense in 2010: X. Arms Control and Disarmament*, [www.china.org.cn/government/whitepaper/2011-03/31/content\\_22263420.htm](http://www.china.org.cn/government/whitepaper/2011-03/31/content_22263420.htm).
  - 34 Ibid.
  - 35 Ibid.
  - 36 See Sun Tzu, *The Art of War*, translated and annotated by Lionel Giles (El Paso: Notre Press, 2005).
  - 37 Viktor Esin, “Tretiy posle SShA i Rossii: o yadernom potentsiale Kitaya bez zanizheniy i preuvelicheniy” (The Third After the U.S. and Russia: on the Chinese Nuclear Capability Without Understatements and Exaggerations), *Voenno-promyshlennyy kurier* (Military-Industrial Courier), May 2, 2012, <http://vpk-news.ru/articles/8838>.
  - 38 Ibid.



- 39 B. Stephens, “How Many Nukes Does China Have: Plumbing the Secret Underground Great Wall,” *Wall Street Journal*, October 24, 2011, <http://online.wsj.com/article/SB10001424052970204346104576639502894496030.html>.
- 40 ASIA NEWS, October 2011.
- 41 Mikhail Khodarenok, “The Fundamental Basis of the Concept,” in Arbatov and Dvorkin, eds., *Missile Defense: Confrontation and Cooperation*, 29.
- 42 Natalia Romashkina and Petr Topychkanov, “Regional Missile Defense Programs (India, Israel, Japan and South Korea),” in Arbatov and Dvorkin, eds., *Missile Defense: Confrontation and Cooperation*, 293–98.
- 43 Dean A. Wilkening, “The U.S./NATO Phased Adaptive Approach,” in Arbatov and Dvorkin, eds., *Missile Defense: Confrontation and Cooperation*, 116–17.
- 44 Pyriev and Dvorkin, “The U.S./NATO Program,” 194.
- 45 “Military Russia: otechestvennaya voennaya tekhnika (posle 1945 g.)” (Military Russia: Russia’s Weapons [post-1945]), <http://military.tomsk.ru/blog/topic-350.html>; “Military Russia: otechestvennaya voennaya tekhnika (posle 1945 g.)” (Military Russia: Russia’s Weapons [post-1945]), <http://military.tomsk.ru/blog/topic-350.html>; “Military Russia: otechestvennaya voennaya tekhnika (posle 1945 g.)” (Military Russia: Russia’s Weapons [post-1945]), <http://military.tomsk.ru/blog/topic-350.html>; Viktor Esin, “Russia’s Air-Space Force and Armaments Program,” in Arbatov and Dvorkin, eds., *Missile Defense: Confrontation and Cooperation*, 147–66. A total of 84 silo launchers were constructed in seven positioning areas. Currently, unarmed 53T6 interceptors (they are stockpiled) are deployed in 68 silo launchers (in five positioning areas), and sixteen silo launchers (in two positioning areas) that were supposed to house 51T6 missiles are out of service, as these interceptors have been decommissioned. See “Moscow ABM Interceptor Sites,” October 7, 2005, [http://russianforces.org/blog/2005/10/moscow\\_abm\\_interceptor\\_sites.shtml](http://russianforces.org/blog/2005/10/moscow_abm_interceptor_sites.shtml).
- 46 Esin, “Russia’s Air-Space Force,” 147–66. In particular, as part of the modernization process, there are plans to equip interceptors during their first stage with high-explosive fragmentary warheads and then with multiple independently targeted reentry vehicles, which after separating from the missile will home in on the target. See: Sistema A-135 Amur, raketa 53T6 – ABM-3A Gazelle / SH-08” (A-135 Amur, Missile 53T6 – ABM-3A Gazelle / SH-08), February 13, 2012, Military Russia: otechestvennaya voennaya tekhnika (posle 1945 g.) (Domestically Produced Military Systems [After 1945]), <http://military.tomsk.ru/blog/topic-350.html>.
- 47 “Novyy oblik MO PVO – OSK VKO” (New Look of Defense Ministry’s Air Defense Forces – Air-Space Defense Force’s Strategic Command), <http://wap.pvo.forum24.ru/?1-18-0-00000004-000-0-0-1302194176>.
- 48 “Minoborony gotovo razmestit S-400 v luboy tochke Rossii” (Defense Ministry is Ready to Deploy the S-400 Anywhere in Russia), April 22, 2011, [http://vpk.name/news/52034\\_minoboronyi\\_gotovo\\_razmestit\\_s400\\_v\\_lyuboi\\_tochke\\_rossii.html](http://vpk.name/news/52034_minoboronyi_gotovo_razmestit_s400_v_lyuboi_tochke_rossii.html).
- 49 See interview with Igor Ashurbeyli (current co-chairman of the interdepartmental council of experts on ASD and until February 2011 general director of the Main Special Design Bureau for Air Defense [GSKB PVO] Almaz-Antey) that he gave to Ria Novosti’s special correspondent Sergei Safronov (“Budushchaya PRO RF budet bazirovatsya na zemle i v vozduke—kostruktor” (Russia’s Future Missile Defense Will Be Deployed on Land and in the Air—Designer), August 15, 2011, [www.ria.ru/interview/20110815/417675459.html](http://www.ria.ru/interview/20110815/417675459.html)).
- 50 A regiment of the S-400 SAM system consists of two divisions, each with a combat control point, radar, and other means of detection as well as eight to twelve launchers with 4 SAM missiles in launch containers deployed in each launcher. “Mobilnaya mnogokanalnaya zenitnaya raketnaya sistema S-400 ‘Triumf’/GSKB Almaz-Antey im. Akademika A.A. Raspletina” (Transportable multi-channel SAM S-400 Triumf system/Academician Alexander Raspletin Main Special Design Bureau Almaz-Antey), [www.raspletin.ru/mobilnaya-mnogokanalnaya-zenitnaya-raketnaya-sistema-s-400-triumf](http://www.raspletin.ru/mobilnaya-mnogokanalnaya-zenitnaya-raketnaya-sistema-s-400-triumf). The 40H6 SAM has not yet been certified, as the state testing procedures have not been completed. Igor Ashurbeyli explained the delay with its



- introduction as being caused by the lack of funds needed to build the necessary number of experimental model missiles and purchase the new firing systems that would allow the test launches to be made. (See “Russia’s Future Missile Defense Will Be Deployed on Land and in the Air.”)
- 51 The Vityaz is a mobile surface-to-air intermediate-range system developed to replace the obsolete S-300PS. The Vityaz SAM is expected to be far superior to the S-300PS in terms of its combat capabilities. Each launcher will have sixteen SAM missiles (four times as many as the S-300PS). (See “Russia’s Future Missile Defense Will Be Deployed on Land and in the Air.”)
  - 52 Igor Ashurbeyli thinks that the approved deadlines for the development of the S-500 SAM system are not realistic. A draft design was completed in 2011 and the development of the engineering design for the S-500 SAM was started. Given the international standard terms of development of air defense/missile defense systems, at least seven-eight years are needed to finish the S-500 SAM system. (See “Russia’s Future Missile Defense Will Be Deployed on Land and in the Air.”)
  - 53 Sergei Rogov, Viktor Esin, Pavel Zolotarev, and Valentin Kuznetsov, “Strategicheskaya stabilnost i yadernoe razoruzhenie v XXI veke” (Strategic Stability and Nuclear Disarmament in the 21st Century), *Nezavisimoe voennoe obozrenie* (Independent Military Review), no. 43 (November 30–December 6, 2012): 5, [http://nvo.ng.ru/gpolit/2012-11-6/1\\_stabilnost.html](http://nvo.ng.ru/gpolit/2012-11-6/1_stabilnost.html).
  - 54 Ibid.
  - 55 Alexander Shpyndov and Nikolai Tebin, “Podnebesnaya vystavliaet rubezhi v okeane” (China Sets Borders in the Ocean), *Nezavisimoe voennoe obozrenie* (Independent Military Review), no. 42 (November 4–10, 2011): 8–9, [http://nvo.ng.ru/armament/2011-11-03/8\\_china.html](http://nvo.ng.ru/armament/2011-11-03/8_china.html).
  - 56 Wu Riqiang, “Survivability of China’s Sea-Based Nuclear Forces,” *Science & Global Security*, vol. 19, no. 2 (May–August 2011): 91–120.
  - 57 Ibid.
  - 58 Eugene Miasnikov, “The Air-Space Threat to Russia,” in Arbatov and Dvorkin, eds., *Missile Defense: Confrontation and Cooperation*, 121–46.
  - 59 Statement of Brian R. Green, Deputy Assistant Secretary of Defense Strategic Capabilities, for the Senate Armed Services Committee Strategic Forces Subcommittee Hearing Regarding Global Strike Issues, March 28, 2007, United States Senate Armed Services Committee, <http://armed-services.senate.gov/statemnt/2007/March/Green%2003-28-07.pdf>.
  - 60 R. O’Rourke, “Navy Virginia (SSN-774) Class Attack Submarine Procurement: Background and Issues for Congress,” *CRS Report*, April 12, 2011, [www.fas.org/sgp/crs/weapons/RL32418.pdf](http://www.fas.org/sgp/crs/weapons/RL32418.pdf).
  - 61 R. O’Rourke, “Navy DDG-51 and DDG-1000 Destroyer Programs: Background and Issues for Congress,” *CRS Report*, March 2, 2011, [www.fas.org/sgp/crs/weapons/RL32109.pdf](http://www.fas.org/sgp/crs/weapons/RL32109.pdf).
  - 62 R. O’Rourke, “Cruise Missile Inventories and NATO Attacks on Yugoslavia: Background Information,” *CRS Report*, April 20, 1999, [www.history.navy.mil/library/online/cruise%20missile%20inventory.htm](http://www.history.navy.mil/library/online/cruise%20missile%20inventory.htm).
  - 63 Miasnikov, “The Air-Space Threat,” 131.
  - 64 Viktor Shunkov, *Avianesushchie korabli i morskaya aviatsia* (Aircraft Carriers and Naval Aviation) (Minsk: Popurri, 2003).
  - 65 See in detail: Eugene Miasnikov, “Strategicheskie vooruzhenia v neyadernom osnashchenii: problemy i reshenia” (Strategic Conventional Arms: Deadlocks and Solutions), *Indeks bezopasnosti* (Security Index), vol. 17, no. 1 (96), 2011, in Russian: [www.pircenter.org/media/content/files/0/13406926250.pdf](http://www.pircenter.org/media/content/files/0/13406926250.pdf); in English: <http://www.pircenter.org/en/magazines/107-security-index>.
  - 66 Sergei Ilyin, “Krylatye rakety vozdušnogo bazirovaniya VVS SShA: Sostoyanie i perspektivy razvitiya” (The U.S. Air Force’s Air-Launched Cruise Missiles: Current Status and Prospects For Development), *Zarubezhnoe voennoe obozrenie* (Foreign Military Review), vol. 8 (2011): 60–65, [http://pentagonus.ru/publ/materialy\\_](http://pentagonus.ru/publ/materialy_)

posvjashheny/2000\_nastojashhij\_moment/krylatye\_rakety\_vozdušnogo\_bazirovaniya\_vvs\_ssha\_sostojanie\_i\_perspektivy\_razvitija/122-1-0-1865.

- 67 Elaine Grossman, “Pentagon Readies Competition for ‘Global-Strike’ Weapon,” *Global Security Newswire*, June 24, 2011.
- 68 The White House, Report on Conventional Prompt Global Strike in response to Condition 6 of the Resolution of Advice and Consent to the Ratification of the New START Treaty, Washington, February 2, 2011.
- 69 *Ibid.*, 22, 35.
- 70 Eugene Miasnikov, “Precision-Guided Conventional Weapons,” in *Nuclear Reset: Arms Reduction and Nonproliferation*, edited by Alexei Arbatov and Vladimir Dvorkin, Carnegie Moscow Center (Moscow: ROSSPEN, 2012).
- 71 Wu, “Survivability of China’s Sea-Based Nuclear Forces,” 91–120.
- 72 *Ibid.*
- 73 *Ibid.*
- 74 “China’s National Defense in 2010: X. Arms Control and Disarmament,” china.org.cn, [http://english.gov.cn/official/2011-03/31/content\\_1835499\\_12.htm](http://english.gov.cn/official/2011-03/31/content_1835499_12.htm).



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