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ASIAN ARMS CONTROL PROJECT

Third after the United States & Russia:

On China's Nuclear Potential without Underestimation or Exaggeration

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At present, the People's Republic of China is the only one of the five nuclear weapons states officially recognized under the 1968 Treaty on the Nonproliferation of Nuclear Weapons, that provides no official information about themselves. With the goal of political propaganda, Beijing argues that the PRC's nuclear weapons are insignificant in number and are not comparable with the analogous potential of such members of the "nuclear five" as the United States and the Russian Federation. But apparently, the Chinese nuclear arsenal may consist of up to 1800 warheads.

Quantitative evaluations of this arsenal given by the expert community fluctuate within a very wide range: from 240-300 to 10,000 nuclear weapons. In this article, I'll try to formulate my conclusion on the nuclear capacity of our neighbor.

Figures Close to Reality

China has a developed military nuclear industry, entirely self-sufficient for serial production of the entire spectrum of nuclear munitions from aviation bombs to missile warheads for various intended purposes. In China there are two virtually independent groups of companies – both North and South, each of which includes factories for production of special fissile materials, nuclear weapons components, and the assembly of nuclear weapons. The Northern Group consists of four production centers. They are located in Baotou (in the autonomous region of Inner Mongolia); Kurunor (Qinghai Province); Lanzhou and Ûjmyn (both of which are in Gansu Province). In the Southern Group there are three such centers: in Guangyuan, Èbyân, and Jitong (all of them are in Sichuan Province).

Assessment of the capacity of the Chinese factories that supply special fissionable materials (based on real timelines for their operation), indicates that as of 2011 these enterprises could have produced up to 40 tons of weapons-grade uranium and about 10 tons of weapons-grade plutonium. This is enough material for the production of about 3,600 nuclear warheads (1,600 using uranium and 2,000 using plutonium).

Based on the practice of other States within the "nuclear five", it is likely that the entire accumulated weapon-usable nuclear material in China is not used for the production of warheads. Stockpiles of such material may comprise half or more of the total produced quantity of weapons-grade material. Based on

this assumption, there are probably 1600-1800 warheads in the Chinese nuclear arsenal. According to assessments, 800-900 warheads from this number may be operationally deployed, with the rest in long-term storage for utilization after the fixed exploitation deadlines of operationally deployed warheads.

Undoubtedly, these calculations are approximate and are not claimed to be 100% accurate; nevertheless, it seems that they are much closer to reality than those maximum figures cited at the beginning of this article.

Different Power and Different Destination

With regard to the nomenclature of nuclear munitions produced by the military nuclear industry of China, it includes:

- Aircraft bomb B-4 (several modifications ranging in capacity from 5 to 20 kilotons each) for the fighter-bomber "Ziang-5" and other tactical strike aircraft;
- Aircraft bomb B-5 (capacity up to two megatons) for the long-range bomber “Hong-6” (license variant of the Soviet long-range bomber Tu-16);
- Single-warhead (two modifications up to two megatons each) for the intermediate-range ballistic missile (IRBM) “Dongfeng-4” (DF-4) and the intercontinental ballistic missile (ICBM) "Dongfeng-5A;”
- Single-warhead (capacity up to 500 kilotons) for the ICBM “Dongfeng-31;"
- Single-warhead (capacity up to 300 kilotons) for the "Dongfeng-31A” ICBM;
- Single-warhead (two modifications with the capacity up to 350 kilotons each) to the “Dongfeng-21, -21A” IRBM, and the Submarine Launched Ballistic Missile (SLBM) "Tszûjlan-1";
- Single-warhead (with several modifications ranging from five to 20 kilotons each) for operational-tactical missiles "Dongfeng-15, -15A, 15B” and “Dongfeng-11, 11A,” as well as the cruise missile “Donghai-10 (DH-10);”
- Single-warhead (capacity up to 500 kilotons) for the SLBM “Tsûjlan-2.”

Also under development is an ICBM warhead with multiple independent reentry vehicles (MIRVs). This warhead is designed to retrofit the “Dongfeng-5A” and “Dongfeng-31A" ICBMs, as well as the recent “Tszûjlan-2” SLBM. Presumably prototypes of MIRVs may have been produced in 2011, and now in the testing and evaluation phase.

illustration from original article

The Aviation Component

The aviation component of Chinese nuclear forces consists of Strategic Aviation (SA), comprised of the long-range "Hong-6" bombers; and Tactical Aviation (TA) provided by the fighter-bombers "Qiang-5" and other strike aircraft, a prototype of which was the Russian multipurpose fighter Su-30.

Operational SA numbers about 60 "Hong-6" bombers with about the same number in a storage mode. The maximum flight range of the bomber "Hong-6" with one B-5 thermonuclear bomb in the internal bay is approximately 5,800 kilometers. Up to 120 B-5 bombs are allocated for delivery by these planes.

A total of more than 300 "Qiang-5" fighter-bombers are in the TA as well as other strike aircraft certified to perform the nuclear mission. Maximum flight range of the tactical aircraft with a single B-4 atomic bomb is 1,400-2,000 kilometers. 320 B-4 bombs are allocated for delivery by TA.

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Thus, the total aircraft available for rapid delivery of B-4 and B-5 bombs total 440. In peacetime the bombs are stored on air force bases, but the aircraft are not armed.

The Ground Component

Consists of strategic missile forces and missile complexes of the Chinese People's Liberation Army (PLA) land troops.

Strategic missile forces are comprised of the so-called Second Artillery of the PLA. They have six missile bases.

The 51st missile base is located in Shenyang Military District, and is comprised of three missile brigades armed with mobile missile complex with the two-stage solid-propellant IRBM "Dongfeng-21" (with a range of up to 2000 km). There are 28 launchers in total. Munitions total up to 35 missiles and 35 nuclear warheads.

The 52nd missile base is located in the Nanking Military Region. It includes seven missile brigades, two of them are armed with mobile missiles launchers with the two-stage solid-propellant IRBM "Dongfeng-21A" (with a range of 2800-3000 kilometers), two other brigades with mobile missile launchers armed with the solid-propellant operational-tactical missle "Dongfeng-15,

15A, 15B" (with a range of up to 600 kilometers); and three brigades armed with mobile missile launchers with the solid-propellant operational-tactical missile "Dongfeng-11A" (with a range of up to 300 kilometers). Total 84 launchers (24 with the "Dongfeng-21" IRBM; 24 with operational-tactical missile "Dongfeng-15, 15A, 15B") 36 with the operational-tactical missile "Dongfeng-11A"). Munitions for the IRBM "Dongfeng-21" total up to 30 missiles and 30 nuclear warheads. The operational-tactical "Dongfeng-15, 15A, 15B" and "Dongfeng-11A" may be equipped with either high-explosive or nuclear warheads. The stored nuclear warheads for the operational-tactical missiles may total 30.

The 53rd missile base is located in Chengdu Military District, which consists of two missile brigades armed with mobile missile launchers with the IRBM "Dongfeng-21, 21A. Launchers total 24, with up to 30 missiles and 30 nuclear warheads.

The 54th missile base is located in Jinan Military District. It includes three missile brigades: the first one is armed with the two-stage liquid rocket "Dongfeng-5A" ICBM (with a range of up to 12,000 kilometers), the second one is armed with the liquid-fueled IRBM "Dongfeng-4" (with a range of up to 5,200 kilometers), and the third one is equipped with a mobile missile system using the three-stage solid propellant ICBM "Dongfeng-31" (with a range of up to 8,000 kilometers). Launchers total 24 (6 with ICBM "Dongfeng-5A," 6 with the IRBM "Dongfeng-4", and 12 with the ICBM "Dongfeng-31"), with up to 28 missiles and 28 nuclear warheads.

The 55th missile base is located in Guangzhou Military District, which consists of two missile brigades armed with the ICBM "Dongfeng-5A," and one missile brigade armed with the IRBM "Dongfeng-4". Launchers total 17 (12 with the ICBM "Dongfeng-5A" and 5 with the IRBM "Dongfeng-4"), with up to 20 missiles and 20 nuclear warheads.

The 56th missile base is located in Lanzhou Military District, consisting of two missile brigades: one armed with mobile missile launchers with the IRBM "Dongfeng-21", the other is armed with the three-stage solid propellant ICBM "Dongfeng-31A" (with a range of up to 12,300 km). Launchers total 30 (12 with the "Dongfeng-21" IRBM, and 18 with the ICBM "Dongfeng-31A), with 35 nuclear missiles and 35 nuclear warheads.

In total, 207 launchers are deployed in strategic missile troops (48 ICBMs, 99 IRBMs, and 60 with operation-tactical missiles). Ordnance for these launchers consists of 238 missiles and 208 nuclear warheads.

With regard to the land troops, they have two types of ground mobile missile systems that can launch missiles with either conventional or nuclear warheads: the first is the solid-fueled operational-tactical missile "Dongfeng-11" (range up to 300 miles), the second is the "Donghai-10" ground-launched cruse missile (range is 1500-2000 km).

The number of deployed launchers with the solid-fueled operational-tactical missile "Dongfeng-11" is about 100, and between 350-500 of the "Donghai-10" ground-launched cruse missiles of the "Donghai-10" type have been deployed. It is estimated that as many of 150 warheads for these operational-tactical missiles might be in storage.

Thus, the land component of nuclear forces of the People's Republic of China may be assumed to have deployed approximately 360 nuclear warheads. In peacetime, most of them are stored separately from the missiles, but, contrary to claims by some experts, not all, based on leaks in the [PRC] media (apparently sanctioned by the Chinese authorities).

Proceeding from the fact that some missile brigades are held on constant alert, it can be assumed that some of the "Dongfeng-31, 31A" ICBMs are ready for immediate use with the sanction of the leadership of the country. Given the pragmatic people the Chinese are known to be, it can be assumed that the alert missiles are the rail-based launchers.

And another fact that should be taken into consideration is the construction in the central provinces of China of a sophisticated system of underground tunnels capable of hosting large military equipment. The existence of such tunnels suggests that the Chinese may have a certain number of reserve mobile launchers with ballistic and cruise missiles as well as the nuclear warheads to arm them. At least this aspect should not be ignored when it comes to assessing the issue of the nuclear power of China.

Maritime Component

Includes two types of submarines capable of launching nuclear ballistic missiles (SSBNs): one submarine is of "Sya" type ~~of~~ with 12 two-stage solid-propellant SLBM "Tszûjlan-1" (with a range of up to 2,400 kilometers) and two submarines of the 094 project with 12 three-stage solid-propellant SLBM "Tszûjlan-2" (with a range of up to 8,000 km).

Construction of SSBNs type "Sya" and production of the "Tszûjlan-1" was stopped in the 1990s. Th stockpile of nuclear warheads for the Tszûjlan-1 SLBM is estimated as 15.

Construction of the 094 SSBN began in 2001. There is a plan to build at least 4 boats of this type and, according to some sources, not less than 5.

Having been brought into the navy's order of battle, the two 094 SSBNS involved in the project take part in combat patrols in the areas adjacent to the China seas. Their total operational ordinance is estimated at 30 "Tszûjlan-2" and 30 nuclear warheads.

Thus a total of 36 SLBMs of the "Tszûjlan-1, -2," with an estimated 45 nuclear warheads are currently deployed in the maritime component of China's nuclear forces.

Prospects

It seems that the vector of development of China's nuclear forces will be largely determined by external factors. In particular, the development of a ballistic missile defense system by the United States, together with its allies, as well as the state of nuclear arsenals and means of their delivery by China's neighbors, particularly by India. Perspectives for solving the protracted problem with Taiwan will have some impact as well.

In the meantime, the future of China's nuclear forces will have to be evaluated without the Chinese providing much in the way of official information to the expert community.

Continued modernization of existing and serial production of new modifications of the "Hong-6" long-range bomber are planned for SA. They will be equipped with new strike and navigation equipment and will carry improved weapons ordinance, including air-launched cruise missiles (ALCM) with nuclear warheads. The current prototype of this ALCM is the existing "Donghai-10 ".

In perfecting the ground component of nuclear forces, emphasis is laid on equipping existing and perspective ballistic missiles with multiple independently targetable reentry vehicles (MIRVs) and the means of overcoming a defending anti-ballistic missile (ABM) system. Along with this, development of a new solid-propellant IRBM ("Dongfeng-type 25") and ICBM

("Dongfeng-41") are ongoing. The IRBM of a "Dongfeng-25" type is being created on the basis of the first and second stages of the "Dongfeng-31" ICBM, with a three MIRV warhead. It is supposed that the range of the new IRBM will be up to 4,000 kilometers, and is intended to replace the outdated "Dongfeng-4 IRBM". The "Dongfeng-41" type is designed as a universal rocket to be deployed in a mobile transporter-erector-launcher (TEL) mode as well as part of the existing rail-based system. According to the information available, this new ICBM will be equipped with a 6-10 MIRV warhead.

The main efforts in the development of the maritime component of the nuclear forces are aimed at speeding up and improving the quality of construction of the SSBN 094 project, and exploiting the experience gained by the boats' crews, and securing all modes of their sailing in the ocean zone. At the same time the SLBM "Tszûjlan-2" will be modernized by supplying it with MIRVS. In addition, the establishment of the necessary infrastructure for SSBNS in the Hainan Island (South China Sea) is coming to its final stage.

It is Inevitable

This analysis shows that the nuclear capability of China is clearly underestimated. It is substantially greater than assessed by the Western expert community. Now China is the third power after the United States and Russia, and undoubtedly has the technical and economic possibilities, should be become necessary, to quickly ramp up its nuclear power.

This means that it is necessary to take into account the Chinese factor when considering any of the next Russian-American agreements on the further reduction and limitation of nuclear weapons. It is time to bring China into multilateral negotiations on nuclear disarmament. Without accomplishing this, such negotiations will be unlikely to bring results.