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## Managing Challenges from New Hypersonic Weapons

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For decades, China has maintained a clear distinction between conventional and nuclear weapons. It rejects the notion that nuclear weapons should play any role in a conventional conflict and pledges never to use nuclear weapons first under any conditions.<sup>1</sup> This unconditional “No-First-Use” principle is a unique characteristic of Chinese nuclear strategy. Research shows that Chinese decision-makers do not think it is credible or morally justifiable to threaten first use of nuclear weapons, and they only need China’s nuclear weapons to play one role: deterring nuclear strikes against China.

The distinctive line between nuclear and conventional weapons is eroding, however. This poses a new challenge for Chinese nuclear policy. With the emergence of new military technology, nuclear weapons may become vulnerable not only to nuclear strikes but also to conventional strikes, or at least this is how many Chinese experts see the impact of conventional hypersonic weapons. Some conventional hypersonic weapons, those being developed by the United States as part of the Conventional Prompt Global Strike program, travel at speed higher than Mach 5 and can strike targets with exceptional accuracy. This worries China that the United States might seek to strike Chinese nuclear weapons or associated command and control systems without explicitly crossing the nuclear threshold. Due to such concern, some Chinese analysts already question the wisdom of China’s decision to stick to the unconditional “No-First-Use policy”.<sup>2</sup> This only represents a minority view and does not appear to have influenced official policy deliberation, but this increasing threat perception from conventional weapons to China’s nuclear deterrent is forcing China to reconcile with a new reality in which the interaction between conventional and nuclear weapons becomes more complicated.

Unlike conventionally-armed strategic missiles, hypersonic missiles – including both boost-glide weapons and hypersonic cruise missiles – do not count as strategic ballistic missiles under the New START treaty. They are new types of strategic offensive arms and are under no international arms control restrictions. Some Chinese experts believe that hypersonic missiles are not too cost prohibitive to be built in large

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<sup>1</sup> "Statement of the Government of the People's Republic of China (中华人民共和国政府声明)," *The People's Daily*, October 17 1964; Zhenqiang Pan, "China Insistence on No-First-Use of Nuclear Weapons " *China Security* 1, no. 1 (2005).

<sup>2</sup> Yunzhu Yao, "China Will Not Change Its Nuclear Policy," (China-US Focus, Apr 22, 2013).

numbers.<sup>3</sup> Therefore, the U.S. argument that they can only be built in small numbers and used as a “niche” capability does not reassure them.<sup>4</sup>

China has a long-term belief that it cannot afford to lag behind other major powers on major military technology development. The thinking is that, in order to avoid surprise in military technology from others, China has to conduct similar research and to understand the newest technology. Whether or not China will decide to actually deploy such new technology is a matter to be considered later, but China feels it needs to at least obtain the option to deploy such technology if necessary. Such thinking was behind China’s research on neutron bombs and missile defense,<sup>5</sup> and it is motivating the current Chinese research and development program on hypersonic technology as well. As a result, although many Chinese experts express concern that a hypersonic arms competition or even arms race is on the horizon,<sup>6</sup> it seems that all major countries including China are moving full speed ahead with development of hypersonic technology.

The first challenge that this hypersonic competition brings for China is how China should utilize this new technology. Given that hypersonic missiles are more capable of penetrating missile defense than traditional ballistic missiles, the temptation to use hypersonic missiles as nuclear weapons delivery vehicles will be significant. Believing that Russia and some other countries are developing hypersonic missiles to be armed with nuclear warheads,<sup>7</sup> some Chinese experts emphasize the fact that if armed with nuclear warheads, the “high penetration capability and great responsiveness” of such weapons will greatly enhance one’s capability to “deal with the enemy’s missile defense threat.”<sup>8</sup> The decision does not seem to have been made about whether China should arm its future hypersonic weapons with nuclear or

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<sup>3</sup> Feng (高峰) Gao, "Hypersonic Weapons Open New Warfare Situations (高超音速武器开启战争新态势)," *Science 24 hours (科学24小时)*, no. 5 (2015).

<sup>4</sup> M Elaine Bunn and Vincent A Manzo, "Conventional Prompt Global Strike: Strategic Asset or Unusable Liability?," (DTIC Document, 2011).

<sup>5</sup> Jonathan Ray, "Red China's "Capitalist Bomb": Inside the Chinese Neutron Bomb Program," in *China Strategic Perspectives 8* (Center for the Study of Chinese Military Affairs, Institute for National Strategic Studies, National Defense University, January 2015).

<sup>6</sup> Wenjie (单文杰) Shan and Cai Wenyi (蔡闻一), "Russia's "Prompt Global Strike" to Target Whom? (俄“全球快速打击”剑指何方?)," 2014-09-27; Zhuoqian (王卓谦) Wang, "Hypersonic Leading the New Trend in Aerospace Flight (高超音速引领空天飞行新趋势)," 2014-08-30; Tong (柯同) Ke, "Is Hypersonic Weapon Leading to New Arms Race? (高超音速武器引发新军备竞赛?)," 2015-01-13.

<sup>7</sup> Zhongping (宋忠平) Song, "Us Hypersonic Weapons Testing Will Lead to a New Military Imbalance (美高超音速武器试验将引发新军力失衡)," 2014-09-06; Xuesong (张雪松) Zhang, "Why Are Hypersonic Flight Technologies Difficult? (高超音速飞行技术难在哪里?)," 2014-01-25.

<sup>8</sup> Huaiyu (汤怀宇) Tang and Jie (刘婕) Liu, "Media Reports and China's Hypersonic Weapon (从媒体报道看我国高超音速武器)," *Ordnance Knowledge (兵器知识)*, no. 5 (2014).

conventional warheads because it appears China is still in the process of trying to understand the potential of this technology. However, future decisions need to make sure that employment of hypersonic technology will not negatively affect China's security interests or destabilize the nuclear relationship between China and other nuclear powers. Both the United States and Russia retain a launch-on-warning (LOW) posture and are ready to launch a nuclear retaliation when their early warning systems confirm an incoming missile strike. The flight trajectories of hypersonic missiles are different from ballistic missiles, but if China possesses both nuclear-armed and conventionally-armed hypersonic missiles, the United States may have serious difficulty figuring out whether the incoming missiles they face are part of a nuclear or conventional strike. It is therefore possible that the United States might mistakenly launch a nuclear retaliation against China when China actually fires conventionally-armed hypersonic missiles. When this happens, China will be the victim of a mistaken nuclear strike. The United States, in fact, decided a few years ago to give up the plan to convert some of its nuclear submarine-launched ballistic missiles to conventional missiles as part of the Conventional Trident Modification program. The U.S. reason to do so was precisely to avoid any confusion – from an enemy's perspective – about the nature of their missile strike.<sup>9</sup> This is something that China can draw lessons from.

A second way to reduce the potential impact of conventional hypersonic weapons on nuclear stability is to promote an explicit commitment from nuclear weapons states not to attack nuclear forces with conventional weapons. Conventional hypersonic weapons in the near future may only have a limited capability to strike and destroy nuclear forces.<sup>10</sup> However, Chinese concern about the U.S. actually contemplating a conventional first strike strategy grows when American participants to U.S.-China nuclear Track II dialogues inquired about how China would respond if its nuclear forces were hit with conventional weapons. Such U.S. inquiry was mainly aimed at understanding the credibility of China's No-First-Use policy but was unsurprisingly interpreted by Chinese participants as a veiled threat to China's nuclear deterrent capability using advanced conventional weapons.<sup>11</sup> Such threat perception about conventional first strike will not help stabilize nuclear relationships among major powers and need to be addressed. As a first step to do so, all nuclear weapons states, including China, can promote a joint commitment to ban the use of conventional hypersonic weapons against each other's nuclear capability. Admittedly, there will be

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<sup>9</sup> Amy F Woolf, "Conventional Prompt Global Strike and Long-Range Ballistic Missiles: Background and Issues," in *CRS Report for Congress* (Washington DC: Congressional Research Service, May 5, 2014).

<sup>10</sup> Tong Zhao, "Conventional Counterforce Strike: An Option for Damage Limitation in Conflicts with Nuclear-Armed Adversaries?," *Science & Global Security* 19, no. 3 (2011).

<sup>11</sup> Jeffrey Lewis, "China and No First Use," *Arms Control Wonk* (January 14, 2011).

challenges regarding verifiability of such commitments, but even a political commitment that explicitly renounces the option of a conventional first strike against nuclear weapons will contribute to reducing exaggerated concerns.

## Managing Possible Changes in Conventional Military Balance

Besides the development of hypersonic weapons, rapid growth of general conventional military capabilities in some countries may also change people's perception about balance of military power in the future, which will have implications for nuclear stability. For example, some Western scholars worry that China may obtain some conventional military superiority vis-à-vis the United States in some restrained geographical theatres (such as within the First Island Chain in the Asia Pacific region) in the near future. A 2015 RAND report on U.S.-China military balance, for instance, points out that "PLA forces will become more capable of establishing temporary local air and naval superiority at the outset of a conflict," which "might lead Chinese leaders to believe that they could deter U.S. intervention in a conflict between it and one or more of its neighbors."<sup>12</sup> In anticipation of possible Chinese conventional superiority in some areas in the future, some scholars in the United States have argued for re-emphasizing the role of nuclear weapons – especially the so-called "tailored" nuclear capabilities that can be employed more flexibly on the battlefield.<sup>13</sup> Some others propound that the U.S. Asian allies, such as Japan, should consider their own nuclear option.<sup>14</sup> All these propositions run the risk of drawing us back into the old nuclear arms race and proliferation dynamics of the Cold War while undermining international efforts to promote nuclear arms control.

To contain the conventional arms race and prevent it from undermining nuclear stability, it is time for countries in relevant regions (such as East Asia) to start having discussions about better openness and even potential restraint in conventional military development and deployment. In this regard, the European conventional arms control practices and confidence-building measures may have some lessons to offer for East Asia. (Significant adjustment and adaptation will certainly be required.) Given that

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<sup>12</sup> Eric Heginbotham et al., "The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power 1996-2017," (Santa Monica, Calif.: RAND Corporation, 2015).

<sup>13</sup> Clark Murdock et al., "Project Atom: A Competitive Strategies Approach to Defining U.S. Nuclear Strategy and Posture for 2025–2050," (Washington DC: Center for Strategic and International Studies, May 2015).

<sup>14</sup> Harvey M. Sapolsky and Christine M. Leah, "Let Asia Go Nuclear," *The National Interest* (April 14, 2014); Doug Bandow, "Let Them Make Nukes: The Case for "Friendly" Proliferation," *Foreign Affairs*, <https://www.foreignaffairs.com/articles/japan/2016-07-26/let-them-make-nukes>.

unpredictability and uncertainty over each other's future military development and deployment are major drivers for arms competition in East Asia, transparency and confidence-building measures like those adopted at the 1986 Stockholm Conference on Confidence- and Security-Building Measures and Disarmament in Europe can be considered by East Asian countries. On the other hand, major countries in this region should also seek to reach a consensus on reducing (or at least not raising) the role of nuclear weapons in their respective national security strategies. China is a long-time supporter for mutual and multilateral "No First Use" agreements and for constraining the role of nuclear weapons, Japan has miserable memories of the consequences of nuclear weapons, and South Korea is also a victim of North Korea's nuclear saber-rattling. Therefore, many of the major countries in the region should have shared interests and common views about reducing the role of nuclear weapons. These states could play a more important role by working together to promote the humanitarian initiative on nuclear weapons.

### Segregating the Conventional and Nuclear Realms

To further reduce the negative impact of conventional military developments on nuclear stability, all nuclear weapon states should work toward developing a common understanding that explicitly segregates the nuclear and conventional realms. Nuclear weapons have very limited utility in responding to conventional threats and bear high escalation risks if used in such scenarios. By comparison, conventional means provide greater flexibility and credibility in deterring and responding to conventional threats.

Two trends, one social and one technological, point to a future in which countries should have less incentive to consider nuclear options in response to conventional conflicts. First, long-term historical trends of urbanization, economic development, and societal pacification have produced a modern world in which countries have become more prosperous and cost-averse. The need to threaten with nuclear weapons in response to a regional conventional conflict is falling. Second, technical advances have greatly increased the accuracy and destructive power of conventional weapons, making them credible tools on which to pin deterrence. The threat of precision-guided conventional weapons exploding in capital cities or destroying critical infrastructures would cause tremendous casualties and would give any rational national leader pause. Together, these trends augur well for the ability of states to deal with likely scenarios of future conflicts using conventional means, leaving nuclear arsenals to deter and respond to nuclear threats.

It is unrealistic to wish for total elimination of conventional interstate conflicts in the near future. In light of the possibilities of military conflict, further segregating the

conventional and nuclear realms is the right path to pursue for all nuclear weapons states. Even though the future prospects for deeper nuclear reductions are uncertain, achieving a common understanding on the importance of clearly segregating conventional and nuclear realms is in the interests of all and will effectively contribute to stability and help to build confidence.

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