

CHINA'S NUCLEAR STRATEGY

SANJANA GOGNA

INTRODUCTION

China's threat perceptions are largely shaped by the United States, and to a lesser degree by its peripheral adversaries, namely, India, Japan, and South Korea. The offence-defence spiral between the United States and China has caused Beijing to rethink its deterrence concepts as well as operational capabilities over the years. The development of the US Conventional Prompt Global Strike (CPGS) system along with the presence of its Ballistic Missile Defence (BMD) systems are propelling China to aggressively modernise its nuclear arsenal. In recent times, China has introduced hypersonic missiles as well as Multiple Independently Targetable Re-entry Vehicles (MIRV) payloads and engaged in the strategies of nuclear entanglement in order to counter the security challenge posed by the United States. Such developments, in turn, have implications on global as well as regional security as they raise the risks of deterrence breakdown and elevate threat perceptions of its regional adversaries. Notwithstanding China's rapid modernisation of its nuclear arsenal, the tenets of its nuclear policy, including 'no first use' and 'minimum retaliation means' have, thus far, remained unchanged.

This paper analyses the key elements of China's nuclear strategy from an Indian perspective. It begins by discussing how the assessments of international security by its leaders has shaped its nuclear strategy over the

Ms. **Sanjana Gogna** is Research Associate at the Centre for Air Power Studies, New Delhi.

In the early 1940s, he had asserted that an atomic bomb is only a 'paper tiger' that is used to scare people, suggesting thereby that nuclear weapons would not lead to the destruction of humanity, but would remain an extension of politics. This thinking was rooted in his conception of 'People's War', wherein he held the view that success in warfare depended on the strength of the people instead of weapons.

Mao Zedong's nuclear thinking. In the early 1940s, he had asserted that an atomic bomb is only a 'paper tiger' that is used to scare people, suggesting thereby that nuclear weapons would not lead to the destruction of humanity, but would remain an extension of politics. This thinking was rooted in his conception of 'People's War', wherein he held the view that success in warfare depended on the strength of the people instead of weapons. At the same time, he was cognisant of the salience of advanced strategic weapons for national security and contended that "to lag behind means to be exposed to invasion".¹

Mao had decided to build nuclear weapons during China's confrontations with the United States in the 1950s and early 1960s when the latter first signalled a possible nuclear use against China's territories. Initially, the

years. Next, it provides an overview of China's nuclear force structure, which includes the current size, composition and nature of Chinese nuclear weapons along with the role of the PLA Rocket Force, PLA Navy and the PLA Air Force in its nuclear operations. Finally, the paper provides an overview of China's current assessment of the existing international security, its threat perceptions, and the aspects of its nuclear strategy to overcome these strategic challenges.

EVOLUTION OF CHINA'S NUCLEAR STRATEGY—FROM MAO TO DENG

Much of China's nuclear weapons planning and operations stem from

1. Central Committee of the Communist Party of China (CCCPC) Party Literature Research Office, *A Chronicle of Mao Zedong (1949–1976)*, vol. 5 (Beijing: CCCPC Party Literature Publishing House, 2013), pp. 258–59; Editorial Committee on Party Literature of CCCPC, *Selected Works of Deng Xiaoping*, vol. 2 (Beijing: People's Publishing House, 1983), p. 237.

Chinese leadership decided to exercise greater caution against the American nuclear threat, even as the world opinion at large discounted the possibility of the United States carrying out a nuclear strike against China. However, the relations between Beijing and Washington DC grew tense when the United States incorporated Taiwan into its defence network. The formalisation of the United States-Taiwan Defence Treaty—along with the passing of the Formosa Resolution that sought to protect Taiwan from further aggression—led the Chinese leadership to attach urgency to its strategic military programme. They perceived the developments in Taiwan as US resolve to fight a nuclear war against China.² Mao sought to take Soviet assistance to build a nuclear bomb. By April 1952 the Soviet Union committed to provide China with a nuclear cyclotron along with fissionable material to advance its research.

Mao held the view that atomic bombs should not be taken casually as their use would amount to a crime. Even as the Soviet Union was providing a nuclear umbrella to China, Mao disagreed with the Soviet strategy of immediate retaliation in response to a nuclear attack by an adversary. He had even asked the Soviet Premier Nikita Khrushchev not to engage in an all-out attack if the United States were to attack, especially as the latter viewed them as weapons to fight the imperial forces. The differences in the way Mao and Khrushchev perceived nuclear weapons led to a halt in their cooperation in 1959, leading Mao to declare that China would pursue its nuclear weapons programme solely.

When China first tested its nuclear weapon in 1964, its official statement declared:

2. John W. Lewis and Xue Litai, "Making China's nuclear war plan", in *Bulletin of the Atomic Scientists* 68, no. 5 (2012): xx, doi:10.1177/0096340212459155.

China is developing nuclear weapons not because we believe in the omnipotence of nuclear weapons and that China plans to use nuclear weapons. The truth is exactly to the contrary in developing nuclear weapons. China's aim is to break the nuclear monopoly of the nuclear powers and to eliminate nuclear weapons. ... The development of nuclear weapons by China is for defense and for protecting the Chinese people from the danger of the United States' launching a nuclear war. The Chinese Government hereby solemnly declares that China will never at any time and under any circumstances be the first to use nuclear weapons.³

For the better part of China's nuclear weapon's history, its leaders' thinking regarding nuclear weapons remained highly ideological. They believed that the mere existence of nuclear weapons would make China's adversary think twice before striking their country with a nuclear weapon. The 1969 confrontation with the Soviet Union—wherein China managed to deter Moscow from launching a surgical attack—reinforced that belief.⁴ Another view that prevailed at that time was that nuclear weapons are to address nuclear threats and not deter a nuclear attack. They equated nuclear deterrence with a policy of coercion and perceived it to be a form of aggression. The PLA Encyclopaedia defines deterrence as “the display of military power or threat of use of military power, in order to compel an opponent to submit”.⁵ For these reasons, Mao decided to build a small arsenal only for self-defence. Insufficient financial resources and technological capabilities had put quantitative restrictions on China's nuclear armoury as well. The policy of No First Use, besides its ideological underpinnings, also reflected the reality of China's small and highly vulnerable nuclear arsenal. They did not have enough missiles or nuclear material to destroy an adversary state's

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3. “Statement by Peking on Nuclear Test (Published 1964)”, in *The New York Times* Breaking News, US News, World News and Videos, last modified October 17, 1964, at <https://www.nytimes.com/1964/10/17/archives/statement-by-peking-on-nuclear-test.html>. Accessed on October 16, 2020.
 4. Lewis and Litai, “Making China's nuclear war plan”, n. 2.
 5. Michael S. Chase and Arthur Chan, *China's Evolving Approach to “Integrated Strategic Deterrence”* (Santa Monica, CA: RAND Corporation, 2016), at https://www.rand.org/content/dam/rand/pubs/research_reports/RR130. Accessed on October 28, 2020.

nuclear assets. Moreover, any such launch against a nuclear power would provoke unbearable nuclear retaliation.

John W. Lewis and Xue Litai note, in terms of the building and employment of nuclear weapons, that the Chinese leadership from Mao Zedong to Marshal Nie Rongzhen continued to limit the scale of China's nuclear arsenal to 'minimum retaliation means' and provided no further details. Thus, even as the Second Artillery was formally established on July 1, 1966, China did not have an explicit nuclear strategy in the next two decades. The political chaos that lasted over a decade (1966-1976) due to the Cultural Revolution slowed the pace of the development of operational and targeting plans in Second Artillery. Regardless, during this time, China had started to deploy a limited number of DF-4 and DF-5 ICBMs.⁶

Mao's influence on China's strategic thinking began to dissolve after his death in 1976. Jeffrey Lewis notes that Mao's successor, Deng Xiaoping's thinking was more rational, but was marked with an ideological assessment of the international environment, which was peaceful at that time. It allowed China to pursue economic development instead of preparing for war.⁷ Several texts, including the *Science of Second Artillery Campaigns*, were also released at this time. Between 1979 and 1981, the Second Artillery convened twice to establish new work regulations. In 1983, several academic units, namely, Academy of Military Sciences along with a committee for academic research, were established to formulate a 'science of operations' and 'operational principles and rules' for missile units.⁸ However, improved relations with the United States in the 1980s led Deng to conclude that global war was not imminent. Lewis and Litai note that Deng foresaw a violent clash with Vietnam and India, which led the CMC to prepare for local wars and limited conflicts.

They further add that China's short but disastrous war with Vietnam in 1979 drove home the fact that PLA could not fight as an integrated force in a local war. The demonstration of superior US capabilities in the Gulf War—in

6. Jeffrey G. Lewis, *Paper Tigers: China's Nuclear Posture* (Routledge, 2014).

7. Ibid.

8. Ibid.

conjunction with the declarations of Taiwanese independence—propelled the Chinese leadership to develop sophisticated command-and-control mechanisms, and assign roles for its nuclear and conventional missiles to support peacetime diplomacy, manage military crises, and pursue combat readiness.

Additionally, in 1984, China was developing conventional tactical missiles for sales abroad. Challenges from its neighbours, especially Vietnam, India, and Japan, which were developing advanced conventional weapons, led Chinese strategists to deal with the possibilities of a conventional local war. These local military challenges in conjunction with the threat from superior US military capabilities offered the Chinese strategists the incentive to arm some missiles with nuclear warheads and thus develop operational concepts as well as a formal nuclear strategy.

MODERN CHINA'S NUCLEAR THINKING: POST-DENG ERA

During the leadership of Jiang Zemin and Hu Jintao, nuclear operationalisation was further enhanced. The concept of combining 'multiple means' became prevalent under the leadership of Jiang between 1989 and 2004. It included nuclear as well as conventional forces to strengthen deterrence.

In its first Defence White Paper released in 1998, the Chinese leaders heeded to the development of a relatively stable international security environment. It stated that the region of Asia-Pacific had grown stable but pointed out that hegemonism and power politics remained the main source of threats to world peace and stability; the Cold War mentality and its influence still had a certain currency, and the enlargement of military blocs and the strengthening of military alliances had added factors of instability to international security.

However, when the United States identified the Taiwan Strait region as one of the seven possible nuclear weapons targets in its 2002 Nuclear Posture Review (NPR), China termed the US military presence and its bilateral military alliances in East Asia—along with its plans of deploying the Theatre Missile Defence (TMD) system—as a particularly negative development. During this time, the United States also began working on its Ballistic Missile

Defence systems (BMDs) and improving the precision strike capabilities of its conventional long-range missiles to target China's nuclear assets.

From 2006 onwards, Hu pursued a self-defensive nuclear strategy in order to "subdue the enemy without fighting a battle". The US development of anti-ballistic missile systems, following its abandonment of the Anti-Ballistic Missile Treaty in 2002, also influenced this move. In the 2006 Defence White Papers, China officially began to accept deterrence as its policy and announced that the objective of China's Second Artillery Force is to "to deter other countries from using or threatening to use nuclear weapons against China". Since then, China has continued to state deterrence as a strategy in the Defence White Papers that have followed.

The 2013 Science of Military Strategy described the goal of China's nuclear weapons in the following words:

When China first decided to develop nuclear weapons, it was to break the nuclear powers' nuclear monopoly and was the archetypal existential deterrent strategy. The development of nuclear weapons since then has also abided by the recognition of "you have [them], and I have them too," i.e., the existence of nuclear weapons is itself deterrence. Under the new historical conditions, it is still the nation's strategy, and the basic goal of nuclear struggle to better exercise the existential function of nuclear weapons and to contain nuclear threats and the outbreak of nuclear war.⁹

According to Lewis and Litai, in pursuit of the "deterrence of a nuclear war and limited nuclear retaliation", five principles govern China's nuclear strategy. They are as follows:

- Oppose nuclear blackmail: Deter the enemy from starting a nuclear war, and thwart and neutralise the enemy's nuclear deterrent and blackmail.

9. "Nuclear Policy Issues in the 2013 Edition of The Science of Military Strategy: Part 1 on Nuclear Policy, Strategy and Force Modernization", Jamestown, last modified May 29, 2015, at https://jamestown.org/program/nuclear-policy-issues-in-the-2013-edition-of-the-science-of-military-strategy-part-1-on-nuclear-policy-strategy-and-force-modernization/#.Vb7qf_9RHTg. Accessed on October 22, 2020.

In the current times, China has been rapidly modernising its nuclear arsenal to meet its strategic goal, which is to maintain its nuclear deterrence. At present, China faces a deterrence challenge by the US CPGS system along with the presence of its BMD systems. China has responded to these challenges by developing MIRV and hypersonic missiles as well as.

- Gain mastery by striking only after the enemy has struck first: At no time be the first to use nuclear weapons, and, if the enemy strikes, authorise only limited nuclear retaliation.
- Centralise command: The CMC alone has the power to decide on and direct the employment of nuclear missiles. The Second Artillery must carry out the CMC's orders strictly and correctly.
- Strictly protect the missile units: Ensure the survivability of the missiles needed for the counterattack.
- Strike only key targets: Choose only strategic targets in the enemy's homeland for effective nuclear retaliation.¹⁰

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CHINA'S NUCLEAR FORCE STRUCTURE

At present, China's nuclear force consists of modernised ICBMs, new SSBNs and an improved strategic force to minimise the chances of a disarming first strike. This section focuses on the current size, composition and nature of the Chinese nuclear force and its management. It focuses primarily on the PLA Rocket Force, which is responsible for China's

10. Lewis and Litai, "Making China's nuclear war plan", n. 2.

missile-based nuclear operations as well as the storage and maintenance of nuclear warheads. This section also briefly discusses the role of the PLA Navy and the PLA Air Force, which might play a secondary role in nuclear operations.

The Second Artillery/PLA Rocket Force

The Second Artillery was created on July 1, 1966 using units from the artillery that was equipped with the short-range missiles supplied by the Soviet Union, and from a department of the Ministry of Public Security that was a forerunner to the paramilitary People's Armed Police. When the Chinese leadership decided to field tactical missiles, there was a debate amongst China's strategic planners whether to deploy them with the regular armed forces or the Second Artillery. The latter was chosen as they had the required proven leadership, management, and logistical systems. The Second Artillery made its first public appearance in the National Day parade in October 1984 and began fielding conventional missiles in the early 1990s.

The Chinese Defence White Papers released in 2008 described the Second Artillery as "a strategic force under the direct command and control of the CMC" that is "mainly responsible for deterring other countries from using nuclear weapons against China and for conducting nuclear counterattacks and precision strikes with conventional missiles."¹¹ Further, as a result of reforms carried out on December 31, 2015, the name of the Second Artillery was changed to PLA Rocket Force (PLARF), and its status was elevated from a branch to a service. As per its rank, in official discussions, the Second Artillery (henceforth PLARF) is now listed together with the triservice of the People's Liberation Army, namely, People's Liberation Army (PLA),

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11. State Council Information Office, "China's National Defense in 2008", January 21, 2009.

People's Liberation Army Air Force (PLAAF) and People's Liberation Navy (PLAN).¹²

The PLARF is constituted by six bases, or armies, which are numbered between 51 and 56. Each base is led by an officer equal in grade to a corps leader, and each of the bases is responsible for subordinate launch brigades and support regiments. Additionally, the PLARF oversees Base 22, which maintains the stockpile of the nuclear warheads. The PLARF leadership also oversees an engineering base which was formed in 2012 and is responsible for tunnelling, facility installation and disaster response. Each of the six bases, except for base 52, is responsible for the deployment of either ballistic or cruise missiles and has between three and six subordinate brigades. Base 52 operates conventional missiles and has approximately nine missile brigades. In terms of hierarchy, the command trickles down from the base to brigades, battalions, companies, and platoons.¹³

The PLARF is known to be managing both the conventional and nuclear missiles. In the 1980s, the CMC ordered the Second Artillery to operate under the 'Dual Deterrence and Dual Operations' doctrine, which was designed in response to the perceived changes in modern warfare. The *Science of Second Artillery Campaigns* document released in 2004 explained this strategy as follows:

In the late 1980s, the Central Military Commission assigned the Second Artillery Force the mission to build and develop a conventional guided-missile force. Especially after the Gulf War, the PLA, under the correct leadership of President Jiang Zemin, formulated the military-strategic guidelines of the new era. To meet the needs of future high-tech local wars, the Central Military Commission issued the new task of "dual deterrence and dual operations" and set up a new conventional guided-missile force.

The rationale for this strategy was that the combination of both conventional and nuclear operations could effectively deter China's

12. Chase and Chan, *China's Evolving Approach to "Integrated Strategic Deterrence"*, n. 5.

13. Lewis, *Paper Tigers*, n. 6.

adversaries.¹⁴ However, there exists an internal firewall wherein campaign commanders manage the conventional battlefield missiles, and the CMC directly controls the nuclear missile forces.

Command, Control and Communications

China's nuclear command and control is highly centralised, with its top political and military leaders making all the important decisions. All decisions about nuclear force employment are taken by the Central Military Commission (CMC), and the PLARF [executes] its orders.

As far as nuclear command and control is concerned, as per Gill, Mulvenon, and Stokes, the central command and control centre is located in Xishan, in the hills west of Beijing. The communication with the six launch bases is passed through the PLARF Command Headquarters and its communications regiment. Once the top leaders at the political level—who have ultimate authority—reach a consensus, the commission's chairman uses its power to issue an order to use nuclear weapons. However, it might be the case that such a decision needs consensus building with the Central Military Commission and other senior military personnel.

According to Jeffrey Lewis, whenever the CMC issues orders, the PLARF goes into a higher-level readiness and prepares for a nuclear counterattack to deter an enemy. China maintains a de-mated stance in peacetime, and keeps its first generation of ballistic missiles unfuelled and its solid-fuelled, road-mobile missiles in garrison. During an alert, these units either move to hardened underground locations or camouflaged locations to ride out an attack.

Of late, China has improved its communications command automation capabilities. It has laid thousands of miles of fibre optics cables as well as deployed mobile command systems and “integrated command platforms” so as to enhance its joint campaign command and control and operations.¹⁵

14. Anthony H. Cordesman, *The PLA Rocket Force: Evolving Beyond the Second Artillery Corps (SAC) and Nuclear Dimension* (Center for Strategic and International Studies, 2016).

15. Caitlin Talmadge, *China and Nuclear Weapons* (Brookings Institution, 2019), at https://www.brookings.edu/wpcontent/uploads/2019/09/FP_20190930_china_nuclear_weapons_talmadge-1.pdf. Accessed on October 26, 2020.

However, as Lewis notes, communication using radio, television and the Internet is used to publicise the step of placing China's nuclear forces on alert.

Strategic Missiles

Historically, China has based its nuclear deterrence on its surface-to-surface intercontinental ballistic missiles. China first planned to test the Dong Feng (DF), meaning East Wind, series: DF-1, DF-2, DF-3 in October 1959. The medium-range DF-2 was successfully tested in 1962, and with a live nuclear warhead in 1964. The DF-3 was abandoned, DF-1 was made a successor of DF-2, and there the plans to develop an ICBM culminated in 1975. DF-1 subsequently became DF-3. In the 1960s, China proposed the development of DF-4 and DF-5.¹⁶ These missiles together form China's first-generation ballistic missiles. The DF-4 was the first effort at staging, and it used DF-3 as the first stage; the DF-5 was the integration of all of China's technological advancements, which ultimately culminated in an ICBM, with the first successful test in 1971. The SLBM JL-1, along with its land-based variant, DF-21, was first tested in 1982. In 1985, the CMC outlined the plans for the second generation, where JL-2 and DF-21 were to replace DF-3; DF-31 and JL-3 to replace DF-4; and DF-41 was to replace DF-5. Nevertheless, China has decided to retain DF-4 and DF-5 ICBMs with some modifications.¹⁷

In 2006, China launched its ICBM DF-31, with a range of 7,300 km to complement its existing silo-based Dong Feng-5 (DF-5) and enhance the survivability of its weapons. The next year, it added its improved variant, the DF-31A, having a range of 11,200 km.¹⁸ The DF 41, which was showcased at the 70th anniversary of the People's Republic of China, has a range of 12,000 km, and much like the DF-5B and DF-31A(G) ICBMs, is believed to have the capacity to carry either multiple warheads or a single warhead and multiple jammers, penetration aids and decoys.

16. Lewis, *Paper Tigers*, n. 6.

17. *Ibid.*

18. "How is China Modernizing Its Nuclear Forces?", *ChinaPower Project*, last modified September 24, 2020, at <https://chinapower.csis.org/china-nuclear-weapons/>. Accessed on October 27, 2020.

As per the 2020 Military Balance, China's operational missiles consist of the following:

- 1 ICBM bde with DF-4
- 2 ICBM bde with DF-5A
- 1 ICBM bde with DF-5B
- 1 ICBM bde with DF-31
- 2 ICBM bde with DF-31A
- 2 ICBM bde with DF-31A(G)
- 2 ICBM bde with DF-41
- 4 IRBM bde with DF-26
- 2 MRBM bde with DF-16
- 2 MRBM bde with DF-17 with HGV
- 6 MRBM bde with DF-21A/E
- 2 MRBM bde with DF-21C
- 2 MRBM bde with DF-21D
- 3 SRBM bde with DF-11A/DF-15B
- 2 GLCM bde with CJ-10/CJ-10A/CJ-100
- 2+ SSM bde (forming)
- 12 JL-2 (CH-SS-N-14) strategic SLBM

Nuclear Warheads

As mentioned earlier, the PLARF oversees Base 22, which is responsible for storing and transporting warheads and training units in warhead handling and maintenance.¹⁹ It is estimated that China currently possesses 290 warheads. As per the assessments of the Federation of American Scientists, China has about six types of nuclear payload assemblies, namely, 15-40 kiloton (kt) fission bomb; 20 kt missile warhead; a three megaton (mt) thermonuclear missile warhead; 3 mt thermonuclear gravity bomb; 4-5 mt missile warhead; and 200-300 kt missile warhead. Additionally, it is suspected that China possesses a total of some 150 tactical nuclear warheads for use on its short-range ballistic and, most likely, cruise missiles.²⁰ China

19. Lewis, *Paper Tigers*, n. 6.

20. "Nuclear Weapons—China Nuclear Forces", Federation of American Scientists, www.fas.org.

Some analysts suggest that the US and Russia-based satellite surveillance capabilities, along with the US long-range precise conventional strikes capabilities, raise concerns about the survivability of China's silo-based DF-5s and its cave-based DF-4s. Therefore, its arsenal underground offers protection to its small nuclear force.

currently uses thermonuclear warheads with large yields, with little use of plutonium to reduce the mass of the warhead.²¹ In total, China has conducted 45 nuclear tests until it signed the CTBT in 1996. At present, China ostensibly conducts subcritical tests to ensure the viability of its weapons.

Storing and Logistics

To protect its limited nuclear arsenal, China is known to have constructed a vast network of underground tunnels dubbed as China's 'underground Great Wall'. As per Chinese news sources—along with the assessments

by Prof. Phillip Karber from Georgetown University that emerged in 2009 onwards—China has made over 3,000 miles of complicated tunnels to host about 3,000 nuclear weapons.²² These tunnels are known to be hundreds of metres underground in the mountainous areas. They are not connected but are scattered across China.²³ Some Chinese military experts have stated that these underground tunnels provide the PLARF with a credible second-strike capability.²⁴ Some analysts suggest that the US and Russia-based satellite surveillance capabilities, along with the US long-range precise conventional strikes capabilities, raise concerns about the survivability of China's silo-based DF-5s and its cave-based DF-4s. Therefore, its arsenal underground offers protection to its small nuclear force. As per an assessment by the *Bulletin of Atomic Scientists* in 2013, the tunnel system functions mainly as a

21. Lewis, *Paper Tigers*, n. 6.

22. "China's Underground Great Wall: Subterranean Ballistic Missiles", Belfer Center for Science and International Affairs, at <https://www.belfercenter.org/publication/chinas-underground-great-wall-subterranean-ballistic-missiles>. Accessed on October 23, 2020.

23. "The Defensive Nature of China's 'underground Great Wall'", in *Bulletin of the Atomic Scientists*, last modified June 28, 2018, at <https://thebulletin.org/2012/01/the-defensive-nature-of-chinas-underground-great-wall/>. Accessed on October 24, 2020.

24. "China's Underground Great Wall: Subterranean Ballistic Missiles", n. 22.

missile-launch base and offers invisibility in the same way the ocean hides the ballistic-missile submarine.²⁵ It also states that all necessary action for the launch can be taken in the tunnels, and the rail lines and trucks can move the missiles and the related equipment and personnel. Further, these tunnels provide logistical support and house command and control facilities.

PLA Navy

China developed its Xia submarine and Julang 1 (JL-1) SLBM in the mid-1980s.

The status of the Xia class submarine is unclear, but as per US intelligence assessments, it is not in deployment. China's newer Jin-class submarines are quieter, unlike the Xia class submarines, and appear to be taken more seriously by the Chinese leadership for deterrence purposes. Currently, China operates a fleet of four Jin-class nuclear-powered ballistic missile submarines (SSBNs)—each designed to carry up to 12 JL-2 submarine-launched ballistic missiles (SLBM)—which is a modified version of the DF-31. The JL-2 is thought to have a range of 7,200 km.²⁶

China's 2015 Defence White Paper emphasised the importance of maritime power and the need to abandon the traditional mentality that land outweighs sea. This view has developed as a result of the deployment of the US missile defences as they can take trajectories far from the US strategic missile defences positioned at Fort Greely, Alaska.²⁷

China's 2015 Defence White Paper emphasised the importance of maritime power and the need to abandon the traditional mentality that land outweighs sea. This view has developed as a result of the deployment of the US missile defences as they can take trajectories far from the US strategic missile defences positioned at Fort Greely, Alaska.

25. "The Defensive Nature of China's "underground Great Wall", n. 23.

26. "Chinese Nuclear Forces, 2019", Taylor & Francis, last modified 28, 2019, at <https://www.tandfonline.com/doi/full/10.1080/00963402.2019.1628511>. Accessed on October 23, 2020.

27. Chase and Chan, "China's Evolving Approach to "Integrated Strategic Deterrence", n. 5.

The PLAN controls China's sea-based nuclear assets; however, the PLARF is purportedly responsible for China's sea-based nuclear forces.²⁸ It is also unclear if China will maintain a continuous deterrence with constant patrolling. Further, although there are systems in place with regard to communication with ballistic submarines, not much is known about the communication infrastructure.²⁹

PLA Air Force

The PLAAF currently is not known to play a strategic role; however, air delivery systems have been used in early nuclear tests. The fielding of DH-10s, which are long-range air-launched cruise missiles, may suggest a policy change to nuclearise the PLAAF. Several of the US Department of Defence reports have also pointed out that the PLAAF might be reassigned to a nuclear counterattack mission, as the new H-6N bomber may carry nuclear-capable air-launched ballistic missiles. China is also expected to unveil its long-range Xian H-20 stealth bomber which according to the US defence department has an estimated range of more than 8,500 km and is similar to the American B-2 bomber.³⁰ Once it enters into service, the H-20 will form a part of China's nuclear triad.

CHINA'S NUCLEAR POSTURE

Tong Zhao, an expert on China's nuclear weapons capabilities, notes that till China began to develop nuclear retaliation capabilities in the mid-1980s, it pursued an 'uncertain deterrence'. However, of late, there has

28. "Does China Have an Effective Sea-based Nuclear Deterrent?", *ChinaPower Project*, last modified August 26, 2020, at <https://chinapower.csis.org/ssbn/#toc-3>. Accessed on October 25, 2020.

29. Lewis, *Paper Tigers*, n. 6.

30. Hans M. Kristensen and Matt Korda, "Chinese nuclear forces, 2019", in *Bulletin of the Atomic Scientists* 75, no. 4 (2019), doi:10.1080/00963402.2019.1628511.

Also see Minnie Chan, "China's Long-range Stealth Bomber Could Make Its Debut This Year", *South China Morning Post*, last modified May 4, 2020, at https://scmp.com/news/china/military/article/3082465/chinas-long-range-xian-h-20-stealth-bomber-could-make-its-debut?mkt_tok=eyJpLjoiTm1OalpEUm1OV1ptTVRBeSIsInQiOiJvME9SWUdvYXRNMXhSa0tlZWVkRXRac1BoeFg5RVdGeHNHQitXZkFkeXNMYXBTZk5DZXU1Zjh6T00wVTZwMW1LeHVXRGdRc3VDRnhwU3dtRXk5MkprRkF5dlBxNXpLRHNsVEZIS20wNjNteTJHYzd4U0hGMDRHN2VuZ3hnWmladSJ9. Accessed on October 26, 2020.

been an attempt to increase the threshold of nuclear self-sufficiency and move towards 'assured deterrence' as China feels increasingly challenged by US strategic capabilities.³¹ Such a shift can be attributed to three factors, namely: first, a deterioration in China's external security environment; second, China's rise and strategic ambitions; third, an increase in China's resource capabilities. China's external threat perceptions mainly stem from US activities in its neighbourhood. The growing emphasis within the United States to develop the Conventional Prompt Global Strike (CPGS) system along with the presence of its Ballistic Missile Defence (BMD) systems also aggravate China's security challenge. The former allows the US to attack high-value targets or fleeting targets at the start of or during a conflict; the latter, on the other hand, consisting of its National Missile Defence (NMD) and advanced Theatre Missile Defence (TMD) in East Asia, allows the United States to intercept an incoming adversary missile.

The expiry of the thirty-one-year-old INF treaty, that was signed between the erstwhile Soviet Union (now Russia) and the United States to ban their short and intermediate-range land-based ballistic missiles, cruise missiles, and missile launchers, in 2019 further raises new security concerns among China's leadership about the potential deployment of such missiles in its neighbourhood. Additionally, the United States has been selling arms to Taiwan and sending its Navy and Coast Guard ships into waters claimed as part of China's sovereign territory. Many experts in China see these moves by the United States as a means to peer deep into China and extract sensitive military information in order to degrade China's security.

The Defence White Paper "China's National Defense in the New Era" released in July 2019 reflects China's strategic concerns. It stated that international strategic competition is on the rise. Further, it argued that the adjustments in the national security and defence strategies of the United States had undermined global strategic stability; it has led to intensified competition among major countries that has further pushed for additional capacity in nuclear, outer space, cyber and missile defence, and undermined global strategic stability.

31. Tong Zhao, "China's Nuclear Posture" (presentation, "China's Nuclear Doctrine", Manohar Parrikar Institute for Defence Studies and Analyses, New Delhi, October 20, 2020).

The WPND reiterated China's nuclear policy in the following statement:

China is always committed to a nuclear policy of no first use of nuclear weapons at any time and under any circumstances, and not using or threatening to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones unconditionally. China advocates the ultimate complete prohibition and thorough destruction of nuclear weapons. China does not engage in any nuclear arms race with any other country and keeps its nuclear capabilities at the minimum level required for national security. China pursues a nuclear strategy of self-defence, the goal of which is to maintain national strategic security by deterring other countries from using or threatening to use nuclear weapons against China.

In the months following this statement, China introduced its modernised nuclear arsenal including the potentially dual-use Dong Feng-17 Hypersonic Glide Vehicle that follows an unpredictable trajectory and travels at speeds exceeding Mach 5 (6,100 kph) in order to penetrate the US defence systems. In 2019, China introduced its intercontinental ballistic missile (ICBM) Dong Feng 41 (DF-41) that offers an operational range exceeding 14,000 kilometres. It enables China to reach the United States within thirty minutes. This range allows China to surpass the range of the longest US ICBM LGM-30 Minuteman that has a reported range of 13,000 kilometres. The British Think Tank, the International Institute for Strategic Studies (IISS) has reported that the DF-41 is reportedly capable of carrying Multiple Independently Targetable Re-entry Vehicles (MIRV) or jammers and penetration aids. The Chinese Communist Party-run *Global Times* claims that DF-41 has the capacity to carry about ten independently targetable nuclear warheads. Some experts suggest that the purpose of the MIRVs is to ensure penetration of the US ballistic missile defence system rather than maximising its warhead capacity.

These developments have a destabilising effect in China's neighbourhood as it raises threat perceptions among its regional adversaries. China has tense relations with India and Japan. While India possesses nuclear weapons,

Japan enjoys the US nuclear umbrella. China refuses to acknowledge India as a legitimate nuclear weapon state as it is not signatory to the Nuclear Non-proliferation Treaty (NPT), and therefore China is not involved with New Delhi on any nuclear confidence-building mechanisms that could assuage the latter's security concern. A lesser discussed but worrisome outcome of China's nuclear modernisation is its proliferation of nuclear technology to Pakistan. China has announced selling a highly sophisticated, large-scale optical tracking and measurement system to aid Pakistan in developing MIRV capabilities.³² Such transfers further exacerbate regional tensions.

Further, China has simultaneously mixed its conventional weapons technologies with its nuclear weapons and their associated command and control systems. This tactic is designed to confound an adversary who can potentially attempt a pre-emptive strike. By deliberately mixing the two capabilities, states attempt to create uncertainties regarding the target of the adversary, and thereby raise the risk of nuclear escalation.

China has entangled its nuclear weapons through the deployment of dual-use weapons as well as the commingling of both the nuclear and conventional missile forces within the People's Liberation Army Rocket Force (PLARF). Its DF-26 Intermediate-Range Ballistic Missile (IRBM), DF-21 Medium-Range Ballistic Missile (MRBM), along with possibly the DF-17 Hypersonic Glide Vehicle (HGV) can carry both conventional and nuclear payloads, and therefore cause warhead ambiguity.

Nuclear entanglement by dual-use weapons can be risky as during the 'fog of war', any mischaracterisation of a non-nuclear weapon as a nuclear one could potentially lead to nuclear escalation. The commingling of China's nuclear and conventional missiles forces also comes with another set of risks which have caused concerns amongst its adversaries. The US "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2019" remarked that the commingling could

32. "Pakistan and China's Almost Alliance." RAND Corporation Provides Objective Research Services and Public Policy Analysis | RAND, at <https://www.rand.org/blog/2015/10/pakistan-and-chinas-almost-alliance.html>. Accessed on May 10, 2020.

It may be noted that there remain fundamental differences in the way China and the United States perceive nuclear escalation. The former remains sceptical about controlling nuclear escalation once nuclear weapons are used; whereas the latter assumes that nuclear escalation could be controlled in its planning for nuclear operations.

“complicate deterrence and escalation management during a conflict”. It warned that “a potential adversary attack against Chinese conventional missile force-associated Command and Control (C2) centres could inadvertently degrade Chinese nuclear C2 and generate nuclear use-or-lose pressures among China’s leadership.”

Of late, there also seems to be a shift towards developing space-based early-warning reconnaissance capabilities in order to detect a boost-glide weapon shortly after launch. It may further pave the way for Launch on Warning (LOW)

or Launch Under Attack (LUA) nuclear posture. Although China, at present, keeps its nuclear weapons de-mated and dispersed, it is, nevertheless, financially and technologically capable of developing and deploying such systems. Any move in that direction, especially given China’s ambiguous nuclear weapons programme, could heighten the potential for a false alarm and may have disastrous consequences.

Finally, it may be noted that there remain fundamental differences in the way China and the United States perceive nuclear escalation. The former remains sceptical about controlling nuclear escalation once nuclear weapons are used; whereas the latter assumes that nuclear escalation could be controlled in its planning for nuclear operations. To illustrate, China doesn’t seem to have an ‘escalate to de-escalate policy’ like the United States, wherein it plans to use nuclear weapons first to forestall defeat in a conventional military conflict.³³ It may lead the United States to overestimate the likelihood that China would use nuclear weapons and underestimate

33. Fiona S. Cunningham and M. T. Fravel, “Dangerous Confidence? Chinese Views on Nuclear Escalation”, in *International Security* 44, no. 2 (2019): xx, doi:10.1162/isec_a_00359.

the scale of a Chinese retaliatory nuclear strike.³⁴ Such a difference in thinking can create greater instability during a crisis, and contribute to an accidental nuclear deterrence breakdown.³⁵

FUTURE OF CHINA'S NUCLEAR POSTURE AND CONCLUSION

The US CPGS systems along with its BMD systems act as a sword and shield, respectively, which significantly challenge China's nuclear deterrence. These developments have propelled China to rapidly modernise its arsenal to include MIRV capable and hypersonic missiles. These developments have, in turn, turned out to be destabilising for China's neighbourhood as it raises the threat perception among its regional adversaries. There are simultaneous concerns regarding China's proliferation of these modernised nuclear capabilities to Pakistan. Notwithstanding, while China moves ahead with these developments, there is a growing concern that China may increase its warhead count. There are also concerns, especially in the United States, that China may possibly move towards LOW posture or change its policy of NFU.

There is a strong possibility that China's warhead count may increase to enable its MIRV capable missile as each of them would carry up to ten nuclear warheads. Moreover, China also seems to have enough fissile material to facilitate the expansion. The 2020 Annual Report to Congress, "Military and Security Developments Involving the People's Republic of China" suggests that China's nuclear warhead stockpile will at least double in size as China expands and modernises its nuclear forces. It adds that the number of warheads on China's land-based ICBMs is expected to grow to roughly 200 in the next five years. Such a move could indeed cause a shift away from China's minimalist force posture.

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34. Ibid.

35. Ibid.

However, it seems unlikely that China would alter its alert levels. Although the US report to the Congress suggests that China is seeking to keep at least a portion of its force on a LOW posture—which includes investment in silo-based forces while building more survivable mobile platforms. It also reported that Russia plans to assist China in developing missile-attack early warning network, including aiding the development of ground-based radars and potentially extending to space-based sensors. Additionally, China possesses several ground-based large phase array radars. These systems combined could support a missile early warning role. Notwithstanding, Manpreet Sethi notes that the existing posture allows China to maintain a high moral ground on nuclear issues and put others on the defensive.³⁶ China has adequate confidence in its second-strike capability to signal certainty of nuclear retaliation. Thus, China would continue to buttress its second strike through development of asymmetric capabilities.³⁷

For the reasons given above, China is also unlikely to deviate from its long-standing policy of NFU. China's leadership continues to view nuclear weapons as an extension of politics, and not warfighting weapons. Unlike the United States, China does not have the 'escalate to de-escalate policy', wherein it plans to use nuclear weapons first to forestall defeat in a conventional military conflict. With its vast, hardened underground locations and emerging sea leg to hide its nuclear arsenal, China, instead, seems to signal to the United States that it can survive a first strike, and use the surviving MIRV and HGV capabilities to penetrate the US BMD.

36. Manpreet Sethi, "China's Contemporary Nuclear Debates: What's Brewing?," *The Sunday Guardian Live*, <https://www.sundayguardianlive.com/opinion/chinas-contemporary-nuclear-debates-whats-brewing>, accessed on October 26, 2020.

37. Ibid.