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Issue Brief

Pentagon Report and the Chinese Nuclear Forces Assessment

Rajiv Nayan

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S*ummary*

The US security establishment is increasingly making a realistic assessment regarding the Chinese nuclear arsenal in particular and the military prowess of China in general. The Pentagon Report is gradually informing the Congress and through it to the world the emerging and threatening military design of China. Although the 2021 Pentagon Report has stunned the world by telling the annual increase in the number of nuclear warheads, yet in other spheres relating to nuclear weapons, the Chinese move is consistently battle-oriented. The diversity of delivery vehicles leaves the security community assess the missions China may undertake in the near future and in the long-term. The assessment is made from the American perspective, yet it gives the Indian security establishment an opportunity to revisit its own understanding and strategy in the new strategic environment.

On 3 November 2021, the United States Department of Defense (US DOD) released its annual report to the Congress titled “Military and Security Developments Involving the People’s Republic of China”, also called the Pentagon Report. While the standard chapters such as “Understanding China’s Strategy” and “Resources and Technology for Force Modernization” have featured in the recent years with updated data, the 2021 report covers three special topics—“The PRC’s Effective Control Concept and PLA Escalation Management Views”, “PRC’s Evaluation of the 13th Five Year Plan” and “PRC-India Border Standoff”.¹

Of all the elements, the news of the rapid increase in the nuclear forces of China, as revealed in the report, seems to have surprised the media and the strategic community. The report covers different aspects of the Chinese nuclear forces. While some of the data collated and analyses have already been provided in the earlier reports, the new information given in the 2021 report has led to discussions not only in the US Congress but also all over the world, especially in countries which could be affected by the aggressive Chinese behaviour.

Increase in the Stockpile

The information given in the 2021 Pentagon Report about China increasing its nuclear warheads has grabbed the attention of the media, however, the report also has information on other elements of the Chinese nuclear forces. China was the first nuclear-weapon country to keep its nuclear weapons stockpile a secret. Before that, all the nuclear-weapon countries used to announce the size of their nuclear weapons stockpile publically or officially, though the issue of verification always dogged the claims and this would often result in accusation and counter-accusation. After China’s nuclearisation, no new nuclear weapon country has made its weapon stockpile public. Israel has not even declared its nuclearisation, but it is widely acknowledged as a nuclear-weapon country.

The 2021 report mentions that in the next six years, i.e., by 2027, China may have “up to 700 deliverable nuclear warheads”, and that the number is likely to increase to “at least 1,000 warheads by 2030”.² The report states that this is the result of China’s rapid nuclear weapons development policy, effected in turn by the Chinese investment in its nuclear infrastructure. In general, it may have talked about the development of general nuclear infrastructure, yet it has made a special mention of the role of plutonium reprocessing for its nuclear weapon growth. In this regard, it has talked about the fast breeder reactor and reprocessing facilities. Interestingly,

¹ [“Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2021”](#), Office of the Secretary of Defence, US Department of Defense, 2021.

² *Ibid.*, p. 92.

the 2021 report radically departs from its assessment made in its 2020 report, where the US DOD had predicted that China, which had the nuclear weapons stockpile in “low-200s”, may “at least double” it by 2030.³

The report has used the phrase “up to 700”, thus indicating that the highest number could not be more than 700, and the use of the phrase “at least 1000” means that it expects greater expansion after 2027. However, the 2020 report, too, had predicted at least doubling of the low 200 arsenals means staying around or below 500 nuclear warheads. So, in the last one year, the US intelligence community believes that China has given priority to increasing the stockpile of its nuclear weapons. As mentioned earlier, the authoritative official data for the Chinese nuclear weapons stockpile is not available, therefore it is a matter of speculation.

The Pentagon reports give an official American government estimate of the Chinese nuclear weapons stockpile. Some Non-Governmental Organisations (NGOs) are also predicting the nuclear stockpile of China and of other nuclear-weapon countries, including those which had not disclosed their nuclear weapons stockpile publically or officially. The Federation of American Scientists (FAS) and SIPRI among others have been regularly publishing their estimates of the nuclear stockpile of China and of other nuclear-weapon countries.

In December 2020, Hans M. Kristensen and Matt Korda from the Federation of American Scientists in their report predicted that China had approximately 350 nuclear warheads.⁴ The authors underlined in their report that their speculation of the Chinese nuclear weapons is higher than that of the 2020 Pentagon report. SIPRI, in its January 2021 report, also predicted the same number—350 nuclear warheads.⁵ It underscored that in 2020, China had only 320 warheads. Other American and European think tanks seem to have copied the number given in the report of the FAS.

More than a decade ago, a former Pentagon official, Phillip Karber had estimated that China possessed about 3,000 nuclear warheads. However, neither the Chinese government nor the strategic community has endorsed this number. Is the US policy-making community moving towards Karber’s number gradually? The US security establishment, in the post-Cold War period, started realising the mischief potential of China. It was found to be involved in the proliferation network, which was benefiting China as well. But the American establishment sanitized any report on China quite drastically.

³ **“Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2020”**, Office of the Secretary of Defence, US Department of Defense, 2020, p. 85.

⁴ Hans M. Kristensen and Matt Korda, **“Chinese Nuclear Weapons, 2021”**, *Bulletin of the Atomic Scientists*, Vol. 77, No. 6, 2021, pp. 318–336.

⁵ **SIPRI Yearbook 2021: Armaments, Disarmament and International Security**, Oxford University Press, 2021, p. 334.

Silos

Like the drastic increase in the nuclear stockpile in comparison to the 2020 report, the 2021 report also covered in detail the silo-based nuclear capable missiles. The silo-based missiles had figured in the reports already in the public domain before and after the publication of 2020 report. Quite significantly, the FAS had brought out a report earlier in 2019, which mentioned that “satellite photos acquired from Digital Globe (Maxar) show that the People’s Liberation Army Rocket Force (PLARF) is building what appears to be a new type of missile silo in the missile training area near Jilantai, possibly for use by a new ICBM”.⁶ In recent months, Western media has been reporting the operation of the Chinese nuclear weapons silos. The reports state that over 250 new long-range missile silos exist or are being constructed.⁷

These silos exist at three places—at Yumen and Hami in north-western China and at Hanggin Banner in Inner Mongolia. The James Martin Center for Nonproliferation Studies in California had revealed the existence of a site in June 2021⁸, FAS did so in July 2021⁹ and Chinese Aerospace Studies Institute, Air University—all three from the US in August 2021.¹⁰ Interestingly, in 2021, too, the information on the silos in the public domain has come through Non-Governmental Organisations, which ostensibly procured the data from commercial satellites.

The general tone of the reports and analyses done by others also indicated or predicted that China may increase the number of its nuclear weapons. After the second leak or revelation of the Chinese silos done by the FAS, the US Strategic Command tweeted on 28 July 2021: “This is the second time in two months the public has discovered what we have been saying all along about the growing threat the world faces and the veil of secrecy that surrounds it.”¹¹

Although the Chinese government remained quiet on the leaks on all the three occasions, yet newspapers like the *Global Times* reacted to it. The reaction did not confirm the news about the silos but did endorse the Chinese need to modernise and

⁶ Hans Kristensen, [“New Missile Silo and DF-41 Launchers Seen in Chinese Nuclear Missile Training Area”](#), Federation of American Scientists, 3 September 2019.

⁷ Matt Korda and Hans Kristensen, [“China is Building a Second Nuclear Missile Silo Field”](#), Federation of American Scientists, 26 July 2021.

⁸ Joby Warrick, [“China is Building More Than 100 New Missile Silos in its Western Desert, Analysts Say”](#), *The Washington Post*, 30 June 2021.

⁹ Matt Korda and Hans Kristensen, No. 7.

¹⁰ [“Uncovering the Truth Behind the PLA Rocket Force’s August 2021 Missile Launch”](#), China Aerospace Studies Institute, August 2021.

¹¹ [“This is the Second Time in Two Months the Public has Discovered...”](#), US Strategic Command, *Twitter*, 28 July 2021.

accelerate the production of its nuclear arsenals, especially ICBMs (Intercontinental Ballistic Missiles). The leaks have illustrated that China has adopted some unorthodox and unpredictable pattern of missile developments. When the mobile missile launchers are considered the order of the day, it has decided to buck the trend. China appears to be implementing a mixed approach. Mobility is being complemented by survivability. Silos will ensure survivability and strengthen the second strike capability of China if it continues to adhere to its no first use (NFU) policy.

However, a section of the Western strategic community, including Gareth Evans, the former Australian Foreign Minister, and the head of the *Asia-Pacific Leadership Network*, is still bailing out China, and maintains that “some of the fears may be misplaced”.¹² Gareth Evans thinks that silos could be useful for China’s strategy of playing Shell Game of 1970s, in which the enemy is lured to bomb empty silos and the missiles are moved from one silo to another. *Though this section accepts the existence of silos, it propounds the thesis that each silo may not be filled with a nuclear-tipped missile.* Jeffrey Lewis, a highly respectable name on the Chinese nuclear weapons, belonging to the Middlebury Institute that facilitated the first leak, maintains that 120 silos may have only 12, not 120, nuclear-tipped missiles.¹³

Updation

The 2021 Pentagon report understandably also provides an update on the developments given in its 2020 report. While the 2020 Pentagon report reported the number, the 2021 version added either the number or a new dimension or both. For instance, regarding ICBMs, like the previous report, the 2021 report also mentions China possessing about 100 missiles; it also adds that China is planning to double ICBMs. The 2021 report also informs about launching of “more than 250 ballistic missiles for testing and training”, as well as firing of anti-ship ballistic missiles against a moving target.¹⁴ In 2019, China had paraded its DF-17 Hypersonic Glide Vehicle. The 2021 Pentagon report tells that the DF-17 has been deployed, and thus, becomes the first operational hypersonic weapon in the world.

Similarly, as per the 2020 report, China had four operational Jin-class Ship Submarine Ballistic Nuclear (SSBN), while the 2021 report indicates six operational Jin-class SSBNs. The 2021 report also informs that China has nine nuclear attack submarines, whereas the 2020 report mentioned only six such submarines. As for

¹² Gareth Evans, “[China’s New Silos: Nuclear Arms Control More Urgent Than Ever](#)”, *The Interpreter*, 19 August 2021.

¹³ Jeffrey Lewis, “[China is Radically Expanding Its Nuclear Missile Silos](#)”, *Foreign Policy*, 30 June 2021.

¹⁴ No. 1, p. 94.

Air Force, the Pentagon reports have given information about the H-6-N bomber, its refuelling capabilities and the increase in the nuclear capable air-launched ballistic missiles. However, the current 2021 version moves a step forward and informs that the bomber division may start “developing tactics and procedures to conduct the PLAAF nuclear mission”.¹⁵

Doctrine

Does the 2021 Pentagon report indicate changes in the nuclear doctrine of China? In fact, the 2021 Pentagon report has not predicted any major doctrinal shift in China’s nuclear doctrine. The US security establishment and the American strategic community, over the last few years, have maintained that the Chinese establishment has internally made preparations for ignoring the official nuclear doctrine under certain conditions. In this regard, a translated ‘restricted’ 2004 document of the Chinese government has been in circulation.¹⁶ The document has not been acknowledged officially by the Chinese government but a few Chinese academicians do acknowledge the restricted document and discuss about it.

The circulating 2004 ‘restricted document’ is called the nuclear doctrine and policy science of Second Artillery campaign. The Second Artillery force or nuclear force was renamed as People’s Liberation Army Rocket Force in December 2015. The document mentions that China needs a forceful nuclear coercion policy. If it is assumed that the document is genuine, then China’s NFU policy is conditional. Not only that, for several years, reports, including Pentagon, have been underscoring that China has developed low-yield weapons for both battlefield and deterrence purposes. These forces are placed on ‘combat readiness’ and ‘high alert’ duties. The recent Pentagon reports have indicated that the DF-26 missile has been assigned to do a precision strike with nuclear weapons.

As the Chinese government does not consider Taiwan as a country, its NFU policy will therefore not be applicable to it. The Pentagon reports also point out that at least since 2018, Chinese have a fear that the US may use low-yield nuclear weapons to check the Chinese invasion of Taiwan, which is why the Chinese are developing low-yield nuclear weapons. China may also use nuclear weapons if it is attacked with advanced non-nuclear weapons. Besides, its NFU policy will not be adhered to, first, if its nuclear infrastructure, including nuclear power plant is endangered; second, if its facilities like big hydroelectric plants are attacked; and third, if its huge population along with large and medium cities and political and economic centres are under attack. Quite interestingly, China may use nuclear weapons against its

¹⁵ No. 1, p. 56.

¹⁶ Yu, Jin, ed. *Dierpaobing zhanyixue (The Science of Second Artillery operations)*. Beijing: People’s Liberation Army Press, 2004 (Translated by Gregory Kulacki, Union of Concerned Scientists, September 2014).

adversary even if it is not attacked with nuclear weapons and if it feels that the country's safety and survival will be at stake because of the adversary's attack.

As for Launch on Warning (LOW), it is believed that something new has become evident. In reality, not only the 2004 'restricted' document but also the previous Pentagon report mentioned that China had developed infrastructure like early warning command and control for the purpose of overcoming nuclear attack. It also maintains that a considerable size of its nuclear forces are dedicated for LOW. The 2021 report informs that PLA uses the term "early warning counterstrike" for LOW.¹⁷ In a way, the report consolidates the impression generated over the years that China is practising the policy of LOW in a different name.

The 2021 Pentagon Report emphasises that in 2021 China has at least one satellite in the orbit which is providing it early warning data. It also mentions PLA documents leaked by Western media that China would be developing three geostationary satellites for early missile warning. Even in the 2020 report, it was vaguely stated that the Chinese are working towards developing space-based capability for early warning. The 2021 report came out with a definite number and mentions that PLARF has been doing exercises visualising early warning nuclear attack and the needed response to it since 2017. This was not found in the 2020 report.

Besides, the 2021 report also highlights that China had an old plan for LOW through its land-based ballistic missile early warning radar in the 1970s and 1980s. However, according to the report, China did not trust the land-based system and went for the satellite-based system. For a couple of years, the Pentagon reports have been underlining the Russian proposal to help China in developing some land-based and space-based early warning systems for missiles. The silos, which have been surfacing in imagery through different commercial satellite-based reports, are supposed to strengthen LOW of China. The Pentagon reports point out that China is planning to use silo-based DF-5, DF-31A and DF-41 missiles for LOW, and has been making preparations in this regard.

Conclusion

The appearance of this information has shocked and puzzled the world. Some are questioning the timing of the appearance of the information. A number of exercises are taking place discussing strategic and security implications of the feared expansion of the Chinese nuclear stockpile. The strategic and security communities of different countries are undertaking exercises from their own perspectives. The 2021 Pentagon Report continued the earlier exercise of assigning different missiles for different missions. If ICBMs are the jewel of the crown targeting the US, other medium and intermediate range missiles are also considered valuable in the

¹⁷ No. 1, p. 93.

emerging Asian battlefield in the American thinking expressed in the Pentagon report.

The ongoing shift in the American thinking *vis-à-vis* China is taking place. The American grand strategy was to make China an important stakeholder of the global non-proliferation system so that the world has strategic stability. However, as American industry continued to do business with China, the sanitisation of the reports helped it in overlooking Chinese proliferation, and avoid imposing comprehensive sanctions on it, though occasionally, the US did impose institution-specific curbs on China. In recent years, it seems, the American establishment has been disillusioned with China, and has begun to maintaining a tough posture and policy. The leaks could be a step towards projecting a realistic picture of China. For India, the increase in the number of intermediate, medium and short range missiles in China is a real matter of concern. The changing Chinese nuclear policy may turn these missiles better weapons to target the Indian facilities.

About the Author

Dr Rajiv Nayan is an Senior Research Associate at the Manohar Parrikar Institute for Defence Studies and Analyses, New Delhi.

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