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Chinese Nuclear Forces and U.S. Nuclear War Planning



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Dedicated to Sally Lilienthal

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ABBREVIATIONS

BAO.....	Basic Attack Option	MRBM.....	Medium-Range Ballistic Missile
CEP.....	Circular Error Probable	MRV.....	Multiple Reentry Vehicle
CINC.....	Commander in Chief	Mt.....	Megaton
CINCPAC.....	Commander in Chief U.S. Pacific Command	NIE.....	National Intelligence Estimate
CIA.....	Central Intelligence Agency	NMD.....	National Missile Defense
CISAC.....	Center for International Security and Cooperation (Stanford University)	NPR.....	Nuclear Posture Review
CNO.....	Chief of Naval Operations	NUWEP.....	Nuclear Weapons Employment Policy
CONPLAN.....	Concept Plan or (if put into effect) Contingency Plan	OPLAN.....	Operations Plans
DEFCON.....	Defense Condition	OSD.....	Office of the Secretary of Defense
DF.....	Dong Feng	PACOM.....	U.S. Pacific Command
DOD.....	Department of Defense	PLA.....	People's Liberation Army
DOE.....	Department of Energy	PRC.....	People's Republic of China
DIA.....	Defense Intelligence Agency	QDR.....	Quadrennial Defense Review
FOIA.....	Freedom of Information Act	RNO.....	Regional Nuclear Option
HF.....	High Frequency	RV.....	Reentry vehicle
HOB.....	Height Of Burst	SAC.....	Strategic Air Command
HPAC.....	Hazard Prediction Assessment Capability	SAM.....	Surface-to-Air Missile
ICBM.....	Intercontinental Ballistic Missile	SAO.....	Selected Attack Option
IRBM.....	Intermediate-Range Ballistic Missile	SIOP.....	Single Integrated Operational Plan
JL.....	Julang	SLBM.....	Sea-Launched Ballistic Missile
JSCP.....	Joint Strategic Capabilities Plan	SLCM.....	Sea-Launched Cruise Missile
km.....	Kilometer	SRF.....	Strategic Reserve Force
kt.....	kiloton	SRBM.....	Short-Range Ballistic Missile
LACM.....	Land-Attack Cruise Missile	SSBN.....	Nuclear-Powered Ballistic Missile Submarine
LAO.....	Limited Attack Option	SSGN.....	Nuclear-Powered Guided Missile Submarine
LEP.....	Life-Extension Program	SSN.....	Nuclear-Powered Attack Submarine
LF.....	Low Frequency	SS.....	Diesel-Powered Submarine
LNO.....	Limited Nuclear Option	STRATCOM.....	U.S. Strategic Command
LRBM.....	Long-Range Ballistic Missile	TACAMO.....	Take Charge And Move Out
MAO.....	Major Attack Option	TEL.....	Transporter Erector Launcher
Mk.....	Mark	VLF.....	Very Low Frequency
MIRV.....	Multiple Independently-Targetable Reentry Vehicle		



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Executive Summary

An incipient nuclear arms race is emerging between the United States and China. The two nations have been aiming their nuclear weapons at each other for decades, but now – with the absence of a definitive enemy such as the Soviet Union – the United States has elevated China to fill the void to help justify modernizing its armed forces in general, and its nuclear forces in particular. China, too, uses the United States as a rationale for modernizing its forces, and the two nations are becoming increasingly locked into a pattern of action-and-reaction reminiscent of the Cold War.

The U.S.- Chinese nuclear arms race is not on the scale of that between the United States and the Soviet Union that threatened the world with peril for four decades, but it shows worrisome signs of intensifying. This wasteful and potentially dangerous competition still can be avoided if wiser heads on both sides prevail and ensure that military competition and worst-case planning do not undermine and complicate the far more extensive and important economic, political, and cultural relationship between the two giants.

To better understand the nuclear relationship between China and the United States, the dynamics that drive it, and its potential consequences, we first examine Chinese nuclear forces in some detail, including their past development, their current status, and what future programs are underway according to the U.S. government's assessments and other sources. We then provide a history of U.S. nuclear targeting of China – although much is still shrouded in secrecy, and conclude by simulating two hypothetical nuclear strike scenarios that are likely to be close approximations of actual war plans: a U.S. strike against Chinese intercontinental ballistic missile silos and a Chinese strike against U.S. cities.¹

The United States Has Overpowering Superiority

Our principal finding is that the Chinese-U.S. nuclear relationship is dramatically disproportionate in favor of the United States and will remain so for the foreseeable future.² Although the United States has maintained extensive nuclear strike plans against Chinese targets for more than a half century, China has never responded by building large nuclear forces of its own and is unlikely to do so in the future. As a result, Chinese nuclear weapons are quantitatively and qualitatively much inferior to their U.S. counterparts:

- China's total stockpile numbers around 200 warheads; the United States has nearly 10,000. By 2015, after China deploys a new generation of ballistic missiles and the United States has completed its planned reductions, China may have some 220 warheads and the United States more than 5,000.
- China has about 20 intercontinental ballistic missiles (ICBMs) capable of reaching the continental United States; the United States has more than 830 missiles – most with multiple warheads – that can reach China. By 2015, when the U.S. intelligence community projects China will have 75 missiles primarily targeted against the United States, the U.S. force will include 780 land- and sea-based missiles.
- None of China's long-range nuclear forces are believed to be on alert; most U.S. ballistic missiles are on high alert ready to launch within minutes after receiving a launch order. By 2015, unlike today, some of China's long-range missiles presumably might deploy with their warheads mated but be incapable of quickly launching on warning.
- China's sole nuclear ballistic missile submarine (SSBN) has never gone on patrol. As a result, the crews of the new Jin-class (Type 094) SSBNs currently under construction will need to start almost from scratch to develop the operational and tactical skills and procedures that are essential if a sea-based deterrent is to be militarily effective and matter strategically. In comparison, U.S. SSBNs have conducted more than 3,600 deterrent patrols over the past 55 years. In 2005, the United States conducted 44 patrols, more than four times the number of SSBN patrols conducted by all other nuclear weapon states combined.
- China may be able to build two or three new SSBNs over the next decade, but they would be highly vulnerable to U.S. anti-submarine forces; the

U.S. Navy has 14 SSBNs and has moved the majority of them into the Pacific, where they operate with impunity.

- China may have a small number of aircraft with a secondary nuclear capability, but they would be severely tested by U.S. and allied air defense systems or in air-to-air combat. The United States operates 72 long-range bombers assigned missions with nuclear gravity bombs and land-attack cruise missiles.
- China does not have nuclear cruise missiles, although the U.S. intelligence community suspects it might develop such a capability in the future. The United States has more than 1,000 nuclear cruise missiles for delivery by aircraft and attack submarines.

The main reason for this disparity is the United States once deployed tens of thousands of warheads aimed at the Soviet Union during the Cold War, and although many have been retired, a substantial number remain today. Russia continues to be a primary driver for sustaining high U.S. warhead levels simply by virtue of the number of nuclear weapons and facilities it retains. Some portion of the U.S. force, however, is used to target China. We found China to have a larger than expected role in U.S. nuclear war planning activities and targeting strategy. We examined many declassified documents and were surprised to discover the extensive role China has played in U.S. nuclear planning over the years and by the large number and types of U.S. nuclear forces that have been assigned to hold targets in China at risk.³

The disparity also is evident in the weapons acquisition process in both countries. China, unlike the United States or Russia, has taken extraordinarily long periods of time to field new weapon systems. Due to a combination of policy decisions and technological deficiencies, China has not pursued these programs on a “crash” basis and in many instances the weapons were obsolete when they were finally deployed. Even after initial deployment, China’s build-up of additional forces has been slow. It is true that the Chinese have been working on improving their missiles and submarines for the past 15 to 20 years, but the pace of modernization grinds on and each annual Pentagon projection pushes the operational dates further into the future.

During our examination of the many unclassified and declassified U.S. government documents referenced in this report, we were struck by how exaggerated and often self-contradictory U.S. predictions of Chinese nuclear weapons and delivery systems have been throughout the decades. Estimates about the size of the

Chinese nuclear arsenal were grossly overstated, sometimes by several hundred percent, and timelines for when new systems would come on line were almost always too much too soon. The reasons for these misjudgments include China's ability to keep its capabilities hidden, a tendency among some U.S. intelligence analysts to overstate their conclusions, and the Pentagon's general inclination to assume the worst. This predisposition to exaggerate the Chinese threat unfortunately remains evident today.

To take one example, the U.S. intelligence community's core projection that the Chinese nuclear missile force will include 75 to 100 warheads primarily targeted against the United States by 2015 appears to be too high. The projection rests on very premature assumptions about the scale of the deployment of the DF-31A, one of three new long-range ballistic missiles China is developing. The intelligence community estimates that China will deploy some 40 to 55 of these missiles by 2015, all with single warheads, and 20 older DF-5A possibly with multiple warheads. U.S. nuclear prognosticators anticipated the Chinese would deploy the first 10 DF-31A by 2005, but that did not happen, and it is hard to envision that the prediction will be realized – especially since the missile has yet to be flight-tested.

Whatever the future Chinese nuclear posture will look like, the way these two nuclear powers choose to co-exist and influence one another in the next decade will have far-reaching implications for security in the Asian Pacific region. Some signs point to increased tensions, although recent efforts have sought to increase the direct military contacts between the two countries.⁴

China's No-First-Use Policy

Beyond the uncertainty of how many missiles China might build is the question of the evolution of its nuclear policy and whether it will maintain a no-first-use policy. A decade ago, several Western analysts suggested that Chinese thinking about nuclear strategy might be moving toward limited deterrence, which would mean a more dynamic targeting policy with the potential of using nuclear weapons first.⁵ Since then however, Chinese nuclear policy does not appear to have changed noticeably, nor has it affected operational nuclear weapons deployment in any important way. Chinese declaratory policy has always been one of “no first use” with a retaliatory minimum deterrent force aimed at countervalue (i.e., population centers) targets with forces maintained on very low alert or no alert at all.

Official statements continue to ascribe to a no-first-use policy. For example, a 2005 Chinese Foreign Ministry white paper refers to U.S. policy and to Chinese policy:

The [U.S.] nuclear deterrence strategy based on the first use of nuclear weapons has yet to be abandoned. The trend toward lowering the threshold for the use of nuclear weapons and developing new nuclear weapons is worrisome.

[The] nuclear weapon states should commit themselves to no first use of nuclear weapons and undertake unconditionally not to use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones.

[The] Chinese government has solemnly declared that it would not be the first to use such weapons *at any time* and *in any circumstance*. Whether confronted with the nuclear threat and nuclear blackmail during the Cold War, or faced with the great changes that have taken place in the international security environment after the Cold War, China has always stayed true to its commitment. China's policy in this regard will remain unchanged in the future.⁶ (Emphasis added.)

A literal reading of the phrase “in any circumstance” suggests that even if Russia or the United States invaded China and threatened the political survival of the country, China would not resort to using nuclear weapons as long as the invader refrained from using nuclear weapons. This seems unlikely. China, like the other nuclear powers, probably would resort to the use of nuclear weapons in such an extreme situation. Its declaratory policy in fact does seem to influence acquisition and employment policies, with the result that the country keeps its forces relatively small. A more ambitious strategy would require larger forces. But words mean little to U.S. nuclear war planners, who deploy forces and aim warheads at China's actual capabilities.

Some Pentagon analysts fear that China's improved next-generation land- and sea-based ballistic missiles and cruise missiles may result in more ambitious and extensive deployment patterns and even some counterforce (e.g., opposition nuclear forces) targeting.⁷ Increased accuracy brings with it the possibility of more flexible strategies, and some U.S. analysts anticipate that China may alter its policy. For example, a recent Pentagon report stated: “As China improves its strategic forces, despite Beijing's ‘no-first-use’ pledge, there are indications that some strategists are reconsidering the conditions under which Beijing would employ theater nuclear weapons against U.S. forces in the region.”⁸

This theme was echoed in a 2005 RAND study prepared for the U.S. Air Force: “Some in China may also be contemplating the shift to a ‘limited nuclear deterrent’ capability that would allow China to target military sites as part of a damage limitation strategy – as opposed to a nuclear strategy that simply seeks to provide a secure second-strike capability.”⁹

The 2006 Department of Defense (DOD) annual report significantly expands on this theme by dedicating almost a full page to discussing possible changes to China’s employment policy.

“[T]he circle of military and civilian national security professionals discussing the value of China’s current ‘no-first-use’ nuclear policy is broader than previously assessed,” the report states. Scenarios where change could occur, DOD explains, involve cases where the use of force by China involves core interests, such as sovereignty or territorial claims, (including Taiwan). In such cases, “Beijing could claim military preemption as a strategically defensive act [and thereby] add ambiguity to the dimension of China’s policy of ‘no first use’ of nuclear weapons.”

According to the report, it appears that “this policy may be under discussion,” and it “remains to be seen . . . how the introduction of more capable and survivable nuclear systems in greater numbers will shape the terms of this debate or affect Beijing’s thinking about its nuclear options in the future.”¹⁰

In a prepared testimony before the House Armed Services Committee on June 22, 2006, Peter W. Rodman, the assistant secretary of defense for international security affairs, toned down the extent to which that debate may influence Chinese policy, though he concluded that it is still going on:

We see discussions, albeit limited, beneath the surface in China over the future of its nuclear doctrine, including a July 2005 statement by Major General Zhu Chenghu of the People’s Liberation Army National Defense University. The Chinese reassured Secretary [Donald] Rumsfeld that China’s ‘no-first-use’ policy remains unchanged and emphasized to me in Beijing earlier this month that there is no debate in China over the policy. We take China at its word on this point. However, the comments suggest Chinese specialists may be exploring internally the implications of China’s evolving force structure, and the inherent options that that force structure provides.¹¹

Of course, China already deploys theater nuclear weapons against U.S. forces in the region and has done so for four decades. It has been using liquid- and solid-

fueled missile forces on low or no alert without officially changing its no first use policy. These theater forces play a deterrent role vis-a-vis the U.S. military bases in the region, and are important elements in China's thinking about the role of their nuclear weapons. The U.S. nuclear posture, by contrast, is counterforce with highly accurate and flexible weapons maintained on high alert and capable of conducting decapitating first strikes on short notice with little or no warning.¹²

A Rationale for Spending and Operations

Military planners always need a rationale – a real or potential danger – for why they must have new weapons or new strategies and plans. With the dissolution of the Soviet Union, which occupied that role for almost 50 years, the United States has turned its attention to China to help fill the vacuum.¹³ The Chinese military likewise uses a similar dynamic to justify its actions, pointing to the capabilities and strategies of the United States. Militaries, it should be emphasized, are conservative institutions that try to think of every contingency that they may face in the future, remembering every battle of the past. That is their job, and it does not come cheap. No military, from Albania's to Zambia's, is ever satisfied with its current inventory of weapons or the training and competence of its personnel. Conditions can always be better and military establishments never tire of detailing how men and materiel can be improved.

The United States has by far the largest military budget in the world. It spends more per year than the defense budgets of the next 15 countries combined.¹⁵ It is difficult to obtain accurate figures for the Chinese military budget since the official People's Liberation Army (PLA) figures do not capture all of the costs. The official Chinese defense budget for 2006 is approximately \$30 billion.¹⁶ But that amount does not include several significant programs, the DOD says, including China's strategic forces. If everything is included, the Pentagon estimates, the total Chinese military budget is in the \$75 billion to \$105 billion range.¹⁷ A 2005 RAND study estimated that China spends \$69 billion to \$78 billion (in 2001 dollars), which is 2.3 percent to 2.8 percent of its gross domestic product.¹⁸ For comparison, the U.S. GDP percentage for the \$465 billion 2007 defense budget is 3.9 percent. In February 2006, the U.S. Defense Information Agency stated that China's defense budget had reached approximately \$82 billion.¹⁹ As for the future, DOD projects that China's defense budget "could rise three-fold or more by 2025" by some \$164 billion to at least \$246 billion.²⁰

Even if using the most extreme DOD estimate for China's defense budget (\$105 billion), which is probably too large, the U.S. defense budget is still at least four times larger than China's, and no doubt the proportion

“You look at the Air Force’s briefings, and they are all China, China, China.”

Senior U.S. defense official involved in the 2006 Quadrennial Defense Review

spent on nuclear weapons is probably even greater. Although the U.S. government provides far more information about its spending than China does, the United States – rather surprisingly – does not aggregate its budget to isolate nuclear weapons costs and it is difficult to estimate how much was spent throughout the Cold War.²¹ With much reduced forces from Cold War levels, current U.S. spending on nuclear weapons and their delivery systems is probably in the 5 percent to 7 percent range of the total budget, or about \$22 billion to \$30 billion. With a stockpile 50 times smaller than that of the United States and a much more basic infrastructure, the Chinese probably spend proportionally less of their total budget on nuclear weapons programs.

The Pentagon's preoccupation with China is evident in its most recent long-range planning document, the Quadrennial Defense Review (QDR), published in February 2006. “Of the major and emerging powers, China has the greatest potential to compete militarily with the United States and field disruptive military technologies that could over time off set traditional U.S. military advantages absent U.S. counter strategies.”²²

The tone of the QDR's warning is a significant change compared with 1997, when the Pentagon stated in its “Proliferation: Threat and Response” report that “China's resource allocation for overall defense and modernization for nuclear, chemical and missile forces is not expected to increase significantly. Current defense expenditures total approximately 5 percent of China's total GDP [double the subsequent RAND figure from 2005]. It is estimated that actual military spending will increase at a rate similar to China's economic growth.”²³ Three years later, shortly before the Bush administration took over, the Pentagon described China's modernization and intentions this way:

[B]y even the most generous accounts, they're spending only a fraction of what we're spending on an annual basis on defense, to support a military that is much larger and a military that is much more primitively equipped than our military. So they have a very significant way to go by Western standards.

They are far away from having air superiority over the Taiwan Straits, which they need if they were to contemplate military action.... [T]hey have a relatively slow modernization program for their tactical air force, and they have what appears to be a plan to modernize their fleet air defenses, but there again, it's not a dramatic program.

In terms of strategic buildup, they don't seem to have aspirations for a large strategic force. Their strategic force is really quite small. They do have plans to enlarge it, but they don't seem to be break-neck plans at this stage.²⁴

The earlier QDR did not mention China at all, while the 2006 QDR mentions China a dozen times and dedicates more than a full page to describing the country's military modernization. That modernization, the 2006 QDR explained, "has accelerated since the mid-to-late 1990s in response to central leadership demands to develop military options against Taiwan scenarios." The "pace and scope of China's military build-up already puts regional military balances at risk." China's large-scale investments in offensive capabilities such as ballistic and cruise missiles, more advanced submarines, and "strategic nuclear strike from modern, sophisticated land and sea-based systems" directly affect U.S. military force requirements and "place a premium on forces capable of sustained operations at great distances into denied areas."²⁵

Part of China's motivation to modernize comes from observing U.S. capabilities during the 1991 Gulf War, the 1995 bombing of Yugoslavia, and the 2003 invasion of Iraq. These events were earthshaking for Chinese officials and planners for they revealed how inadequate the PLA would be against high-tech, integrated, accurate U.S. forces. Even so, despite China's build-up of short-range ballistic missile forces across from Taiwan and large-scale military exercises in 1996, China still does not possess sufficient forces to conquer Taiwan.

Yet in terms of nuclear forces, both countries point to what the other is doing as a justification to modernize. China is about to deploy three new long-range ballistic missiles that the U.S. intelligence community says were developed in response to the U.S. deployment of more accurate Trident sea-launched ballistic missiles in the early 1980s. The United States has increased its capability to target Chinese (and Russian) mobile missiles and the Pentagon is arguing that the long-term outlook for China's long-range ballistic missile force requires increased targeting of Chinese forces. U.S. military planners say ballistic missile defense system planning will include Chinese long-range missiles, and China may equip older missiles with multiple warheads or deploy more missiles than

otherwise to compensate for the effect of a U.S. missile defense system. The pattern is familiar from the U.S.-Soviet arms race during the Cold War.

The Consequences of a Nuclear Strike

We conclude the report with a section that describes two nuclear strike scenarios (and several potential Chinese options) and calculates the casualties that both sides would suffer as a result. The simulations show with chilling clarity that while the nuclear capabilities of the two countries are quite different, the civilian casualties resulting from the use of just a small part of either country's nuclear arsenal would be overwhelming. Whether the strategy is one of "countervalue" or "counterforce," and whether the missiles are inaccurate or accurate, tens of millions of innocent people would die and more would suffer in a nuclear attack against either country.

Our first scenario concludes that 1.5 million to 26 million casualties would result from a U.S. attack on Chinese ICBMs, depending upon the type and number of warheads used. Strike plans maintained by the Pentagon probably include options for significantly larger attacks. The declassified documents we examined reveal that nuclear war planning against China traditionally has involved much larger strikes against a broad range of facilities. Even so, the Pentagon has advocated – and the White House has authorized – additional nuclear planning against China. It is hard to see where deterrence ends and nuclear warfighting begins, but with U.S. planners pursuing "more discriminate capabilities for selected target types through lower yields, improved accuracy, and enhanced penetration," the quest of the never sufficiently "credible deterrent" seems to be entering its next phase.²⁶

Our second scenario concludes that 15 million to 40 million casualties would result from a Chinese attack on 20 populous U.S. cities. As if that is not enough, China is in the final phase of a nuclear facelift that the U.S. intelligence community has predicted will result in 75 to 100 warheads "primarily targeted" against the United States by 2015. Whether this projection will come true is not certain, but Chinese leaders apparently have decided that its antiquated long-range ballistic missile force is becoming vulnerable and a new generation of ICBMs is needed to ensure the credibility of China's minimum deterrent. Our calculations show that the increase in warheads anticipated by the U.S. intelligence community could potentially hold as many as 75 major U.S. cities at risk and inflict more than 50 million casualties.

Whatever number of ICBMs China eventually decides to deploy, the new situation will alter the deterrent relationship, but in ways not normally considered in the public debate. A “several-fold” increase in the number of warheads “primarily targeted” against the United States would not necessarily result in a “several-fold” increase in the number of casualties that China could inflict in the United States.

Our calculations show that if China decided to deploy 100 warheads, the maximum envisioned by the U.S. intelligence community, it would result in a nearly 70 percent *reduction* in megatonnage due to the replacement of large-yield warheads with smaller-yield warheads. This, in turn, would result in a 25 percent to 50 percent *reduction* in the number of potential casualties that would result from a Chinese countervalue strike against the continental United States.

If China instead decides to deploy 75 warheads against the United States, including the 4 megaton warheads on 20 DF-5A ICBMs, it could potentially cause an additional 10 million casualties in the continental United States. But in the arcane world of nuclear war planning, 50 million casualties are not that much different than 40 million casualties. Since the United States would probably be equally deterred by either one, it begs the question to the Chinese: Why the extra 10 million? Or to put it another way, why does the Pentagon imply that a China that can inflict 50 million casualties rather than 40 million is a greater threat?

Of course there are many nuances to answering those questions, but since the ability to inflict casualties is fundamental to the Chinese countervalue strategy, it strongly suggests that the primary objective of the current Chinese modernization is to ensure the effectiveness of its deterrent rather than to increase its ability to inflict casualties and destruction.

Whatever the Chinese nuclear arsenal may be in 2015, the nuclear war scenarios we describe vividly show how destructive even relatively small-scale attacks would be. They are a stark reminder to policymakers and military planners that a modest-sized arsenal can suffice as a deterrent and that more capability does not necessarily mean more security, and in many cases results in less security. The additional nuclear capabilities that advocates in both countries argue are necessary to ensure a “credible” deterrent add nothing to either side’s security, but would, if ever used, only increase insecurity.

Conclusions and Recommendations: We Don't Need Another Cold War

The Pentagon often depicts the Chinese military in general – and their nuclear forces in particular – as looming threats and uses those threats to justify its own programs and plans. This is similar to the approach used with the Soviet Union during the Cold War, but it might prove counterproductive in this case. The U. S. relationship with China is vastly different. Economically, China supplies the United States with an enormous array of goods and holds billions of dollars of its debt. The countries are bound together in ways that were inconceivable in the U.S.-Soviet relationship.

Neither the United States nor China would benefit from an arms race that would only heighten tensions, fuel animosity, harm both economies, and increase the chance of a military confrontation.

It is true that China is modernizing its conventional military forces and its nuclear systems. This is hardly surprising given it is every military's goal to improve itself. What is evident in the Chinese case is that the pace of the effort is taking a long time, and will not significantly affect the disproportionate relationship that has characterized two nations' nuclear forces for 40 years. Once China's current upgrade of long-range missiles is completed, the Chinese nuclear arsenal will not be significantly bigger than it is today.

The predictions by the U.S. intelligence community and the Pentagon about the size of the Chinese nuclear arsenal need to be improved. They have traditionally been inaccurate, and the estimated timelines for introducing new systems have been almost consistently wrong. Likewise, private institutions and certain news organizations frequently inflate the Chinese threat even beyond the estimates made by the Pentagon, which poisons the atmosphere.

Inflated and worst-case descriptions of China's nuclear programs feed on the lack of information. The Chinese could counter this process by being more open and transparent about their military budget and the scale and scope of their programs. For its part, the United States must precisely define what China's legitimate roles are as a regional power. Thus far it seems that the United States considers anything China does to be illegitimate.

In the nuclear strike scenarios we analyzed, we saw how potentially destructive even a small scale Chinese attack could be on the United States. Chinese war planners have no doubt done similar calculations and have presumably answered the question of “how much is enough” to their satisfaction. Whether it is two dozen warheads capable of hitting the United States or two or three times that many makes little real difference given the catastrophic nature of the weapons. Those in the Pentagon and elsewhere who bang the drum about how additional Chinese weapons constitute a grave “threat” might want to examine our scenarios.

Finally, the United States should show leadership in advancing disarmament and nonproliferation goals by diminishing the role of nuclear weapons in its security policy. An important first step would be to take its weapons off high alert and make additional deep reductions in the numbers of strategic nuclear weapons. Rather than letting nuclear deterrence determine how U.S.-Chinese relations evolve in the future, both countries need to constrain their nuclear force deployments and modernizations and begin direct discussions on how to limit the role and numbers of nuclear weapons.