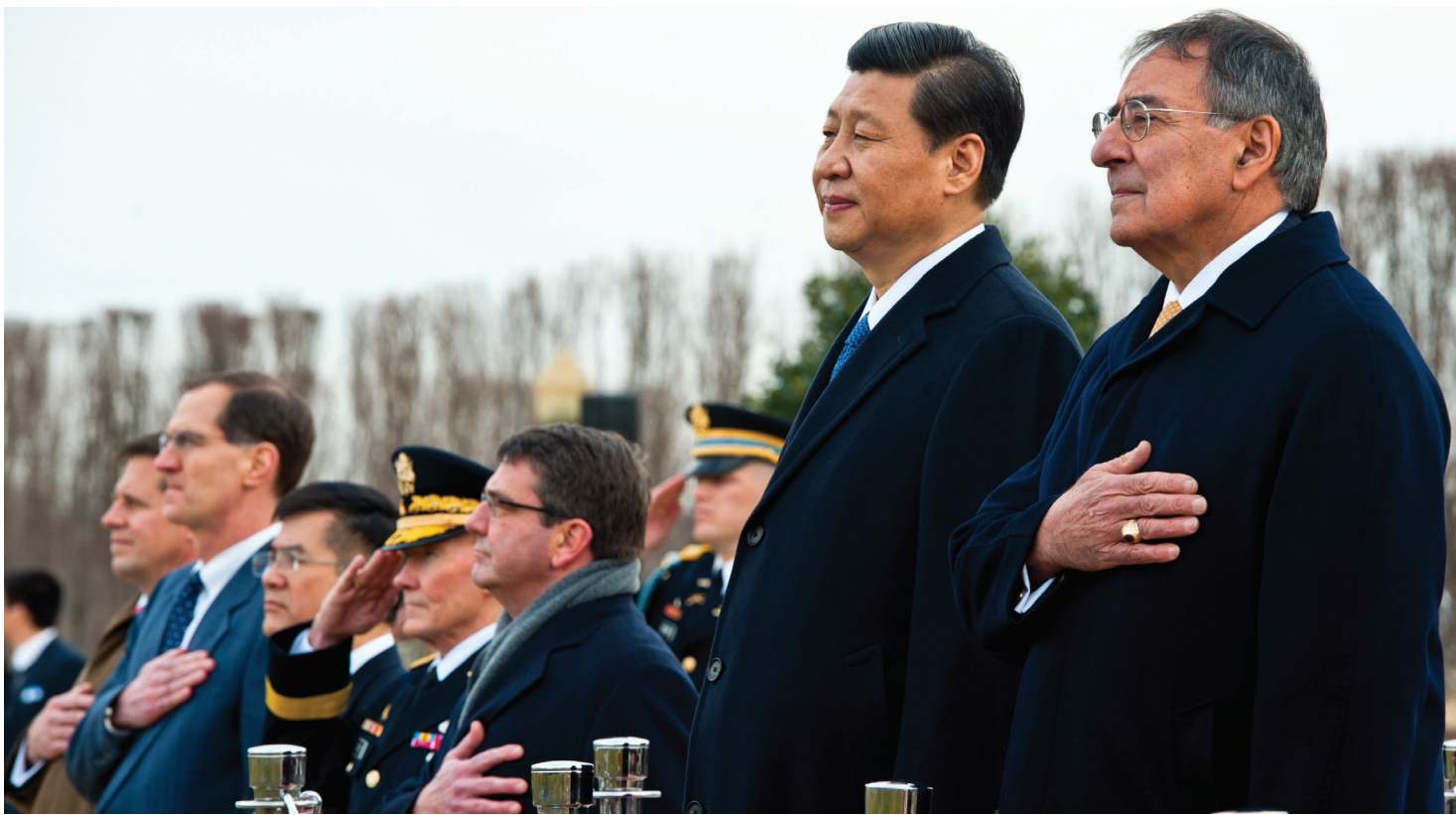


A REPORT OF THE PONI
WORKING GROUP ON U.S.-
CHINA NUCLEAR DYNAMICS

Nuclear Weapons and U.S.-China Relations

A WAY FORWARD



March 2013

Cochairs

Elbridge A. Colby
Abraham M. Denmark

Executive Director

John K. Warden



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Cover photo: Defense Secretary Leon E. Panetta stands next to Chinese Vice President Xi Jinping during a full honors ceremony welcoming Xi to the Pentagon, Feb. 14, 2012. DOD photo by Erin A. Kirk-Cuomo, <http://www.defense.gov/news/newsarticle.aspx?id=67205>.

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EXECUTIVE SUMMARY

This report addresses the increasingly important set of issues surrounding the nuclear forces of the United States and China. It focuses on a series of policy and posture recommendations for the United States, but it does so with an eye toward U.S. allies in the region and Chinese audiences. The report also includes two appendixes—one detailing the Working Group’s assessment of China’s nuclear strategy, policy, decisionmaking, posture, and capabilities (Appendix A), and one summarizing the Working Group’s discussions in Beijing in September 2012 (Appendix B).

For over a century, the United States has maintained a strong and enduring presence in the Asia-Pacific region, buttressed by a number of alliances and partnerships and undergirded by a robust military capability, ultimately including U.S. nuclear forces. It remains committed to this approach to the Asia-Pacific region and has redoubled its focus through its recent “rebalance” toward the region.

The United States has long seen China as a central factor in its strategy in Asia. Since the 1970s, U.S. policy has sought to encourage China’s economic reforms and development and to integrate China into the existing international political and economic order. While hopeful that China will develop into a constructive stakeholder, the United States and much of the Asia-Pacific region share continuing concerns about some aspects of China’s behavior that, it is feared, could undermine regional stability and U.S. interests in the Asia-Pacific.

Unfortunately, significant sources of tension and disagreement between the United States and its allies, on the one hand, and China, on the other, remain. These sources of discord could, in the worst case, lead to conflict. Needless to say, a large-scale conventional war between the United States and China would be incredibly dangerous and likely tremendously damaging. Nuclear war between the two would be devastating for all involved. Even though a conventional war between the two nations currently seems unlikely and nuclear war even more so, the possibility that war could break out, posing dramatic dangers and damage, clearly indicates that active steps should be taken to avoid conflict and successfully manage U.S.-China nuclear dynamics.

Significance and Objectives of U.S.-China Nuclear Relations

Maintaining stability in U.S.-China nuclear relations will be critical to the interests of the United States and those of its allies and security partners in the coming years. The Working Group judges that the nuclear dynamics between the United States and China are relatively stable at this time, primarily because both sides have or will soon have a nuclear deterrent of the size and scope they determine they need, and China appears committed to a relatively restrained posture oriented around a “lean and effective” nuclear force and its no-first-use policy. Yet the Working Group is concerned that the changing conventional military balance of power in the region, the current

sources of tension and possible conflict, and the expansion of the quality and quantity of China's nuclear arsenal raise serious questions about the future stability of U.S.-China nuclear relations. The recommendations contained in this report are therefore focused on enhancing nuclear stability between the United States and China, primarily by advocating a series of both bilateral and unilateral policy and posture adjustments that would enhance crisis stability and arms race stability, while also laying the groundwork for future bilateral and multilateral nuclear engagement.

Because the current nuclear dynamics are broadly stabilizing and should be sustained, the Working Group recommends that U.S.-China nuclear relations be oriented toward sustaining these dynamics and avoiding decisions by either side that could erode stability. We therefore recommend a robust but realistically tailored program of engagement and dialogue on nuclear issues that reinforce China's nuclear restraint and advance U.S. interests in stability, dialogue, transparency, and progress toward arms control. The Working Group recognizes, however, the limited success attempts at dialogue and cooperation have thus far yielded. The Group's recommendations are therefore designed to be ambitious but realistic, and are structured in such a way that, in the event that Beijing is unwilling to engage in earnest along the lines the Group advocates, the United States would be left with a powerful strategic capability and in the strong political position of having proffered a serious, fair-minded path forward in bilateral nuclear weapons relations that China had rebuffed.

The Working Group also recommends that the United States adopt a policy of accepting China's possession of an assured second-strike nuclear capability, and thus avoid attempting to acquire the capability to negate China's nuclear retaliatory capabilities. This judgment relies on the fundamental determination that the United States cannot realistically hope to deny China's second-strike capability, that a failed attempt to deny it would be costly and counterproductive, and that Beijing's possession of a reliable retaliatory capability promotes stability rather than detracts from it. In addition, this approach could reinforce China's nuclear restraint. The Working Group is, however, divided on whether the United States should publicly and formally announce this acceptance.

The Working Group believes that some of the concepts associated with the idea of "strategic stability" provide an appropriate framework for U.S.-China engagement on nuclear weapons issues, although the specific meaning of the term is the subject of a long-running debate that has never been definitively settled. In order to gain the benefits of strategic stability, the Working Group believes that nuclear relations between the United States and China should emphasize two complementary approaches: crisis stability and arms race stability.

Stability can emerge between the United States and China if each fields forces that are capable of surviving a first strike and if each is able to credibly demonstrate to the other side that its current and future capabilities are not capable of denying the other side a viable strategic deterrent. As a result, fear of preemption and the need to launch weapons early become irrelevant, either as irritants in crisis or as dangers in conflict. In this way, the benefits of deterrence can be retained, while minimizing the chances of nuclear escalation and avoiding a competition in the development of offensive and defensive strategic arms that would intensify uncertainties for both sides.

Both sides could derive value from cooperation on nuclear weapons issues grounded in the stability concept. The United States worries about the composition of China's nuclear force, China's views on escalation and plans for nuclear use, and the future trajectory of China's strategic posture. China, meanwhile, worries about the ability of the United States to deny it a second-strike capability; the scope and sophistication of future U.S. nuclear, conventional prompt global strike, and

missile defense programs; and U.S. unwillingness to acknowledge a condition of mutual vulnerability between the two nations. A stability-grounded model could help address these anxieties—on the U.S. side by providing greater insight into China’s current and future force structure and deeper insight into China’s ways of thinking about nuclear strategy, and on the Chinese side by providing similar insight into U.S. developments and a greater degree of assurance about U.S. acknowledgment of the survivability of the Chinese force. Concurrently, such an approach would have the added benefit of building confidence on both sides, thereby enhancing strategic trust more broadly. Finally, such a model could also provide a satisfactory way in which both nations could see something approximating their current force size, posture, and doctrine as satisfactory and compatible with stability.

An Agenda for U.S.-China Engagement on Nuclear Weapons

Historically, engagement on nuclear issues between the United States and China has been limited. It has been largely confined to more formalized interactions at the official level, as well as a somewhat greater degree of interaction at the Track 2-level. In the 2010 *Nuclear Posture Review Report*, the Barack Obama administration called for strategic stability dialogues with China to discuss the range of issues related to nuclear weapons, but progress has been distinctly limited, with few substantive talks at the government level on nuclear weapons issues.

To redress this limited progress, the United States should actively pursue informal means of shaping China’s nuclear decisionmaking, policies, and posture toward restraint and stability. The Working Group recognizes that China may be reluctant to pursue several of the dialogues and initiatives proposed here, but nonetheless believes that history suggests that a serious set of proposals combined with sustained pressure can persuade Beijing to make gradual, if grudging, progress, even on delicate issues. Even though engagement has been and will no doubt continue to be difficult, recent years have repeatedly demonstrated that China responds to sufficient international pressure, multilateral mechanisms, and high-level bilateral engagement. The United States should therefore continue its efforts to urge China to engage in a more sustained and in-depth dialogue on strategic issues. Such dialogue should focus primarily on eliciting greater insight into how China thinks about the role and potential use of its nuclear weapons, its red lines and perception of its vital interests, its conception of escalation, and related topics. Such dialogue should also focus on exploring mechanisms for information exchange.

Meanwhile, in concert with efforts to improve dialogue, the United States should take policy initiatives that would help to strengthen stability in the U.S.-China nuclear relationship. These initiatives are described in the rest of this section.

U.S. acceptance of China’s second-strike capability. The United States should plan, procure, and posture its forces and base its own policy on the assumption that an attempted U.S. disarming first strike, combined with U.S. missile defenses, could not reliably deny a Chinese nuclear retaliatory strike on the United States. This recommendation is based on a hard-nosed judgment that the combined strategic capabilities of the United States are not, and realistically cannot be, sufficiently numerous and reliable to deny China the ability to deliver nuclear warheads to the continental United States, no matter how much surprise the United States may achieve. It is important to

emphasize that acceptance of China's second-strike capability is fully compatible with the maintenance of a potent and even a stronger U.S. extended deterrent posture in the Asia-Pacific region.

Members of the Working Group differ, however, on whether the United States should explicitly and publicly acknowledge a state of "mutual vulnerability" with China. Some in the Group believe that such a step would reflect an underlying reality and would have positive stabilizing benefits on China's nuclear policy. Others agree that a situation of vulnerability does exist and will likely become more entrenched as China's capabilities continue to develop, yet they fear that public and formal acknowledgment of "mutual vulnerability" will achieve little more than raising questions from nervous allies.

Ballistic missile defenses, linkage to North Korea. The United States should specifically and publicly tie the development and deployment of its national missile defenses oriented to East Asia to the North Korean threat, as it has tied its missile defense programs in the Euro-Atlantic area to the Iranian threat. The United States is building up its national missile defenses to guard against the intercontinental ballistic missile (ICBM) threat from North Korea, Iran, and other rogue states. The Obama administration has consistently described the current U.S. national missile defenses as designed for Iran and North Korea, but it has been unable to allay China's concerns about the future development of the program. To minimize China's reactions to U.S. ballistic missile defense (BMD) capabilities, the United States should seek to quell China's concerns as much as possible by making the U.S. BMD program as transparent as prudence and security allow and by making it clear that the United States has no intention of using its ballistic missile defenses to negate China's long-range nuclear deterrent capability.

The Working Group therefore recommends that the United States make it clear to Beijing that it will continue to adjust the size and scope of its national missile defenses in accordance with the development of the North Korean and Iranian ICBM threats, not China's long-range nuclear forces. The Working Group notes, however, that China's significant shorter-range conventional missile capability, especially those ballistic and cruise missiles that threaten U.S. military forces in the region as well as U.S. allies and partners, are a legitimate and necessary target for the development of U.S. theater missile defenses. Yet the reality that China's conventional and nuclear missile forces are often collocated challenges the ability of regional militaries to differentiate between them.

Such a public pronouncement will demonstrate the seriousness of U.S. assurances and increase the cost of changing course, thereby increasing the credibility of the U.S. commitment. If Beijing's concerns about U.S. BMD programs are genuine, a public U.S. commitment should reduce or eliminate China's incentive to expand its missile forces beyond the current trajectory (assuming Beijing views the U.S. commitment as credible and lasting). Regardless, such a step would provide the basis for assessing the extent to which the increase in China's nuclear forces is being driven by U.S. BMD. If Beijing continues to build up its nuclear capabilities beyond what is needed for the "lean and effective" force it says it needs to protect its security, even in the face of a credible U.S. commitment, Washington and its allies will learn more about China's intentions. In addition, if China is genuinely concerned about U.S. BMD, explicitly tying expanded U.S. missile defense deployments to a growing North Korean threat would have the added benefit of encouraging China to do whatever it can to limit the expansion and modernization of North Korea's nuclear and missile programs and curtail its belligerence. Without a doubt, China's best chance to limit a U.S. BMD system capable of intercepting ICBMs launched from Asia is to help the United States mitigate the threat from North Korea.

Strengthen U.S. extended deterrence in the Western Pacific. The Working Group believes the United States should strive to maintain, and in important respects strengthen, its extended deterrent structure in the Pacific. In particular, the Group commends the recent “rebalancing” effort toward the Asia-Pacific region, including its political, military, and economic aspects. Efforts such as the Extended Deterrence Dialogue and Extended Deterrence Policy Committee are commendable first steps that should be sustained and built upon. Especially important, however, will be the translation of admirable rhetoric about a restoration of U.S. attention to the Asia-Pacific region and promising first steps in the evolution of the U.S. regional force structure into sustained and concrete investments of resources, time, and energy. In the military realm, this means making significant investments in the kinds of capabilities that can maintain U.S. military advantages in the region, particularly conventional capabilities designed to counter anti-access/area-denial (A2/AD) operations.

Specifically, the United States should maintain an effective nuclear deterrent that can provide credible extended nuclear deterrence in the Western Pacific. Although the Working Group does not agree on every aspect of the appropriate U.S. nuclear or conventional modernization program, areas of agreement include the procurement of a fleet of next-generation strategic ballistic missile submarines (SSBNs), a new heavy bomber capable of carrying nuclear ordnance, and a new nuclear cruise missile. In addition, there is support within the Working Group for updating the B-61 nuclear gravity bomb, although some members believe the program should be contingent on U.S. allies making very substantial financial contributions. With this proviso, the Group supports the maintenance of a globally deployable posture of nonstrategic weapons and dual-capable aircraft. On the conventional side, the United States should invest in particularly valuable individual programs and capabilities such as the Virginia-class submarine (including the use of its payload module for prompt or time-urgent regional strike missions), effective and cost-efficient tactical missile defenses, a penetrating bomber, and other such capabilities.

Confidence-Building Measures

In addition to dialogue and the policy initiatives just described, the United States should consider a number of more concrete confidence-building measures (CBMs) with China. These CBMs would be grounded in the stability model just outlined. They could be advanced and organized through different media, including through the dialogues, and could be conducted either as part of integrated efforts or as separate, stand-alone initiatives. Proposals include:

- Reciprocal visits to national missile defense sites
- Reciprocal notification of ballistic missile defense and hypersonic vehicle test launches
- Observers at national BMD exercises and tests
- Mutual visits to reactors and enrichment and reprocessing facilities
- Technical exhibitions of strategic weapons
- Chinese participation in New START practice inspections
- Development of a common concept of strategic stability

Toward Formal Arms Control

As a practical matter, the time for formal arms control talks with China is not yet ripe. China remains deeply and consistently resistant to involvement in any such negotiations or framework for several reasons, including its insistence that the United States and Russia must further reduce their nuclear arsenals before China would become involved in negotiations and Beijing's concerns that the greater transparency required by any agreement could undermine China's security. Pursuit of a formal arms control agreement with China would therefore probably be stymied by China and could at worst exacerbate the ongoing friction in U.S.-China relations. Still, this situation should not preclude the United States from continuing to refer to arms control as a possible long-term goal with China, nor should this long-term objective interfere with or detract from the pursuit of more plausible near-term opportunities.

To this end, the United States should continue to urge Chinese participation in multilateral efforts, such as the Fissile Material Cut-off Treaty (FMCT), which could encourage Beijing to become involved in arms control that covers nuclear weapons.

The United States could also propose a verifiable multilateral agreement that bans the deployment of new fixed-site ICBMs with multiple independently targetable reentry vehicles (MIRVs). Such an agreement would give all nuclear powers an incentive to develop more survivable capabilities that are optimized for a second strike, thereby reducing crisis stability concerns.

There are also more informal options. Ongoing consultations among the five permanent members of the UN Security Council (the P5), including a multilateral academic effort to develop a common nuclear glossary of terms and concepts, should be sustained. The United States could also call on China, along with the rest of the P5, to agree to no longer increase the size of its nuclear arsenal. This informal agreement could include steps such as mutual declarations of warhead numbers and reciprocal inspections.

Conclusion

The relationship between the United States and China will be of tremendous geopolitical consequence for the twenty-first century, and no issue in that relationship will be more important for the United States than protecting its interests and those of its allies and partners while maintaining peace and security in the Asia-Pacific region. Even though conflict mercifully seems unlikely at this point, it cannot be ruled out and might become increasingly likely if we are unwise or unlucky. With both sides possessing and appearing set to retain formidable nuclear weapons arsenals, such a conflict would be tremendously dangerous and quite possibly devastating.

Finding ways to minimize the possibility of war and the use of nuclear weapons is therefore a primary responsibility of the political leaderships on both sides of the Pacific. This report is an effort to provide a flexible road map that U.S. leaders can use in working with their Chinese counterparts to fulfill this responsibility.



ABOUT THE WORKING GROUP

The Center for Strategic and International Studies (CSIS) launched the Project on Nuclear Issues (PONI) in 2003 to develop the next generation of nuclear weapons policy experts. Through a number of interrelated initiatives, PONI has built a networked community of young professionals, facilitated dialogue across generations, and contributed to the debate on all aspects of U.S. nuclear weapons policy. In 2010 PONI added a leadership development program and commissioned its first Next Generation Working Group in order to give rising scholars an opportunity to formulate a consensus and infuse the policy debate on a critical nuclear policy issue. The inaugural working group, cochaired by James M. Acton and Michael S. Gerson, focused on U.S.-Russia arms control after New START.¹

In February 2012, PONI convened a second Next Generation Working Group to study the trends and dynamics of U.S.-China nuclear issues and relations. The group's goal is to inform and influence policy discourses in Washington and Beijing and help shape future U.S. government nuclear policy and strategy vis-à-vis China. In particular, the group seeks to identify key challenges and opportunities in this area and to recommend U.S. policies toward China related to U.S. and Chinese nuclear issues and relations for the next 10–15 years.

The PONI Working Group consists of 14 U.S.-based academics, analysts, and former government officials with expertise in nuclear issues and U.S.-China security dynamics. The Group met regularly for one year to explore the various issues and policy options and reach a consensus on recommendations. In September 2012, members of the Working Group traveled to Beijing for a series of roundtable discussions with Chinese analysts and officials to present the Group's initial findings and inform the study's analysis (for a trip report, see Appendix B) and to Tokyo for discussions with Japanese officials and experts. This report represents only the views of the Working Group; all members participated solely in their personal capacities, and their involvement in the Group does not imply the agreement or association of any institutions with which they are affiliated with this report or its conclusions. All Working Group members endorse this report's general policy thrust and judgments, though not necessarily every finding and recommendation. Each Working Group member was offered the opportunity to express any dissenting views. None chose to do so.

1. James Acton and Michael Gerson, *Beyond New START: Advancing U.S. National Security through Arms Control with Russia* (Washington, DC: Center for Strategic and International Studies, September 2011), http://csis.org/files/publication/110824_Acton_BeyondNewSTART_WEB.pdf.

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1

INTRODUCTION

This report addresses the increasingly important set of issues surrounding the nuclear forces of the United States and China. It presents a series of policy and posture recommendations for the United States, but it does so with an eye toward both U.S. allies in the region and Chinese audiences. The report also includes two appendixes—one detailing the Working Group’s assessment of China’s nuclear strategy, policy, decisionmaking, posture, and capabilities (Appendix A), and one summarizing the Working Group’s discussions in Beijing in September 2012 (Appendix B).

U.S. Asia-Pacific Strategy and Nuclear Weapons

For the United States, dealing with China in the context of nuclear weapons must be framed within the broader U.S. approach to the international order in general and to the Asia-Pacific region in particular. From Washington’s perspective, the nuclear issues between Washington and Beijing are not a purely bilateral matter, nor can they be divorced from larger geopolitical issues. Instead, they must be seen as a constituent part of the broader U.S. strategy for the Asia-Pacific region and for how China integrates into a changing world.

U.S. policy on these matters has been notably consistent for the last six decades. While U.S. strategy and posture has evolved, Washington has sought to uphold and defend an order in the Asia-Pacific region favorable to U.S. interests. This approach has been consistently rooted in a strong U.S. presence in the region, taking the form of both formal alliances as well as more implicit relationships with various Asian nations.¹ It has rested in turn on the continued ability of U.S. military forces to project power effectively throughout the Western Pacific, thereby ensuring U.S. access to defend its allies and sustain the security of the global commons.

As evidenced by the Barack Obama administration’s “rebalancing” effort, the U.S. government believes that this basic approach to the Asia-Pacific region remains well suited to protecting broad U.S. interests and fostering a favorable international political and economic order, and the Working Group agrees with this assessment. Thus the United States continues to see its alliance relationships in Asia, as well as its robust military presence, as necessary guarantors of regional stability and prosperity, which are in turn conducive to both its own interests and those of the entire

1. The United States currently extends treaty-based security guarantees to Australia, Japan, the Republic of Korea, the Philippines, and Thailand. Under the Taiwan Relations Act, the United States has been clear that it will regard the use of force to determine Taiwan’s status with “grave concern,” that it is committed to maintaining the capacity to resist the use of force or coercion against Taiwan, and that it will provide Taiwan with the defense articles and services necessary for its own defense. The United States is deliberately ambiguous about what it would do if Taiwan declared independence. The United States also has more informal security relationships with other states in the region such as Singapore.

region.² Although these alliances and partnerships must adapt to reflect changing economic and military realities, including the increasing pressures of budgetary stringency, retaining the basic security structure in the Pacific makes sense for the United States and its allies and partners.

The United States has long viewed China as a central factor in its strategy in Asia—originally as an adversary, then as a counterweight against Soviet power, and now as a key stakeholder in the international community. Since the 1970s, U.S. policy has sought to encourage and contribute to China’s economic reforms and development in order to integrate China into the existing international political and economic order. Although they are hopeful that China will develop into a constructive stakeholder, the United States and much of the Asia-Pacific region share continuing concerns about some aspects of China’s military posture and policies that, it is feared, could undermine regional stability and U.S. interests in the Asia-Pacific. As a result, in the last decade the United States has pursued a policy of strategic hedging in which it has engaged China to try to capitalize on areas of agreement and further integrate China into the existing order, while also maintaining a robust capability to deter, deny, and (if needed) defeat any major aggression by China against the United States and its allies.

The United States has begun to respond militarily to the changing strategic landscape in East Asia caused by China’s rise. There is a growing sense among U.S. defense leaders and experts that the rise of China requires a serious and sustained investment in high-end U.S. military capabilities, as well as political relationships in the region, if the United States hopes to maintain a favorable conventional balance in the Western Pacific. Many U.S. Department of Defense programs, such as the AirSea Battle initiative, are best understood as attempts to maintain a favorable military balance in the Pacific. Going forward, the rise of China is very likely to play a central, if not defining, role in U.S. defense planning, procurement, and diplomacy.

China’s rise could also have a significant impact on U.S. nuclear policy. Nuclear weapons have been an important part of this U.S. posture in the Asia-Pacific region since the end of World War II. During the Cold War, when the United States was believed to be conventionally inferior to the Soviet Union, nuclear weapons played a central role in deterring major conventional war. Today, with the collapse of the Soviet Union and with technological advances in U.S. military capabilities, conventional forces constitute the primary focus of U.S. defense planning and posturing in East Asia.³

Despite their diminished salience, U.S. nuclear weapons continue to play an important role in East Asia.⁴ First, they serve to deter a nuclear attack. This mission has probably *increased* in importance since the end of the Cold War, because the conventional superiority that the United States currently enjoys could give an adversary the incentive to use nuclear weapons to try to avoid a conventional defeat. Second, any country considering the use of military force to challenge U.S. interests cannot exclude the possibility that conflict will escalate to nuclear use, at which point the

2. U.S. Department of Defense, “Sustaining U.S. Global Leadership: Priorities for 21st Century Defense,” Washington, DC, January 2012, 2.

3. For a history, see Elbridge A. Colby, “U.S. Nuclear Weapons Policy and Policymaking: The Asian Experience,” in *Tactical Nuclear Weapons and NATO*, ed. Tom Nichols et al. (Carlisle, PA: Strategic Studies Institute, 2012), 75–105.

4. Samuel W. Bodman and Robert M. Gates, signatories, “National Security and Nuclear Weapons in the 21st Century,” U.S. Departments of Energy and Defense, Washington, DC, September 2008, 1; U.S. Department of Defense, *Nuclear Posture Review Report* (Washington, DC: U.S. Department of Defense, April 2010), 31–35, <http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf>.

state's most valuable assets will be at risk.⁵ For this reason, U.S. nuclear weapons still contribute to a security architecture designed to deter aggression against the United States, its deployed forces, and its allies and partners. And finally, a number of U.S. allies in East Asia, some of whom view the progression of North Korea's nuclear program and China's burgeoning military capabilities with concern, continue to perceive U.S. nuclear forces as the ultimate guarantee of U.S. extended deterrence commitments and have pressed the United States to reaffirm that commitment.⁶ The United States regards assuring allies as an important objective, not least because U.S. security guarantees are an important factor in reducing the incentives for allies to acquire their own nuclear weapons. If China's military modernization effort were to slow, or if the United States were able to sustain a reliable conventional military preeminence over China so that China could not credibly threaten U.S. or allied security with its conventional forces, U.S. nuclear forces might become even less salient than they are today.⁷

Conversely, nuclear weapons may become more salient to U.S. strategy in the Asia-Pacific if the regional balance of conventional military power were to become unfavorable to U.S. interests. Such a dynamic would likely be intensified if China chose to use its growing military power to attempt to exclude the United States from the region, to shield North Korea from the consequences of its belligerence, to challenge the openness and stability of the global commons, or to take a more assertive approach to the resolution of territorial disputes.⁸

In view of U.S. conventional superiority in the Western Pacific, it is extremely unlikely, under current conditions, that the United States would use nuclear weapons first (although it retains the explicit right to use nuclear weapons first as a matter of policy).⁹ The conventional balance in the Western Pacific is, however, inherently dynamic. Consequently, there is a real possibility that, in the future, U.S. conventional forces may be inadequate to deal with all plausible conventional contingencies. There is some disagreement within the Working Group over how much the conventional balance would have to shift for such scenarios to arise, over the probable timescale for such a shift, and over the probability of it occurring. However, there is no disagreement on two key points. First, if China successfully achieves *local* conventional dominance in key contingencies (outlined shortly), the shifting balance would affect key U.S. interests, as well as those of U.S. allies and partners. Second, if this occurs, the United States and its allies would inevitably consider a greater role for nuclear weapons in their strategies to offset a relative conventional decline, and U.S. nuclear weapons would play a greater role in Chinese thinking.

For this reason, the Working Group believes that the United States should work to maintain a highly capable conventional military posture, in part to maintain a favorable conventional balance

5. U.S. Department of Defense, "Deterrence Operations Joint Operating Concept," Washington, DC, December 2006, 39–40.

6. See Condoleezza Rice et al., "Joint Statement of the Security Consultative Committee, Alliance Transformation: Advancing United States-Japan Security and Defense Cooperation," May 1, 2007, <http://www.mofa.go.jp/region/n-america/us/security/scc/joint0705.html>; White House, Office of the Press Secretary, "Joint Vision for the Alliance of the United States of America and the Republic of Korea," Washington, DC, June 16, 2009, http://www.whitehouse.gov/the_press_office/Joint-vision-for-the-alliance-of-the-United-States-of-America-and-the-Republic-of-Korea.

7. However, other challenges in the Asia-Pacific, including those from North Korea and Russia, could sustain the salience of U.S. nuclear forces for the foreseeable future.

8. U.S. Department of Defense, "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2012," Washington, DC, May 2012, 3.

9. U.S. Department of Defense, *Nuclear Posture Review Report*, viii.

of military power in the Asia-Pacific. However, the United States should also strive to mitigate the security dilemma dynamics and potential spirals of instability that its investments and deployments might entail.

Sources of Tension and Possible Conflict

Considerations of U.S.-China nuclear relations would be a largely academic exercise without the serious risk of conflict and tension those relations entail. Unfortunately, the significant sources of tension and disagreement between the United States and China could, in the worst case, lead to conflict because a number of these disputes center on highly valued interests for Washington and Beijing and could be exacerbated by third parties, by miscommunication and miscalculation, by domestic political pressures, and by the perceived need to “save face.”¹⁰ Moreover, few of these disputes appear likely to be resolved definitively in the near term. Beyond disputes, there is also the simple geopolitical reality of the rise of a new great power in the arena of a well-established status quo power. From time immemorial, this reality has proved to be a source of tension and competition among nations—and has often led to war.

A large-scale conventional war between the United States and China would be incredibly dangerous and destructive, and nuclear war between the two countries would be devastating for all involved. Even though the likelihood of conventional war between the two nations is currently low—and the probability of nuclear war is even lower—the appallingly high costs, dangers, and risks of a war demand that this risk be taken seriously and that steps be taken to render armed conflict more unlikely and less dangerous. The fact that China and the United States could come to blows does not mean that any conflict would result in the use of nuclear weapons, but it also does not mean that the use of nuclear weapons can be confidently ruled out, especially because even conflicts over apparently marginal issues can—in ways that are not entirely predictable in advance—escalate into conflicts over core interests. For these reasons, perhaps the single most important task of American statecraft in the coming century will be managing China’s rise in a way that preserves peace while also defending important U.S. interests.¹¹

The following factors could threaten those objectives.

Disputes

- *Taiwan.* Taiwan remains the single most plausible and dangerous source of tension and conflict between the United States and China. Beijing continues to be set on a policy to prevent Taiwan’s independence, and the United States maintains the capability to come to Taiwan’s defense.¹² Although tensions across the Taiwan Strait have subsided since both Taipei and Beijing embraced a policy of engagement in 2008, the situation remains combustible, complicated

10. James Dobbins, “War with China,” *Survival: Global Politics and Strategy* 54 (August–September 2012): 7–9.

11. Henry A. Kissinger, *On China* (New York: Penguin, 2011), 514–30.

12. The United States has maintained a consistent one-China policy—based on the three U.S.-China Joint Communiqués and the Taiwan Relations Act—for eight presidential administrations. It opposes any unilateral actions by either side to alter the status quo and believes that cross-strait issues should be resolved peacefully in a manner acceptable to the people on both sides of the Taiwan Strait.

by rapidly diverging cross-strait military capabilities and persistent political disagreements.¹³ Moreover, for the foreseeable future Taiwan is the contingency in which nuclear weapons would most likely become a major factor, because the fate of the island is intertwined both with the legitimacy of the Chinese Communist Party and the reliability of U.S. defense commitments in the Asia-Pacific region.

- *Korean peninsula.* The real possibility of a conflict between North and South Korea or the collapse of the North Korean regime, both of which involve important U.S. and Chinese interests, raises the specter of another clash between the United States and China on the Korean peninsula.
- *Territorial and maritime demarcation disputes.* Disputes in the East and South China Seas over the sovereignty of small islands, the demarcation of maritime boundaries, and in certain cases the ownership of hydrocarbon resources that may lie under the seabed, have recently increased tensions between China and other states in the region.¹⁴ Although these disputes appear unlikely to lead to major conflict between China and the United States, they do provide kindling for potential conflict between the two nations because the disputes implicate a number of important regional interests, including the interests of treaty allies of the United States.

Exacerbating Factors

- *Miscommunication and misunderstanding.* The danger posed by these potential flashpoints is magnified by the potential for miscommunication and misunderstanding between China and the United States. Although Beijing and Washington have agreed to a range of crisis management mechanisms, such as the Military Maritime Consultative Agreement (MMCA) and the establishment of a direct hotline between the Pentagon and the Ministry of National Defense, the bases for miscommunication and misunderstanding remain and draw on deep historical reservoirs of suspicion.¹⁵ For example, it is unclear whether either side understands what kinds of actions would elicit a military, or even nuclear, response by the other party. Furthermore, neither side seems to believe the other's declared policies and intentions, suggesting that escala-

13. Richard Betts has observed well the dangers stemming from the Taiwan situation, which he terms "the main potential flashpoint for the United States in East Asia." He notes that "no other major flashpoint is more likely to bring the United States into combat with a major power. . . . Americans and Chinese see the issues at stake in the dispute over Taiwan in different terms; U.S. policy on the defense of Taiwan is uncertain, and thus so is the understanding in Beijing, Taipei, and Washington over how far the United States might go under different circumstances." He goes on to say that "neither great power can fully control developments that might ignite a crisis. This is a classic recipe for surprise, miscalculation, and uncontrolled escalation." See Richard K. Betts, *American Force: Dangers, Delusions, and Dilemmas in National Security* (New York: Columbia University Press, 2012), 186.

14. For a history of China's historical attitudes toward these disputes, see M. Taylor Fravel, *Strong Borders, Secure Nation: Cooperation and Conflict in China's Territorial Disputes* (Princeton, NJ: Princeton University Press, 2008).

15. The challenges involved in communications between the U.S. and Chinese military establishments, especially in a crisis, were amply demonstrated during the 2001 EP-3 incident. Although channels of communication had been established, China preferred not to communicate with the United States and instead turned inward to develop a consensus on a preferred way forward. Only once that internal consensus had been established did Chinese interlocutors engage their U.S. counterparts. This approach completely undermines the purpose of crisis management mechanisms and could potentially prevent China from acting quickly to de-escalate a developing crisis. For some case studies on how this strategy has been employed, see Michael D. Swaine, Zhang Tuosheng, and Danielle F. S. Cohen, *Managing Sino-American Crises: Case Studies and Analysis* (Washington, DC: Carnegie Endowment for International Peace, 2006).

tion management, already a very uncertain endeavor, could be especially difficult in any conflict. Moreover, the continued expansion of the military relationship in space and cyberspace introduces additional exacerbating factors.

- *External nuclear factors.* U.S.-China nuclear relations are complicated by the fact that both sides have nuclear relationships with other countries, and shifts related to one relationship can have dramatic effects on them all. For example, despite China's focus on the United States when it comes to nuclear weapons, other states—especially Russia and India—pay close attention to China's nuclear policies and capabilities and make adjustments accordingly, and vice versa.¹⁶ Therefore, China's behavior on nuclear issues vis-à-vis the United States could have significant implications for its other strategic relationships. For example, if China decided to augment its nuclear force in response to India, concerns would emerge in the United States. These concerns could contribute to friction in the U.S.-China relationship.

Underlying Structural Tensions

- *Established and rising power.* Beyond specific disputes and exacerbating factors, tensions between the United States and China are likely to persist for the simple reason that a rising great power such as China is bound to cause friction as its expanding objectives and growing strength rub against the interests of other nations in its region, including the long-established dominant power—the United States. The study of international relations has long suggested that such “power transitions” are especially fraught with the danger of conflict for reasons having to do both with concrete calculations of power and wealth and with more ineffable factors of honor and pride.¹⁷ Historically, a rising nation usually expects to be granted greater influence and respect in accordance with its growing stature, but nations that already possess that influence are generally reluctant to part with it, especially if they do not trust or share basic values with the rising state. Thus tensions can grow. The basic structural problems of how China's rise can be squared with the U.S. established position and the existing regional order Washington has underwritten are intensified by the ideological tensions between a global power structure established and overseen by liberal democratic powers and a rising power with an avowedly authoritarian government. Again, such tensions do not *need* to lead to conflict and war, but they *might*.
- *Security dilemma.* Within this broader dynamic, there is a real danger that the emerging structural dynamics between the United States and China are generating a classic security dilemma, in which the actions taken by one side to increase its defensive strength are interpreted as hostile or threatening by the other side, thereby eliciting a defensive response that the first side views as hostile or threatening, and so forth.¹⁸ Although it appears that this dynamic already exists in some respects in the arena of conventional military competition—for example, China's

16. James M. Acton, “Bombs Away? Being Realistic about Deep Nuclear Reductions?” *Washington Quarterly* 35 (Spring 2012): 38–41.

17. See, for example, A. F. K. Organski, *World Politics* (New York: Knopf, 1968); Robert Gilpin, *War and Change in World Politics* (Cambridge: Cambridge University Press, 1981). The classic statement of this problem, however, remains that made by Thucydides in 431 B.C. in *The History of the Peloponnesian War* (<http://classics.mit.edu/Thucydides/pelopwar.html>): “What made war inevitable was the growth of Athenian power and the fear which this caused in Sparta.”

18. For classic discussions of the “security dilemma,” see Thucydides, *History of the Peloponnesian War*; Herbert Butterfield, *History and Human Relations* (London: Collins, 1951); John Herz, “Idealist International-

conventional ballistic and cruise missile program, undertaken at least in part in response to improved U.S. conventional capabilities, is now leading to a countervailing U.S. response—such a dynamic has thus far had a limited effect on U.S.-China nuclear dynamics. This is fortunate because a security dilemma in the nuclear realm would be destabilizing, intensify suspicions, and potentially raise the danger of conflict escalation. The conditions do, however, exist for such a dynamic to develop: China's significant missile buildup (conventional and nuclear), the gradual expansion of its nuclear force in the last decade, and its development of asymmetric capabilities—combined with Chinese concerns about the U.S. development of new ballistic missile defense (BMD) and conventional prompt global strike (CPGS) capabilities—provide the ingredients for a security dilemma in the strategic arena.¹⁹ Several Chinese scholars already claim that the expansion of China's nuclear missile force is designed to compensate for advances in U.S. BMD, CPGS, and strategic strike capabilities.²⁰ Meanwhile, some U.S. voices point to China's expansion of its nuclear and missile forces as proof of hostile intent and the need for improved U.S. capabilities.

The combination of these factors—the challenge of managing the transition of China into the role of a great power, the enduring sources of tension, and the potential for misunderstandings and miscalculation—does not mean that armed conflict is inevitable or even likely. In fact, several economic and security factors may mitigate the possibility of a general conflict.²¹ But conflict remains *possible*. Because such a conflict would be at the least tremendously disruptive and quite possibly enormously destructive—especially if it involved nuclear weapons—it is incumbent upon the United States and China to work to mitigate the probability and dangers of such a conflict breaking out.

Ultimately, the rise of China presents the United States, and all of the Asia-Pacific, with the difficult and tremendously complex task of seeking to cope with the rise of a great power of un-

alism and the Security Dilemma,” *World Politics* 2 (January 1950): 157–80; Robert Jervis, *The Meaning of the Nuclear Revolution* (Ithaca, NY: Cornell University Press, 1989), 53–57.

19. James M. Acton, “The Dragon Dance: U.S.-China Security Cooperation,” in *Global Ten: Challenges and Opportunities for the President in 2013*, ed. Jessica T. Matthews (Washington, DC: Carnegie Endowment for International Peace, 2012), 121–23.

20. For example, see Yao Yunzhu, “Chinese Nuclear Policy and the Future of Minimum Deterrence,” in *Perspectives on Sino-American Strategic Nuclear Issues*, ed. Christopher P. Twomey (New York: Palgrave Macmillan, 2008), 111–24. Yao is currently a major general and an expert on nuclear issues at the Academy of Military Science of the People's Liberation Army.

21. Three arguments have received much of the attention in the academic literature about the link between economic ties and peace. The first is that trade has lessened the relative benefit of conquest, thereby undermining incentives for expansionism. The second is that trade dependency increases the costs of war between two states because war means they must forgo the benefits of trade. Finally, trade leads to increased interaction between two peoples, which promotes trust and understanding, thereby decreasing the propensity for conflict. See Stephen G. Brooks, “The Globalization of Production and the Changing Benefits of Conquest,” *Journal of Conflict Resolution* 43 (October 1999): 646–70; Peter Liberman, “The Spoils of Conquest,” *International Security* 18 (Fall 1993): 125–53; Albert O. Hirschman, *National Power and the Structure of Foreign Trade* (Berkeley: University of California Press, 1980), 3–39; Richard Rosecrance, *The Rise of the Trading States: Commerce and Conquest in the Modern World* (New York: Basic Books, 1986). On the other hand, wars can happen even if they are not economically advantageous, in part because wars are not always or even usually waged for economic reasons. Moreover, war may in fact “pay” under certain circumstances. See, for example, Peter Liberman, *Does Conquest Pay? The Exploitation of Occupied Industrial Societies* (Princeton, NJ: Princeton University Press, 1998).

certain intentions and growing capabilities and integrating it into the international and regional political, economic, and military order. On the one hand, the United States is likely to and should work with its allies and partners to engage China to mitigate the security dilemma and encourage its continued integration into the international system as a power that contributes to the health and success of the international system. On the other hand, the United States will need to continue to develop a robust array of military capabilities, as well as deep political and economic relations with the entire region, in order to hedge against the possibility of a more malign or aggressive China. Continued disputes and disagreements among China, its neighbors, and the United States, set against the backdrop of China's growing strategic power, indicate that conflict, including major conflict, is possible in the coming decades.

2

THE SIGNIFICANCE AND
OBJECTIVES OF U.S.-CHINA
NUCLEAR RELATIONS

Maintaining stability in U.S.-China nuclear relations will be critical to U.S. interests in the coming years. The Working Group defines stability as a situation in which the likelihood of war and the severity of crises can be reduced if the two nuclear powers structure, posture, and acquire their forces in such ways that neither is able to launch an effective disarming strike or is vulnerable to one. Both sides can then continue to derive deterrent value from their nuclear forces, while understanding that any decision to use nuclear weapons would be extremely dangerous and fraught with unpredictable consequences.¹

The Working Group judges that, at this time, the nuclear dynamics between the two sides are relatively stable. Yet the Group is also concerned that the changing conventional military balance of power, the possible sources of tension and conflict just detailed, and the expansion of the quality and quantity of China's nuclear arsenal contribute to legitimate concerns about the future stability of U.S.-China nuclear relations.

Overall, the Working Group judges that current nuclear policies and postures—in which both sides see a nuclear deterrent of the current size and scope as sufficient to their needs and China appears committed to a relatively restrained posture oriented around a nuclear force of a modest size and its no-first-use (NFU) pledge—is broadly stabilizing and should be sustained. The Working Group further recommends that U.S.-China nuclear relations be oriented toward avoiding decisions by either side that could erode the current dynamic. As such, we recommend a robust but realistically tailored program of engagement and dialogue on nuclear issues that reinforce China's nuclear restraint and advance U.S. interests in stability, dialogue, transparency, and progress toward arms control. The Working Group recognizes, however, the limited success that attempts at dialogue and cooperation have thus far yielded. The Group's recommendations are therefore designed to be ambitious but realistic, and are structured in such a way that, in the event Beijing is unwilling to engage in earnest along the lines the Group advocates, the United States would be left with a powerful strategic capability and in the strong international political position of having offered a serious, fair-minded path forward in bilateral nuclear weapons relations that China had rebuffed.

The Working Group also recommends that the United States adopt a policy of implicitly accepting China's possession of an assured second-strike nuclear capability, and thus avoid attempting to acquire the capability to negate China's nuclear retaliatory capabilities. This judgment relies on the fundamental determination that the United States cannot realistically hope to deny China's second-strike capability and that Beijing's possession of a reliable retaliatory capability can be constructively exploited to promote stability rather than detract from it.

1. For a discussion of these and related issues, see David C. Gompert and Philip C. Saunders, *The Paradox of Power: Sino-American Strategic Restraint in an Age of Vulnerability* (Washington, DC: National Defense University Press, 2011).

The Current State of China's Nuclear Force and Policy

Beijing has never authoritatively defined, in quantitative or qualitative terms, a detailed nuclear doctrine. The closest China has come to making a definitive public statement on its nuclear policy is its 2006 defense white paper, which states that the fundamental goal of China's nuclear strategy

is to deter other countries from using or threatening to use nuclear weapons against China. China remains firmly committed to the policy of no first use of nuclear weapons at any time and under any circumstances. It unconditionally undertakes not to use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones, and stands for the comprehensive prohibition and complete elimination of nuclear weapons. China upholds the principles of counterattack in self-defense and limited development of nuclear weapons, and aims at building a lean and effective nuclear force capable of meeting national security needs. It endeavors to ensure the security and reliability of its nuclear weapons and maintains a credible nuclear deterrent force. China's nuclear force is under the direct command of the Central Military Commission (CMC). China exercises great restraint in developing its nuclear force. It has never entered into and will never enter into a nuclear arms race with any other country.²

According to foreign experts, the totality of Chinese authoritative writings on nuclear doctrine, as well as China's observed nuclear posture and force disposition, reflect the "lean and effective" (*jinggan youxiao he liliang*) nuclear force that China says it needs to meet its national security requirements.³ Essentially, this approach aims to maintain a small, reliable, secure posture that is able to deter nuclear attacks and prevent nuclear intimidation. The Chinese view of *deterrence* goes beyond quantitative metrics alone; the term also includes qualitative criteria, such as the invulnerability of China's nuclear force, the assurance of retaliation, and the credibility of counterattack. Thus to determine what it needs to achieve a minimum level of deterrence, China must take into account the nuclear, conventional strike, and missile defense capabilities of its potential adversaries. This has been described as a doctrine of "assured retaliation," resting on the pillars of survivability, reliability, and penetrability. Despite these indicators, however, considerable uncertainty remains among U.S. analysts and observers as to what the precise drivers for Chinese force development are and how the Chinese force will develop in the future.

China's nuclear force is less developed and considerably smaller than that of the United States or Russia, but it is in the process of modernizing and slowly expanding that force. Scholars estimate that China retains a total inventory of approximately 240 nuclear warheads, but ambiguity in China's nuclear posture makes such estimates difficult to verify or detail with specificity.⁴ Officially, Beijing seeks to maintain a nuclear force capable of surviving an attack and responding with sufficient strength to inflict unacceptable damage on the enemy. China's new generation of road-mobile missiles and its new ballistic missile submarines are intended to enhance the survivability of its strategic deterrent, a long-standing Chinese objective.

2. Information Office of the State Council of the People's Republic of China, "China's National Defense in 2006," Beijing, 2006.

3. See, for example, M. Taylor Fravel and Evan S. Medeiros, "China's Search for Assured Retaliation: The Evolution of Chinese Nuclear Strategy and Force Structure," *International Security* 35 (Fall 2010): 48–87.

4. Hans M. Kristensen and Robert S. Norris, "Chinese Nuclear Forces, 2011," *Bulletin of the Atomic Scientists* 67 (November/December 2011): 81–87, <http://bos.sagepub.com/content/67/6/81.full>.

Beijing has also continued to hold to its NFU pledge that “China will not be the first to use nuclear weapons at any time and under any circumstance, and unequivocally commits that under no circumstances will it use or threaten to use nuclear weapons against non-nuclear weapon states or nuclear weapon free zones.”⁵ Although China remains explicitly committed to its NFU policy, doubt remains about whether it would abide by this policy in all circumstances. The existence of a debate within Chinese policymaking circles about the utility of the NFU doctrine, which ended with a decision to maintain the NFU pledge, continues to raise questions about the ultimate restraint that China’s declaratory policies may provide in extremis.⁶ Nonetheless, even if the United States would not ultimately trust China’s NFU pledge, the policy does appear to constitute at least a political constraint on its force posture and strategy, and may also constitute a guiding factor in Chinese force procurement and acquisition.⁷ Moreover, an explicit abandonment of NFU would be widely seen, particularly by U.S. allies, as an aggressive and worrying action.

Ultimately, China’s approach to deterrence relies on a significant amount of ambiguity surrounding its capabilities, doctrine, and red lines. Although China’s nuclear policy has not changed and its strategy appears relatively constant, Beijing seems to base its judgments about the size and sophistication of its nuclear posture on several factors, especially the size and capability of a potential adversary’s arsenal, the adversary’s assessed tolerance for risk and damage, and its ability to negate China’s retaliatory capability.

The continued modernization and apparently gradual expansion of China’s nuclear forces have several implications for the future of stability in U.S.-China relations. By the mid-2020s, China

5. Information Office of the State Council of the People’s Republic of China, “China’s National Defense in 2010,” Beijing, March 2011, http://news.xinhuanet.com/english2010/china/2011-03/31/c_13806851.htm. Also see Zhao Xijun, *Shezhan—daodan weishe zongheng tan* [Intimidation warfare: A comprehensive discussion of missile deterrence] (Beijing: Guofang daxue chubanshe, May 2005), 30–31; Dai Siping and Gong Yunchang, “Guanyu he zhanzheng wenti de jidian sikao” [A few thoughts on the issue of nuclear warfare], *Junshi Xueshu* (January 2003): 15–19; Dai Siping, “Daodan budui de shengzai yu fangyu” [The survivability and protection of missile forces], *Junshi Xueshu* (February 2003): 67–68; Liu Bin and Jiang Wenjie, “Zhongguo he zhanlue: dang bian ze bian” [China’s nuclear strategy: Adapting to change], *Nanfang Zhoumo*, June 18, 2009, <http://www.nanfangdaily.com.cn/epaper/nfzm/content/20090618/ArticelB11002FM.htm>.

6. In the early 2000s, a debate occurred within China over the merits of maintaining its NFU policy. The debate was sparked by the United States’ 2001 *Nuclear Posture Review Report*, which Beijing viewed as altering the U.S. approach to nuclear weapons by lowering the threshold for their use and by highlighting non-nuclear strike capabilities. In response, Chinese writings, including those by senior officers in the Second Artillery, discussed a variety of conditions under which the NFU might be altered or dropped to threaten first use. Such conditions included conventional attacks on China’s nuclear forces or with mass destruction-like effects, such as destroying the Three Gorges Dam, or a major invasion that threatened China’s existence. See Rong Yu and Peng Guangqian, “Nuclear No-First-Use Revisited,” *China Security* 5 (Winter 2009): 82–85; Guo Shunyuan and Wang Heng, “Zhanyi Zhong de Di’er Pao Zuozhan Zhihui Juece” [Second Artillery command and control decisionmaking during a joint campaign], *Junshi Xueshu* (July 2004): 65; Shang Yi, “Zhu Chenghu: Foreign News Agency ‘Cites Out of Context,’” *Ta Kung Pao*, July 17, 2005; Xue Xinglin, ed., *Zhanyi Lilun Xuexi Zhinan* [Campaign theory study guide] (Beijing: National Defense University Press, 2001); Zhao, *Shezhan*. For a discussion of these sources, see Evan S. Medeiros, “‘Minding the Gap’: Assessing the Trajectory of the PLA’s Second Artillery,” in *Right Sizing the People’s Liberation Army: Exploring the Contours of China’s Military*, ed. Roy Kamphausen and Andrew Scobell (Carlisle, PA: Strategic Studies Institute of the U.S. Army War College, 2007), 143–90; Fravel and Medeiros, “China’s Search for Assured Retaliation”; Michael Chase et al., “Chinese Theater and Strategic Missile Force Modernization and Its Implications for the United States,” *Journal of Strategic Studies* 32 (February 2009): 67–114.

7. The policy, which assumes that Chinese forces must ride out an enemy attack before launching retaliatory strikes, is taken as an explicit constraint in Chinese military publications on missile force operations.

will have a nuclear force that is more survivable and reliable than ever before.⁸ According to an estimate by one nongovernmental expert, China could double the number of warheads that could strike the United States by 2025, and the Chinese force will be more sophisticated and capable.⁹ If it is handled well on both sides, a more secure and survivable Chinese force could lead to greater stability in U.S.-China nuclear relations, especially if such a force diminishes China's anxieties about force survivability that could lead to instability or exacerbate crises. On the other hand, with a more sophisticated force, China will over the long term have greater flexibility in how it postures and deploys its nuclear weapons, including in potentially destabilizing or threatening ways. New capabilities create options for China's leaders that they did not have in the past, such as substantially expanding the size of the country's nuclear forces or tacitly (if not officially) considering first-strike options that would violate its no-first-use policy.¹⁰ China's decisions about its nuclear posture and policy will therefore significantly affect U.S.-China strategic relations and regional stability.

U.S. Interests in Bilateral Engagement on Nuclear Weapons with China

The United States has a particularly significant interest in pursuing bilateral engagement on nuclear weapons issues with China. The United States and its allies benefit in numerous ways from the relative restraint China has exhibited in its nuclear policy, both in terms of how China states it would employ its nuclear force and in terms of its size, sophistication, and diversity. Yet as China's economy continues to grow and its military continues to modernize, Beijing will increasingly have the choice of greatly expanding its nuclear forces, improving their capabilities, and broadening their role in China's national security strategy. The United States ultimately cannot realistically prevent Beijing from pursuing such a course, but the United States and its allies have a strong interest in persuading Beijing that it is not in China's interest to greatly expand its nuclear forces or to broaden the role of nuclear weapons in its planning, and they should have levers of influence that could help encourage Chinese restraint.

Enhancing cooperation on bilateral nuclear weapons issues with China is therefore a major security interest of the United States over the long term. As China's strategic options expand and some of its strategists consider a shift away from its current approach to nuclear policy and strategy—such as Beijing's no-first-use policy—the United States should encourage China's continued restraint toward its nuclear force size, posture, strategy, and policy. Washington should therefore seriously consider U.S. acts of restraint that could credibly contribute to Chinese restraint. Conversely, actions that prompt China to build up its force should be viewed more skeptically. Meanwhile, the United States will need to make decisions about its strategic capabilities based on the totality of considerations, and will at times need to make decisions that aggravate Beijing. But, to the extent possible, the United States should seek to avoid or at least minimize policies that would inflame Chinese anxieties and drive Beijing to adopt a more expansionist and destabilizing approach to its nuclear posture.

8. U.S. Department of Defense, "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2012," 24.

9. Kristensen and Norris, "Chinese Nuclear Forces, 2011," 82.

10. U.S. Department of Defense, "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2012," 24.

U.S. policies will play an important role in Beijing's decisions on these issues because China's nuclear strategy and policy has been and will be shaped by the United States. Indeed, Chinese strategists regularly cite U.S. strategic capabilities and authoritative U.S. government statements as a prime motivator for the qualitative and quantitative expansion of China's nuclear force.¹¹

The Working Group therefore proposes that the United States pursue an agenda for engagement on nuclear weapons issues with China that reinforces Beijing's continued adherence to a minimal deterrence posture of assured retaliation and its NFU policy.

The Current State of Engagement on Bilateral Nuclear Weapons Issues between the United States and China

The United States has for several years sought to directly engage China in discussions on nuclear weapons and other strategic capabilities. During the George W. Bush administration and the first term of the Obama administration, Washington attempted to open channels for dialogue with Beijing in part to allay Chinese concerns about U.S. nuclear and missile defense capabilities. Neither administration's initiatives met with much success, however, owing to China's apparent reluctance to participate in such a dialogue.

The inability of the United States and China to conduct regular military-to-military discussions about nuclear dynamics is regrettable, because there is an important role for engagement on nuclear weapons and strategic issues in the U.S.-China relationship. For the United States, engagement could help to allay American concerns about the trajectory of future Chinese capabilities, allowing Washington to make better-informed decisions about its future military investments. For China, such efforts could help to allay concerns about the future of U.S. strategic capabilities, particularly U.S. CPGS and BMD, thereby minimizing the chances of a costly arms competition that Beijing wants to avoid. For both states, such efforts could increase confidence in their assessments of the other's forces and future developments and help each other better understand their respective nuclear doctrines, red lines, and conceptions of escalation, thereby lessening the chances of conflict arising or of conflict escalating because of a preventable misunderstanding.

A Logic for Engagement on Nuclear Weapons

But on what basis can nuclear risks between Washington and Beijing be reduced? Meaningful engagement on bilateral nuclear weapons issues between the United States and China requires a coherent intellectual basis, lest it lapse into mere expressions of goodwill, which may not be believed on either side.

Because of the danger of conflict and war involving the United States and China, it is imperative for both sides to work to mitigate pressures toward war, as well as escalatory pressures that are present even in low-intensity conflict. This is doubly true because both sides possess nuclear weapons, the employment of which would magnify the devastation and danger produced by any war involving the two states. These dangers call for a renewed focus on nuclear weapons as a central strategic element of U.S.-China relations.

11. Yao, "Chinese Nuclear Policy and the Future of Minimum Deterrence."

For these reasons, it is both worthwhile and important for the United States and China to cooperate in ways designed to reduce the risk of war and to lessen its consequences through escalation control if it happens. The Working Group therefore supports applying to China the well-established U.S. policy of pursuing the twin objectives of maintaining a strong deterrent while seeking to reduce the dangers associated with nuclear weapons through the pursuit of appropriate cooperative measures.¹² In particular, the Working Group advocates pursuing measures designed to strengthen stability and manage crises between the two nations. Seeking cooperation on nuclear weapons would also represent a good faith effort to fulfill the two countries' commitments as parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) to pursue "effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament."¹³

In particular, the Working Group believes that some of the concepts associated with the principle of *strategic stability* provide an appropriate framework for U.S.-China engagement on nuclear weapons issues. However, the specific meaning of the term is the subject of debate and has never been definitively settled.¹⁴ Therefore, the Working Group believes the term *strategic stability* is too problematic to be imported wholly into this framework. The Group is conscious of Chinese discomfort with and even suspicion of the concept of strategic stability. Key Chinese audiences perceive at least some aspects of the concept as outlined by American interlocutors as an attempt by the United States to lock in current bilateral power dynamics, thereby preserving the existing capability gap and preventing China from achieving any relative power gain in relation to the United States.¹⁵ This perception is exacerbated by the most common translation of "strategic stability" into Chinese, which is usually rendered as *zhanlue wending* (战略稳定). This translation does not adequately capture the concept; *wending* connotes something fixed, set, or settled, whereas the genuine meaning of "strategic stability" is better understood as a dynamic, flexible equilibrium. For these reasons, the Working Group is sensitive to the use of the term *strategic stability* and instead eschews a debate about terminology to focus on the principle's root concepts.

To gain the benefits of strategic stability, the Working Group believes that nuclear relations between the United States and China should emphasize two complementary approaches: crisis stability and arms race stability. Crisis stability emphasizes the need to minimize pressure on either side to be the first to use nuclear weapons based on perceived advantage or vulnerability. It thus emphasizes the need for a strategic dynamic in which both sides see that launching their nuclear weapons first to avoid being disarmed or to try to disarm one's opponent is unnecessary and unwise. Arms race stability focuses on the longer term and emphasizes controlling the dynamics of arms competition that can affect the strategic balance, and specifically calculations associated with first-strike stability. The Working Group believes these concepts can even be highly useful in relations between two countries that have asymmetric capabilities such as the United States and China. Such concepts do not demand that two nations have the same or similar numbers or types of forces. Rather, they are adaptable goals that can be fitted to the situation that exists between the United States and China.

12. See, for example, Congressional Commission on the Strategic Posture of the United States, *America's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States* (Washington, DC: U.S. Institute of Peace Press, 2009).

13. Treaty on the Non-Proliferation of Nuclear Weapons, July 1, 1968, U.N.T.S. 10485.

14. See Elbridge A. Colby and Michael S. Gerson, eds., *Strategic Stability: Contending Interpretations* (Carlisle, PA: Strategic Studies Institute, 2013).

15. Lora Saalman, *China and the U.S. Nuclear Posture Review* (Beijing: Carnegie-Tsinghua, February 2011), 4–9.

Based on this concept, stability can emerge between the United States and China if they each field forces that are capable of surviving a first strike and if they are able to credibly demonstrate to the other side that their current and future capabilities are unable to deny the other side a viable strategic deterrent. As a result, fear of preemption and the need to launch weapons early become irrelevant, either as irritants in crisis or as dangers in conflict. In this way, the benefits of deterrence can be retained while minimizing the chances of nuclear escalation.

The premise of arms control and stability-oriented measures is that even potential adversaries can achieve the twin goals of both effective nuclear deterrence *and* mitigation of the possibility of conflict between them.¹⁶ This is because nuclear forces themselves can intensify, if not cause, competition and even conflict—but they need not. Nuclear deterrence is not simply a unilateral action that takes place in a vacuum; rather, it is a relationship shaped by perceptions. Indeed, the *ways* in which a country procures, postures, and operates its nuclear forces have a major interactive effect on how other countries procure, posture, and operate *their* forces. Potential adversaries can allay, and possibly even remove, these exacerbating factors through unilateral and cooperative measures that effectively demonstrate that each side's strategic forces are not capable of conducting a disarming first strike. Such measures do not solve more fundamental political and strategic disputes, but they can help to lessen tensions and mistrust stemming from the essentially ancillary technical features of interstate relations.

Both sides could derive value from cooperation on nuclear weapons grounded in the stability concept. The United States worries about the composition of China's nuclear force, Chinese views on escalation and plans for nuclear use, and the future trajectory of China's strategic posture. Meanwhile, China worries that the United States may be able or seek to be able to deny it a second-strike capability, and it worries about the scope and sophistication of future U.S. programs, as well as U.S. unwillingness to acknowledge a condition of mutual vulnerability between the two nations. A stability-grounded model could help address these anxieties—on the U.S. side by providing greater insight into China's current and future force structure and deeper insight into China's ways of thinking about nuclear strategy, and on the Chinese side by providing similar insight into U.S. developments and a greater degree of assurance about U.S. acknowledgment of the survivability of China's force. Concurrently, such an approach would have the added benefit of building confidence on both sides. Finally, such a model could provide a satisfactory method through which China could see something approximating its current force size, posture, and doctrine as satisfactory and compatible with stability.

16. For the classic statement, see Thomas C. Schelling and Morton H. Halperin, *Strategy and Arms Control* (New York: Twentieth Century Fund, 1961).

3

AN AGENDA FOR U.S.-CHINA ENGAGEMENT ON BILATERAL NUCLEAR WEAPONS ISSUES

Historically, engagement on bilateral nuclear issues between the United States and China has been limited. The two countries have pursued strategic nuclear dialogues at various levels since the late 1980s, with occasional periods of increased engagement, as well as periods of disengagement often linked to downturns in broader U.S.-China relations. A formal dialogue on nuclear strategy was held in Beijing in April 2008, but no successor meeting has been held. This is true despite the fact that in recent years bilateral engagement generally has intensified, particularly through the Strategic and Economic Dialogue (S&ED) and its Strategic Security Dialogue, which touch somewhat on nuclear issues. In the multilateral realm, in 2009 the permanent members of the UN Security Council held a Conference on Confidence Building Measures Towards Nuclear Disarmament; in 2011 they met in Paris to discuss nuclear transparency issues and methods of verifying potential additional arms reductions; and in 2012 they met in Washington. China has agreed to lead the process of drafting a glossary of nuclear terminology, an encouraging development.

Outside of formal government channels, various Track 2 dialogues and the Track “1.5” U.S.-China Strategic Dialogue, which includes participants from academia and think tanks as well as members of government as observers, have made considerable strides toward promoting an understanding of each side’s strategic concerns that contribute to reducing the prospects of a mutual misunderstanding. These dialogues offer the admittedly modest benefits deriving from regularized personal contact, accumulated expertise, and information exchange on terminology, capabilities, and strategy and policy. Although the Track 2 and 1.5 dialogues can be helpful, they do have their limitations. Participants are largely not government officials, and they are therefore unable to speak authoritatively. Those government officials who do participate are limited in what they are able to accomplish in these venues. Thus although unofficial dialogues are useful, they are no substitute for a genuine dialogue at the official level.

More broadly, there has been some progress on non-nuclear forms of cooperation, such as the 1998 U.S.-China Military Maritime Consultative Agreement, and more recently the anti-piracy confidence-building measures of 2011, but, unfortunately, U.S.-China engagement on nuclear issues has thus far not resulted in direct practical steps for official bilateral cooperation on nuclear CBMs. In its 2010 *Nuclear Posture Review Report*, the Obama administration called for strategic stability dialogues with China to discuss the range of issues related to nuclear weapons, but little substantive engagement at the bilateral governmental level has resulted.

Effective Dialogue

Despite these difficulties, the United States should actively pursue informal means of reinforcing restraint and stability in China’s nuclear decisionmaking through bilateral and unilateral initiatives. These initiatives should enhance strategic stability while putting the United States in

an improved strategic position, even if Beijing is reluctant to pursue enhanced engagement on nuclear weapons issues. Although engagement has been and will no doubt continue to be challenging, experience has repeatedly demonstrated that China responds to sufficient international pressure, multilateral mechanisms, and high-level bilateral engagement.¹ In recent years, Chinese interlocutors have become increasingly willing to discuss sensitive security issues and have even shown a greater willingness to deviate from standard prepared talking points, but movement on the official dialogue on bilateral nuclear weapons issues has lagged. Even though progress may be frustratingly slow in these dialogues, they are an important means of building mutual understanding and mutual trust, which will ultimately be essential to successful arms control engagement in the future. Moreover, while the benefits of discussion should not be overstated, dialogue can help acculturate Chinese officials—and especially People’s Liberation Army (PLA) officers with less exposure to Americans and other non-Chinese—to stability-oriented ways of thinking.

The United States should therefore continue its efforts to urge China to engage in a more sustained in-depth dialogue on strategic issues. Such a dialogue should include eliciting greater insight into how China thinks about the role and potential use of its nuclear weapons, its red lines and perception of its vital interests, its conception of escalation, and related topics. Meanwhile, Beijing could gain a firmer understanding of U.S. views on these subjects (although the United States is relatively transparent on such matters). More to the point, responsible U.S. officials would have an opportunity to explain directly to their Chinese counterparts U.S. official thinking on these matters. Through such dialogue, *both* sides would gain a better understanding of each other’s perspectives on these fraught questions. Because the most likely and therefore dangerous pathway toward conflict between the United States and China is probably through miscalculation or misunderstanding of the other’s red lines, such dialogue would be highly constructive in minimizing the chances of such a disastrous outcome.

Such dialogue should also focus on exploring mechanisms for exchanging information. Information exchanges useful for confidence building can be structured through formal mechanisms such as the strategic arms reduction treaties between the United States and Russia, but they do not have to be. Rather, information can be productively exchanged through less formal dialogues. For example, the U.S. side has delivered briefings on why U.S. ballistic missile defenses are not a genuine threat to China’s strategic deterrent. The United States could continue to provide briefings on this topic, as well as on the implications of its ongoing efforts to modernize its nuclear arsenal and develop CPGS programs. Meanwhile, China could provide a fuller explanation of its nuclear strategy and its approach to escalation and could deliver briefings on some of its systems that pose concerns to the United States, such as its antisatellite (ASAT) weapon capabilities.

Policy Initiatives

In concert with efforts to improve dialogue, the United States should take policy steps that would help to strengthen stability in the U.S.-China nuclear relationship. It is likely that China will not be amenable to some or even all of the initiatives mentioned. Nonetheless, the Working Group believes that, regardless of Beijing’s response, such actions improve U.S. policy. Moreover, pursuing this agenda would demonstrate that the United States takes seriously the importance of mitigating

1. Elizabeth Economy and Michel Oksenberg, *China Joins the World: Progress and Prospects* (New York: Council on Foreign Relations, 1999); Alastair Iain Johnston, *Social States: China in International Institutions* (Princeton, NJ: Princeton University Press, 2007).

the chances of instability and conflict with China. This stance in turn should reap political benefits for the United States in its diplomacy, while also sustaining support for a measured but powerful deterrent capability.

U.S. acceptance of China's second-strike capability. All members of the Working Group agree that the United States should plan and posture its force and base its own policy on the assumption that an attempted U.S. disarming first strike, combined with U.S. missile defenses, could not reliably deny a Chinese nuclear retaliatory strike on the United States.

Some strategists argue that the United States should pursue total societal invulnerability to China's nuclear force. Although this might be a desirable state of affairs, the Group's recommendation is not based on the desirability (or lack thereof) of a condition of societal vulnerability. Rather, it is based on a hard-nosed judgment that the combined strategic capabilities of the United States are not, and realistically cannot be, sufficiently numerous and reliable to deny China the ability to deliver nuclear warheads to the continental United States, no matter how much surprise the United States may achieve.² The challenges of defending U.S. deployed forces and allies are even more daunting.

This assessment derives from the increasingly sophisticated nature of China's strategic force, especially its shift toward greater reliance on road-mobile intercontinental ballistic missiles (ICBMs), and more broadly from recognition of the ability of the world's second-largest economy, with a large and growing high-technology sector, to develop and deploy strategic forces capable of riding out an adversary attack and penetrating enemy defenses. It is also based on the limitations in U.S. strategic strike and missile defense capabilities. Although strike and defensive capabilities are essential elements of U.S. defense investment and emphasis, the Group believes it is unrealistic to expect these capabilities to ensure 100 percent effectiveness against a target as sophisticated and difficult as China's strategic forces. The Working Group therefore agrees with the assessment of former secretary of defense and director of central intelligence James Schlesinger, who stated that "in dealing with the major powers, China and Russia, we must be careful, I think, not to convey to them that we are threatening their retaliatory capability. . . . It's not because we would not like to have an impenetrable defense, as President Reagan had hoped for. It's just beyond our capability. They can always beat us with the offensive capabilities."³

For these reasons, the Group recommends that the United States plan, posture, and procure its strategic forces based on the assumption that China's strategic forces are capable of delivering at least some level of retaliatory strike against the United States. The advantages of such an acceptance are several. First, the expenditures required to attempt to deny China a second-strike capability would be enormous and cost-unfavorable to the United States because of the greater cost efficiency of the offense over the defense in the strategic realm for the foreseeable future. The primary advantage of such an acceptance would therefore lie in the significant and potentially dramatic savings in resources and effort that would come from forswearing the pursuit of invulnerability. These resources could then be allocated to other, more strategically lucrative military

2. James M. Acton, "Deterrence during Disarmament: Deep Nuclear Reductions and International Security," Adelphi Paper 417, Routledge/International Institute for Strategic Studies, London, 2011, 44–48.

3. *The New START Treaty: Hearings before the Committee on Foreign Relations, United States Senate, One Hundred Eleventh Congress, Second Session, April 29, May 18, 19, 25, June 10, 15, 16, 24, and July 15, 2010*, 111th Cong., 2d sess., 25 (2010). For a similar assessment, see William J. Perry and Brent Scowcroft, chairmen, "U.S. Nuclear Weapons Policy," Task Force Report No. 62, Council on Foreign Relations, New York, 2009, 45. See also Gompert and Saunders, *Paradox of Power*.

purposes. Second, such an acceptance, even if not advertised to China, could have the additional benefit of reducing the chances of an arms race by assuring China of its retaliatory capability. Beijing could observe U.S. procurement, which would be oriented toward more limited and realistic goals, and reasonably infer that the United States had forsworn the pursuit of invulnerability. Even if China did not conclude that the United States had made this policy choice, the benefits of such an acceptance for the United States would still outweigh the costs purely on strategic and fiscal grounds. China's restraint in response to a quiet U.S. acceptance of China's second-strike capability would be a plus, but it is not necessary for the policy to be desirable.

The Group takes pains to emphasize, however, that such an acceptance would *not* mean that U.S. extended nuclear deterrence would be rendered ineffective. Quite the contrary, U.S. nuclear deterrence can be effective even in situations of vulnerability, as the U.S. nuclear posture against the far more formidable military forces of the Soviet Union during the Cold War proved.⁴ Nor does the Group's recommendation mean that the United States should plan for equivalent or total vulnerability. Rather, it simply means that the United States should acknowledge to itself that an attempted disarming first strike against China is not a viable option.

The Working Group is divided, however, on whether the United States should *formally and publicly* acknowledge "mutual vulnerability" with respect to China's nuclear force. The Obama administration established U.S. policy toward China in its *Ballistic Missile Defense Review Report* (BMDR) and *Nuclear Posture Review Report* (NPR) in 2010. The BMDR report recognizes China as a large nuclear power when it says, "Maintaining strategic stability in the U.S.-China relationship is as important to the Administration as maintaining strategic stability with other major powers."⁵ And the NPR report further clarifies by saying that the administration seeks "stable strategic relationships with Russia and China."⁶ Such language implies that the United States seeks "strategic stability" with China, but it does not clearly define the term and is thus ambiguous on the question of whether the United States accepts vulnerability to a Chinese second strike.

Some in the Working Group believe that acknowledging vulnerability would reflect an underlying reality *and* would have positive stabilizing benefits for China's nuclear policy. In this view, the United States and China exist in a state of vulnerability to each other's nuclear forces. China has repeatedly expressed concern that the United States is seeking to break out of a position of vulnerability, and this concern may contribute to China's expansion and modernization of its nuclear forces. The United States, therefore, would stand a better chance of engaging Beijing in a dialogue on nuclear issues, encouraging China to be transparent about its capabilities, and ultimately stanching the growth and development of China's strategic forces if it formally acknowledges mu-

4. For arguments on how to effectively extend nuclear deterrence in a situation of vulnerability, see Elbridge A. Colby, "Defining Strategic Stability: Reconciling Stability and Deterrence," in *Strategic Stability: Contending Interpretations*, ed. Elbridge A. Colby and Michael S. Gerson (Carlisle, PA: Strategic Studies Institute, 2013); Elbridge A. Colby, "The United States and Discriminate Nuclear Options in the Cold War," in *Limited Nuclear War*, ed. Jeffrey Larsen and Kerry Kartchner (forthcoming). In these chapters, Colby argues that, in order to compensate for the challenge posed to U.S. resolve by a condition of vulnerability, the United States needs discriminate nuclear options that provide intermediate escalatory steps between the firebreak dividing conventional war from nuclear war, on the one hand, and general unrestrained war, on the other. These options, he argues, allow the United States to threaten nuclear use credibly—and thus more effectively underwrite its extended nuclear deterrent commitments.

5. U.S. Department of Defense, *Ballistic Missile Defense Review Report* (Washington, DC: U.S. Department of Defense, February 2010), 34.

6. U.S. Department of Defense, *Nuclear Posture Review Report*, v.

tual vulnerability and seeks to credibly allay Beijing's fears that Washington is trying to break out of this condition. The credibility of U.S. assurances about BMD (discussed shortly) would likely be augmented with such an acknowledgment.

Others agree that a situation of vulnerability does exist and will likely become more entrenched as Chinese capabilities continue to develop, yet they are deeply concerned that public and formal acknowledgment of "mutual vulnerability" will achieve little more than raising questions from nervous allies. In this view, the issue is more a matter of diplomatic messaging than one of strategic assessment. Vulnerability is a reality—but it is almost certain that Beijing already knows this. More probable is that Beijing is actually seeking to extract a public and formal acknowledgment of the condition in order to achieve several objectives, including causing fissures in U.S.-Asia alliance relationships. Any diplomatic acknowledgment is therefore unlikely to significantly influence China's choices on its nuclear policies. Such an acknowledgment would, however, have a deleterious influence on U.S. assurance efforts with respect to Japan and other important allies and partners.⁷ Thus the United States should plan and act with the knowledge that it is vulnerable, but it should avoid making formal, public acknowledgment of this recognition to Beijing. It should also redouble its efforts to strengthen U.S. extended nuclear deterrence in the Pacific and assure allies of the viability of that umbrella in the region.

Ballistic missile defenses, linkage to North Korea. The United States should specifically and publicly tie the development and deployment of its *national* missile defenses oriented to East Asia to the North Korean threat, just as it has tied its missile defense programs in the Euro-Atlantic area to the threat from Iran.

Ballistic missile defense has long been an area of disagreement within the U.S. national security community. Recently, however, a sensible bipartisan consensus has emerged on the fundamental aims and limits of U.S. defenses. In describing national missile defenses that are designed to defend the homeland, Secretary of Defense Robert Gates pointed out in May 2010, "Under the [George W. Bush] administration, as well as under [the Obama administration], it has been the United States' policy . . . [to build] a missile defense intended to protect against rogue nations, such as North Korea and Iran, or countries that have very limited capabilities."⁸

Consistent with this policy, the United States is pursuing two interrelated programs. First, it continues to develop and deploy *theater* missile defense systems that are designed to protect U.S. forces, regional bases, as well as U.S. partners and allies from the short- and medium-range ballistic missiles of potential adversaries, *including* China, primarily with conventional contingencies in mind. Theater defenses include Patriot Advanced Capability-3 (PAC-3) batteries, Terminal High Altitude Area Defense (THAAD) batteries, Standard Missile-3 (SM-3) interceptors aboard Aegis cruisers, and supporting radars and sensors. As part of its rebalancing of forces, the United States is planning upgrades to its missile defense architecture in East Asia, including the deployment of new X-band radars.⁹ Theater defenses will be sized to meet the threat of shorter-range conventional missiles from whatever quarter, including China's anti-access/area-denial capabilities. However, these interceptors have essentially *no* capability against China's long-range nuclear-capable missiles.

7. Next Generation Working Group (NGWG) discussions with Japanese officials and experts, Tokyo, September 2012.

8. *The New START Treaty: Hearings before the Committee on Foreign Relations*, 74–75.

9. Adam Entous and Julian E. Barnes, "U.S. Plans New Asia Missile Defenses," *Wall Street Journal*, August 23, 2012, <http://online.wsj.com/article/SB10000872396390444812704577605591629039400.html>.

At the same time, the United States will continue to build and posture a limited *national* missile defense designed to protect the U.S. homeland against hostile nations with less sophisticated long-range missile delivery capabilities, in particular Iran and North Korea—but not Russia or China. Currently, the only deployed system the United States has with any capability against long-range missiles is the combination of 30 ground-based midcourse interceptors at Fort Greeley in Alaska and Vandenberg Air Force Base in California. The United States also plans to develop more advanced interceptors—such as the SM-3 Block IIB—that could have some capability against ICBMs, but those capabilities are still in the planning phase and are being designed to counter the missile threat from Iran and North Korea. Nonetheless, future variants of the SM-3 are of particular concern to China because they blur the distinction between national and theater missile defenses, creating uncertainty for China’s long-term planning.

Although the U.S. system may expand if and when the threats from Iran and North Korea mature, U.S. research and development plans, budgets, and deployments make it clear that the United States does not intend to develop a comprehensive *national* missile defense that could completely obviate a large-scale, sophisticated attack. Washington knows that if it tried, a technologically advanced country like China could overcome U.S. defenses with relative ease by employing countermeasures and fielding additional long-range missiles.

Unfortunately, the U.S. BMD buildup has generated intense opposition from Beijing for over a decade, and many Chinese sources have linked China’s expanding nuclear capabilities to concerns about U.S. missile defense advances.¹⁰ The extent to which this opposition is genuine, as opposed to a political pretext, is hard to gauge. On the one hand, Chinese officials and experts seem to have a genuine respect for the power and promise of U.S. technological mastery, leading them to wonder whether the United States might be able to solve the tremendous challenges of missile defense against sophisticated adversaries over the longer term.¹¹ On the other hand, there is a reasonable possibility that Beijing’s opposition to U.S. BMD may be designed to provide political cover while Beijing undertakes the nuclear expansion and modernization it wants to pursue anyway. Other drivers of China’s missile modernization and expansion include concerns about the reliability of its earlier platforms, the capabilities of other nuclear powers, and the U.S. development of conventional strategic strike capabilities, including CPGS.

Beyond these calculations, there is evidence that China’s concerns about U.S. BMD have been exacerbated by Beijing’s apparent disbelief of U.S. claims that its *national* missile defenses are not being designed, sized, or deployed with China in mind. During the first term of the Obama administration, Washington attempted to convince Beijing—through policy documents, public statements, briefings, and analysis of informed nongovernmental experts—that its BMD program has little if any utility in challenging China’s nuclear deterrent. However, China remains concerned that new technologies or a change in the U.S. administration could cause the program to significantly change and expand. This concern has been exacerbated by the difficulty of clearly delineating between national and theater defenses.

To minimize Chinese reactions to U.S. BMD programs, the United States should seek to quell China’s concerns as much as possible by making its BMD program as transparent as prudence and

10. For example, see Yao, “Chinese Nuclear Policy and the Future of Minimum Deterrence.”

11. For some of these challenges, see Defense Science Board Task Force on Science and Technology Issues of Early Intercept (EI) Ballistic Missile Defense Feasibility, *Science and Technology Issues of Early Intercept Ballistic Missile Defense Feasibility* (Washington, DC: Defense Science Board, September 2011).

security requirements allow. The Working Group recommends that the United States make the following explicit statements regarding its ballistic missile defense capabilities and policies in the region:

- For the foreseeable future, U.S. missile defense technology will only be able to provide a very limited capability against sophisticated long-range missile attacks by an advanced adversary.
- U.S. missile defense technology *does*, however, offer real promise in intercepting, and ideally deterring, attacks from less sophisticated and capable powers such as Iran and North Korea.
- U.S. *national* missile defenses are therefore oriented toward the important challenge of dealing with attacks from North Korea and Iran. The United States should size and scope its missile defense capabilities oriented against ICBMs accordingly.¹²
- The United States and its allies benefit from China maintaining a smaller nuclear force.
- The United States has no intention of developing its ballistic missile defenses in order to negate China's long-range nuclear deterrent capability.
- China's significant shorter-range missile capability, especially those missiles that threaten U.S. military forces in the region as well as U.S. allies and partners, are, however, a legitimate and necessary target for U.S. *theater* missile defenses.
- The United States will make reasonable efforts to maintain or develop a clear distinction between its theater and national missile defenses.

In making these national policy statements, the United States would make clear that its national missile defenses are designed to counter states such as North Korea and Iran—and are *not* designed to block a significant Chinese long-range missile attack. Rather, Washington should publicly tie its national missile defense development and deployment to the threats on which it is actually focused: Iran and North Korea. Such a public pronouncement will demonstrate the seriousness of the U.S. commitment and increase the cost of changing course, thereby increasing the credibility of this commitment.

Publicly tying U.S. *national* missile defense to the threat from North Korean and Iranian nuclear missiles would have several clear benefits. For one thing, the United States gains little from ambiguity in this area—it cannot make a strategically significant and sustainable dent in defending against China's nuclear force, and seeking to do so would engage the United States in a losing investment competition because it would be far easier and cheaper for the Chinese to produce penetrating missiles than for the United States to produce an effective interception network. Moreover, such a competition would very likely produce a much larger and more sophisticated Chinese nuclear arsenal—exactly what the United States seeks to avoid. In addition, it could undermine prospects for cooperation in other areas of the U.S.-China relationship.

If Beijing's concerns about U.S. BMD programs are genuine, a public U.S. commitment should also reduce or eliminate China's incentive to expand its missile forces beyond their current trajectory (assuming Beijing viewed the U.S. commitment as credible and lasting). Regardless, such a step would provide the basis for assessing the extent to which the increase in China's nuclear forces

12. If the missile threat from North Korea receded but the Iranian threat intensified, the United States would need to maintain and possibly expand its national missile defense architecture. To the extent possible, it should attempt to provide an adequate homeland defense while abiding by a commitment to China to limit ICBM defenses focused on East Asia to the North Korean threat.

is being driven by U.S. BMD. If Beijing continued to build up its nuclear capabilities beyond what is needed for the “lean and effective” force it says it needs for China’s security, even in the face of a credible U.S. commitment, Washington and its allies would know more about China’s intentions (though U.S. conventional strategic strike capabilities could introduce a complicating factor). In addition, if China is genuinely concerned about U.S. BMD, explicitly tying expanded deployments to a growing threat would have the added benefit of encouraging China to do whatever it can to limit the expansion and modernization of North Korea’s missile program. Indeed, China’s best chance to limit U.S. BMD capable of intercepting ICBMs launched from Asia is to help the United States to mitigate the threat from North Korea.¹³ Such a policy would also demonstrate to China the importance of clearly delineating between its nuclear and conventional missile capabilities.

China also remains concerned about the development of a U.S. long-range conventional prompt global strike capability, which it fears would allow the United States to threaten its nuclear retaliatory capability without resorting to nuclear use, thereby negating its NFU policy. As discussed earlier, the Working Group believes that the United States should not seek to deny China’s basic second-strike capability, and this policy should naturally apply to CPGS programs as well.¹⁴ In any case, U.S. CPGS programs are unlikely to mature in the 10–15 year timeframe covered by this report. For now, the United States can emphasize to Beijing that any such capabilities in the nearer term will be relatively small in scale and designed for a narrow range of contingencies.

Strengthen U.S. extended deterrence in the Western Pacific. In the first two policy initiatives, we counsel U.S. restraint. But a fundamental and inseparable element of the Group’s recommendations is that the United States should also strive to maintain, and in important respects strengthen, its extended deterrent structure in the Pacific. As discussed earlier, the Group believes that the United States, its allies, and other nations in the Pacific region benefit from the continuation of a strong U.S. alliance network that is grounded in a very formidable military capability. This is the best hope for a Western Pacific region that is both stable and open.

In particular, the Group commends the recent “rebalancing” effort toward the Asia-Pacific region, including the move’s political, military, and economic aspects. Especially important, however, will be the translation of admirable rhetoric about a restoration of U.S. attention to the Asia-Pacific region and promising first steps in the evolution of the U.S. regional force structure into sustained and concrete investments of resources, time, and energy. In the military realm, this means making significant investments in the kinds of capabilities that can maintain the U.S. military advantage in the region, particularly those associated with enhancing conventional capabilities designed to counter anti-access/area-denial operations.

Specifically, the United States should maintain an effective nuclear deterrent that can continue to provide credible extended nuclear deterrence in the Western Pacific. Although the Group does not agree on every aspect of the appropriate U.S. nuclear modernization program, areas of agreement include the procurement of a fleet of next-generation ballistic missile submarines, a new heavy bomber to carry nuclear ordnance, and a new nuclear-capable cruise missile. In addition, there is support within the Working Group for updating the B-61 nuclear gravity bomb, although

13. John Warden and He Yun, “US Missile Defense and China: An Exchange,” PacNet #50, September 6, 2011, <http://csis.org/publication/pacnet-50-us-missile-defense-and-china-exchange>.

14. The Group agrees that the United States should not seek to deny China’s overall second-strike capability with CPGS or other weapons systems. However, members of the Group differ on the extent to which U.S. CPGS systems should be developed and postured in order to hold Chinese targets at risk.

some members believe the program should be contingent on U.S. allies making very substantial financial contributions. With this proviso, the Group supports the maintenance of a globally deployable posture of nonstrategic weapons and dual-capable aircraft. On the conventional side, and especially in light of the dawn of an era of constrained resources, the United States should continue shifting its focus away from investments in counterinsurgency and ground warfare toward investments in air, naval, space, cyber, and other higher-technology fields that can provide the basis for continued advantage in the conventional military balance in the Western Pacific. Clearly, sustained investments in nuclear capabilities will be difficult to maintain in a constrained budgetary environment. This Working Group, nonetheless, judges that such investments are essential to the long-term security of the United States and its allies, and that they can be tailored to ensure they are made responsibly. Particularly valuable individual programs and capabilities include the *Virginia*-class submarine (including the use of its payload module for prompt or time-urgent regional strike missions), effective *and* cost-efficient tactical missile defenses, a penetrating bomber, and other such capabilities.

Confidence-Building Measures

In addition to dialogue and the policy initiatives just described, the United States should consider a number of more concrete bilateral confidence-building measures with China. These CBMs would be grounded in the stability model just outlined. They could be advanced and organized through different media, including dialogues, and could be conducted either as part of integrated efforts or as separate, stand-alone initiatives.

Reciprocal visits to national missile defense sites. Through this measure, each side would be given the opportunity, with the appropriate security precautions to protect classified information, to visit the facilities of the other side's national missile defenses. These visits would be designed to give each side a greater degree of confidence in its assessment of the nature and scale of the other's national missile defenses. Such visits could include, again with the appropriate security precautions, exhibitions of interceptors, tours of facilities, and observation of radars and other installations. It is worth recalling that the George W. Bush administration offered Russia formal *inspections* of missile defense sites in Europe.

Reciprocal notification of ballistic missile defense and hypersonic weapon test launches. As in the U.S.-Russia context, missile launch notifications can be an important confidence-building and stability-oriented measure that can alleviate concerns on both sides about an accidental launch and help pave the way for more ambitious arrangements.

Observers at national BMD exercises/tests. With the appropriate considerations of security, the United States and China should invite each other to send observers to exercises and tests of designated BMD capabilities. With respect to U.S. programs, such observation opportunities could help strengthen confidence that U.S. BMD developments are not designed to counter China. For Chinese programs, such exhibitions could shed light on the relationship between China's BMD efforts and its opaque and troubling antisatellite programs. The sides could, for example, explore the possibility of sharing burnout velocity data in order to demonstrate the limits of interceptor capability. The United States has already offered to allow Russia to observe missile defense tests and measure parameters with its own equipment. A similar offer could be made to China.

Mutual visits to military reactors, enrichment and reprocessing facilities. The United States has ceased all production of fissile material for weapons and has made detailed, public declarations of the quantities of fissile material it has produced. China is believed to have ceased production, but it has not declared an official moratorium or given any information on its stockpile. For the United States, visits to Chinese facilities would confirm that China has indeed ceased production and help refine estimates of the quantity of material China has produced. For China, visits to U.S. facilities would build China's confidence in the U.S. declaration.

Technical exhibitions of strategic weapons. Such exhibitions, modeled on those in START I and New START to enable transparency while minimizing security concerns, would provide the two countries with greater understanding of each other's strategic capabilities, helping to minimize stability and arms race concerns.

Chinese participation in New START practice inspections. On a number of occasions, Chinese experts have expressed interest in gaining firsthand knowledge of what arms control inspections involve. Because Russia is very unlikely to consent to Chinese observers at an actual New START inspection, Linton Brooks (who served as the chief START negotiator and later as administrator of the National Nuclear Security Administration) has suggested that the United States invite China to send observers to a practice inspection conducted in the United States. Ideally, such observers would be both high-level and technically competent, so they could effectively contribute to debates within the Chinese government about China's participation in confidence-building measures.

Common concept of strategic stability. Scholars from the United States and China, with input from their respective governments, should develop a public joint statement on U.S.-China nuclear dynamics that includes areas of collaboration and engagement. The statement could also reaffirm the utility of the crisis hotline and "non-targeting" accord to build on existing successes. Such a project could eventually include government officials and culminate in an official government-to-government agreement.¹⁵

Toward Formal Arms Control

The pursuit of arms control agreements with China will likely, at some point in time, be a natural course for the United States and Russia. Such agreements, if properly negotiated, could establish formal mechanisms that would provide significant benefits to the trilateral strategic relationship through increased transparency, greater mutual understanding of each side's intentions and capabilities, and a shared framework for nuclear relations and strategic stability.

As a practical matter, however, the time for formal arms control talks with China is not yet ripe. At this time, China remains deeply and consistently resistant to involvement in any such negotiations or framework for several reasons. For one thing, Beijing sees no need to engage in discussion of numerical reductions while the United States and Russia are maintaining significantly larger nuclear forces. Moreover, Beijing is opposed to significant and formal transparency because it views opacity as valuable for its smaller and less sophisticated nuclear strike force, and it believes that greater transparency would jeopardize the survivability of its second-strike capability. China

15. Jeffrey Lewis, director of the East Asia Nonproliferation Program, Monterey Institute of International Studies, "Strengthening US-China Dialogue on Strategic Stability," unpublished working paper, October 1, 2012.

also claims that improved mutual trust—vaguely defined by Chinese interlocutors—is required before it could contemplate the degree of transparency and information disclosure needed for a successful arms control dialogue. More broadly, China is sensitive to perceived parallels between U.S.-China and U.S.-Soviet relations, viewing arms control as a somewhat hazardous Cold War relic that implies hostility and antagonism.

Pursuit of a formal arms control agreement with China would therefore likely be stymied by China and could, at worst, exacerbate relations. Still, this possibility should not preclude the United States from continuing to hold up arms control as a possible long-term goal with China (beyond the range of the 10–15 years envisioned by this report), nor should this long-term objective interfere with or detract from the pursuit of more plausible opportunities.

To this end, the United States should continue to urge Chinese participation in multilateral efforts, which might encourage Beijing to become involved in formal arms control discussions (as it was during negotiations of the Comprehensive Test Ban Treaty). For example, the United States could urge Beijing to press Pakistan to lift its blockage of progress on the Fissile Material Cutoff Treaty (FMCT). Compared with direct bilateral efforts with China, shaping the international arms control environment will be a more effective way of bringing China into existing agreements and frameworks.

The United States, China, and the other major nuclear powers should not assume that New START is the only model for progress on multilateral arms control. For one thing, instead of focusing on numbers, the United States should consider proposing agreements aimed at curbing particular capabilities that could be destabilizing. For example, it has long been U.S. policy that fixed-site ICBMs with multiple independently targetable reentry vehicles (MIRVs) are destabilizing. The United States could therefore propose a verifiable multilateral agreement that bans the deployment of new fixed-site, MIRVed ICBMs. Such an agreement would give all nuclear powers the incentive to develop capabilities that are optimized for a second strike, reducing crisis stability concerns. An agreement along these lines would also allow each country to enter on equal terms—unlike a treaty that focuses on warhead numbers—making it easier to achieve a multilateral agreement while also allowing China to adjust more gradually to the inspection and verification process.¹⁶ There are also more informal options. The United States could call on China, along with the rest of the P5,¹⁷ to agree not to increase the current size of its nuclear arsenal. This would be an informal agreement, but it could include steps such as mutual declarations of total warhead numbers and reciprocal inspections.

The United States should also continue to engage in arms control with Russia on its own merits. Although China should not play a formal role in these negotiations, the Working Group believes China should be allowed to observe firsthand negotiations as much as security and the integrity of the diplomatic process will allow in order to lay a foundation for China's eventual participation in formal arms control measures.¹⁸ For example, China could send observers to the

16. Although a treaty banning future MIRVed, silo-based ICBMs would ideally be multilateral, including, among others, Russia, India, and Pakistan, the United States should be willing to conclude a separate bilateral agreement with China to this effect if a multilateral treaty proves unworkable. The United States is already downgrading its ICBMs to carry only a single reentry vehicle and simultaneously has a chance to influence the development of a still maturing Chinese ICBM force.

17. P5 refers to the five permanent members of the UN Security Council: United States, Russia, China, Great Britain, and France.

18. See Acton and Gerson, *Beyond New START*.

plenary sessions of future arms control discussions or formal presentations in the New START–mandated Bilateral Consultative Commission meetings between the United States and Russia in Geneva.

Conclusion

The relationship between the United States and China will be of tremendous geopolitical consequence for the twenty-first century, and no issue in that relationship will be more important for the United States than protecting its interests while maintaining peace. Although conflict mercifully seems unlikely at this point, it cannot be ruled out and may become increasingly likely if we are unwise or unlucky. With both sides possessing and looking set to retain formidable nuclear weapons arsenals, such a conflict would be tremendously dangerous and quite possibly devastating.

Finding ways to minimize the possibility of war and of nuclear use is therefore a primary responsibility of political leaders on both sides of the Pacific. This report is an effort to provide a flexible road map that U.S. leaders can use in working with their Chinese counterparts to fulfill this responsibility. It is offered in the hope that outsiders who have studied the issues of China, Asia, and nuclear policy carefully and extensively and who care deeply about their country, its interests, and the cause of peace can helpfully say and recommend things that those actually in office cannot—but who might be grateful for someone else having done so.



CHINA'S NUCLEAR STRATEGY, POLICY, AND CAPABILITIES

China's nuclear capabilities are primarily controlled by the Second Artillery Corps (SAC) of the People's Liberation Army (PLA), which also controls China's land-based conventional missile force.¹ It is directly commanded by China's highest-level military organization, the Central Military Commission (CMC). China is thought to have roughly 240 nuclear warheads and 180 nuclear-capable missiles and aircraft of various types.² SAC is organized into six ballistic missile bases and several subordinate brigades deployed throughout China. The current SAC commander is Gen. Wei Fenghe, who also serves as one of the 11 members of the CMC.

China's 2008 defense white paper indicated that SAC "is mainly responsible for deterring other countries from using nuclear weapons against China, and for conducting nuclear counterattacks and precision strikes with conventional missiles."³ Furthermore, according to the white paper:

The Second Artillery Force sticks to China's policy of no first use of nuclear weapons, implements a self-defensive nuclear strategy, strictly follows the orders of the CMC, and takes it as its fundamental mission the protection of China from any nuclear attack. In peacetime the nuclear missile weapons of the Second Artillery Force are not aimed at any country. But if China comes under a nuclear threat, the nuclear missile force of the Second Artillery Force will go into a state of alert, and get ready for a nuclear counterattack to deter the enemy from using nuclear weapons against China. If China comes under a nuclear attack, the nuclear missile force of the Second Artillery Force will use nuclear missiles to launch a resolute counterattack against the enemy either independently or together with the nuclear forces of other services.⁴

China is also developing a sea-based nuclear deterrent in the form of a JL-2 submarine-launched ballistic missile (SLBM) that will be deployed on the Type-094 Jin-class nuclear-powered ballistic missile submarine (SSBN). China's 2008 defense white paper states that the PLA Navy (PLAN) is strengthening its "nuclear counterattack" capabilities.⁵ The eventual deployment of China's sea-based forces appears to be intended to serve as a complement to the Second Artillery's land-based nuclear missiles and to further strengthen the survivability of China's strategic deterrent.

1. U.S. publications typically refer to the Second Artillery Corps or SAC. The English-language versions of Chinese publications such as China's defense white paper use "Second Artillery Force" or the acronym PLASAF.

2. Hans M. Kristensen and Robert S. Norris, "Chinese Nuclear Forces, 2011," *Bulletin of the Atomic Scientists* 67 (November/December 2011): 81–87, <http://bos.sagepub.com/content/67/6/81>.

3. Information Office of the State Council of the People's Republic of China, "China's National Defense in 2008," Beijing, January 2009, 29, http://www.fas.org/programs/ssp/nukes/2008DefenseWhitePaper_Jan2009.pdf.

4. Ibid. The white paper also states, "The conventional missile force of the Second Artillery Force is charged mainly of the task of conducting medium- and long-range precision strikes against key strategic and operational targets of the enemy."

5. Ibid., 24.

China's Nuclear Strategy and Policy

China's approach to nuclear strategy and policy has been relatively consistent since its first nuclear test in 1964. That test was conducted to deter potential adversaries, principally the Soviet Union and the United States, from using nuclear weapons against China or coercing it with nuclear threats. Beijing's concerns about nuclear coercion were largely driven by its experiences in the 1950s, when the United States threatened China with the use of nuclear weapons in the context of the Korean War and cross-Taiwan Strait crises.

Elements of China's Approach

China's 2006 defense white paper provided the first public official explanation of China's nuclear strategy and policy. The document summarized the key elements of China's approach to nuclear weapons as follows:

China's nuclear strategy is subject to the state's nuclear policy and military strategy. Its fundamental goal is to deter other countries from using or threatening to use nuclear weapons against China. China remains firmly committed to the policy of no first use of nuclear weapons at any time and under any circumstances. It unconditionally undertakes not to use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones, and stands for the comprehensive prohibition and complete elimination of nuclear weapons. China upholds the principles of counterattack in self-defense and limited development of nuclear weapons, and aims at building a lean and effective nuclear force capable of meeting national security needs. It endeavors to ensure the security and reliability of its nuclear weapons and maintains a credible nuclear deterrent force. China's nuclear force is under the direct command of the Central Military Commission (CMC). China exercises great restraint in developing its nuclear force. It has never entered into and will never enter into a nuclear arms race with any other country.⁶

Official publications make it clear that the main role of China's nuclear weapons is to deter an enemy from launching a nuclear attack or attempting to coerce or intimidate China with nuclear threats. Former Second Artillery deputy commander Zhao Xijun has termed the strategic missile force in particular a "strong shield" for maintaining national security. According to Zhao, "Anyone who wants to conduct a nuclear strike on China must also sustain a nuclear strike. China has limited strategic missiles, but the consequences of nuclear retaliation are still strong enough to ensure that the enemy would lose more than it would gain."⁷ Deterrence—a concept that, for Chinese strategists, includes conventional as well as nuclear capabilities—is also seen as an effective means of preventing wars from breaking out. The major powers often try to threaten or coerce other countries, but they are very cautious about threatening countries that are armed with nuclear weapons. As Zhao notes, China's strategic missile force is also "an important weight in containing the escalation of war."⁸

6. Information Office of the State Council of the People's Republic of China, "China's National Defense in 2006."

7. Zhao, *Shezhan*, 30–31.

8. *Ibid.*, 31.

Chinese doctrinal publications continue to reflect the official no-first-use (NFU) policy, as outlined in books, articles, and official documents such as China's defense white papers. These documents all assume the Second Artillery nuclear forces would launch their weapons only after absorbing an enemy first strike. For example, the authoritative *Science of Second Artillery Campaigns* indicates that China's missile forces would have to conduct nuclear counterstrikes after suffering heavy damage from an enemy nuclear attack.⁹ This view is also consistent with the writings of Chinese scholars who assert that China will continue to adhere to a NFU policy.

Publications issued by the Second Artillery suggest that some in China may expect nuclear deterrence not only to prevent an enemy from using nuclear weapons against China, but also to deter certain types of strategic conventional attacks. For example, a volume edited by Zhao Xijun suggests that China's nuclear retaliation capability may also deter the enemy from carrying out conventional strikes that could raise the risks of nuclear escalation.¹⁰ Similarly, according to the *Science of Second Artillery Campaigns*, nuclear forces are also relevant for

detering . . . conventional war from escalating into a nuclear war; to prevent the enemy from carrying out a conventional strike against our nuclear facilities and creating nuclear leakage; and to prevent the enemy from causing unbearably tremendous losses to our major, strategic facilities through medium and high-powered air raids against us.¹¹

As a result, according to these writings, because future wars will involve conventional operations under nuclear deterrence conditions, nuclear missile force deterrence actions are intended to have a major influence on actual combat operations.¹² Under such circumstances, the Second Artillery's nuclear missile force will serve as a "powerful backup supporting conventional strength" (支持常规力量的坚强后盾, *zhichi changgui lilian de jianqiang houdun*).¹³ Of course, this does not necessarily mean China would seriously consider nuclear escalation in response to conventional threats, but it does suggest that Beijing may rely on its nuclear retaliatory capability to constrain an adversary's options, even in the conventional realm. As the *Science of Second Artillery Campaigns* notes, because of the tremendous destructive power of nuclear warheads, people "turn pale at the talk of nuclear weapons" (谈核色变, *tanhe sebian*). Nuclear weapons are thus "a strong nuclear backstop for ensuring the status of large countries and a potentially huge resource for deterrence."¹⁴

No First Use

One of the primary uncertainties in foreign assessments of Chinese nuclear strategy centers on the credibility of China's NFU policy. In response to changes in China's security environment in the

9. People's Liberation Army Second Artillery Force (PLASAF), *Dierpaobing zhanyixue* [The science of Second Artillery campaigns] (Beijing: Jiefangjun chubanshe, 2004), 59.

10. These sources, however, are not definitive. The Second Artillery is one of a number of actors that influence the formulation of China's nuclear strategy and posture. Other key actors include top civilian leaders, civilian nuclear scientists, and experts at research organizations under the CMC such as the Academy of Military Science. See Fravel and Medeiros, "China's Search for Assured Retaliation."

11. PLASAF, *Dierpaobing zhanyixue* [The science of Second Artillery campaigns], 273–74.

12. Ibid., 93.

13. Ibid., 122. At the same time, they must ensure their survival so they can prepare to carry out nuclear counterstrikes if ordered to do so.

14. Ibid., 274.

mid-2000s and threats to its assured retaliation capability, Chinese scholars and strategists began to debate the merits of the NFU policy.

In a 2005 article, for example, noted Fudan University scholar Shen Dingli argued that NFU was under pressure from advances in military technology—particularly the development of conventional precision strike capabilities that could threaten China’s nuclear forces—and from challenges to China’s core interests with respect to Taiwan.¹⁵

Chinese scholars have also suggested that, notwithstanding the NFU policy, any adversary would still need to act cautiously to minimize the risk of nuclear escalation because it would be unsure of whether Beijing would adhere to NFU in a severe crisis. As Shen Dingli acknowledges, “Frankly speaking, in a military contingency, no adversary would fail to prepare for a change in China’s policy on NFU as this choice is always an option for China.”¹⁶ Nonetheless, Shen concludes that “the political costs to the Chinese leadership due to such a change would be prohibitive, which acts as a real restraint against China’s altering its professed position.”

In the debate over maintaining the NFU policy, some Chinese analysts have considered scenarios under which Beijing might lower the threshold for first use. One apparent area of discussion in Chinese circles has been the potential for U.S. conventional strikes on the Chinese mainland, as reflected in Gen. Zhu Chenghu’s remark that “if the Americans draw their missiles and position-guided ammunition on to the target zone on China’s territory, I think we will have to respond with nuclear weapons.”¹⁷ Although Chinese officials regularly offer assurances that its no-first-use policy will not change, a 2008 report by the Pentagon on China’s military power states that “doctrinal materials suggest additional missions for China’s nuclear forces include deterring conventional attacks against [Chinese] nuclear assets or conventional attacks with WMD-like effects.”¹⁸

Chinese writings also suggest that there is some ambiguity when it comes to determining what constitutes first use by an adversary. As two Chinese authors state, because conventional attacks may have equally devastating effects in certain cases, “definitely establishing whether the adversary has broken the nuclear threshold is not necessarily a straightforward issue.” Specifically, they raise the question of whether a conventional attack on a country’s nuclear forces could be considered tantamount to the first use of nuclear weapons. “On the surface, this is merely a conventional attack,” they write, “but in effect, its impact is little different than suffering a nuclear strike and incurring similarly heavy losses.” The result could be that the conventional attack would “be seen as breaking the nuclear threshold,” with the result that the party suffering the attack “will find it difficult to refrain from a nuclear counterattack.”¹⁹

15. Shen Dingli, “Nuclear Deterrence in the 21st Century,” *China Security* 1 (Autumn 2005): 12. Shen also notes the possibility of the use of chemical or biological weapons against China by a state or nonstate actor as a third potential challenge to the NFU, but one that “may be more theoretical” than conventional precision strikes against nuclear forces or serious threats to core national interests.

16. Ibid.

17. Alexandra Harney, “Top Chinese General Warns US over Attack,” *Financial Times*, July 15, 2005, <http://www.ft.com/cms/s/2/28cfe55a-f4a7-11d9-9dd1-00000e2511c8.html#axzz2IBajeF8e>.

18. U.S. Department of Defense, “Annual Report to Congress: Military Power of the People’s Republic of China 2008,” Washington, DC, 26.

19. Rong and Peng, “Nuclear No-First-Use Revisited,” 85.

These statements highlight the conditions under which China's NFU policy might face considerable pressure, or perhaps might not apply if China judges an adversary's actions as in some way equivalent to a nuclear first strike. Nonetheless, this debate has ended, at least for now, with a decision to maintain the NFU policy.²⁰ As China's 2010 defense white paper states, "China consistently upholds the policy of no first use of nuclear weapons, adheres to a self-defensive nuclear strategy, and will never enter into a nuclear arms race with any other country."²¹ Publications from the Second Artillery such as the *Science of Second Artillery Campaigns* and *Intimidation Warfare* were clearly part of this debate, but they may not represent the last word on the subject because they are now over seven years old.²² Indeed, Chinese scholars suggest that Beijing would approach any actual decision to authorize the use of nuclear weapons with great caution, and that such a decision would only be made under the most extreme circumstances. Because of the immense damage that would be caused, the decision to use nuclear weapons would be "only imaginable if core national interests are in peril, such as the survival of the state or nation."²³ Nonetheless, as noted by Taylor Fravel, an MIT scholar (and member of the Working Group), and Evan Medeiros, the current director for China on the White House national security staff, "Whether intended or not, the existence of such a debate generates increased ambiguity about the conditions under which China might use nuclear weapons, thereby strengthening China's deterrent."²⁴

Challenges of Ambiguity

Some of China's thinking on using its missile force to conduct deterrence operations that send signals aimed at influencing an adversary also raises the possibility of miscalculation or inadvertent escalation in a crisis or conflict scenario. Miscalculation in the midst of a crisis is a particularly troubling possibility—one that could be heightened by uncertainty over the message that one side is trying to convey to the other or by overconfidence in the ability to control escalation.²⁵ The most serious concern is that some of the signaling activities described in Chinese publications could easily be interpreted not as a demonstration of resolve or as a warning, but as preparation to conduct actual nuclear missile strikes, possibly decreasing crisis stability or even triggering escalation rather than strengthening deterrence. Indeed, some Chinese sources contain references that raise troubling questions about potential miscalculations that could result from attempts to increase the intensity of deterrence during a crisis or in the midst of a conventional conflict.²⁶ Although Chi-

20. Fravel and Medeiros, "China's Search for Assured Retaliation."

21. Information Office of the State Council of the People's Republic of China, "China's National Defense in 2010."

22. PLASAF, *Dierpaobing zhanyixue* [The science of Second Artillery campaigns]; Zhao, *Shezhan—daodan weishe zongheng tan* [Intimidation warfare: Comprehensive survey of missile intimidation]. These two sources are perhaps best seen as representing the views of the Second Artillery in this debate.

23. Rong and Peng, "Nuclear No-First-Use Revisited," 88.

24. Fravel and Medeiros, "China's Search for Assured Retaliation," 80.

25. Thomas J. Christensen, "The Meaning of the Nuclear Evolution: China's Strategic Modernization and US-China Security Relations," *Journal of Strategic Studies* 35, no. 4 (2012): 447–87.

26. For example, see writings by Lt. Gen. Zhao Xijun, who served as deputy commander of the PLA Second Artillery Corps from 1996 to 2003. One method of deterrence suggested is the "simulated replenishment" of liquid-fueled missiles. This signal is intended to put the enemy under the severe psychological strain of realizing that China's missile force has entered the "pre-mobilization state" in the hope of causing the enemy to "abandon certain activities." However, the author apparently fails to fully consider the potential for catastrophic miscalculation. Considering the risks of unintended escalation, this could be a very desta-

nese authors appear to demonstrate at least some awareness of the danger that actions intended to deter an adversary could instead trigger escalation, the discussions of these risks in the relevant publications are quite limited.²⁷

China's Strategic Force Posture

China is in the midst of a significant effort to modernize its nuclear missile force in order to enhance the survivability and credibility of its deterrent. In less than two decades, China has progressed from a limited and vulnerable nuclear ballistic missile capability to one of the world's most impressive nuclear and conventional ballistic missile programs (see Table A.1). The transformation of the Second Artillery is underscored by an April 2009 U.S. National Air and Space Intelligence Center (NASIC) report, which concludes that China now has "the most active and diverse ballistic missile development program in the world."²⁸ In addition, China is "developing and testing offensive missiles, forming additional missile units, qualitatively upgrading certain missile systems, and developing methods to counter ballistic missile defenses."²⁹

The key drivers of changes in the nuclear missile force structure is China's concern about the credibility of its traditional nuclear deterrent posture in the face of improvements in adversary intelligence, surveillance, and reconnaissance (ISR) capabilities; conventional precision strike capabilities; and missile defense capabilities. Beijing is therefore modernizing its nuclear missile forces to enhance their survivability, increase their striking power, and counter perceived advances in U.S. missile defense capabilities.³⁰

bilizing action, especially during a conflict with a nuclear-armed adversary. See Zhao, *Shezhan—daodan weishe zongheng tan* [Intimidation warfare: Comprehensive survey of missile intimidation].

27. For example, Zhao Xijun notes in *Intimidation Warfare* (ibid.) that deterrence must be carefully calibrated to maximize the chances of achieving the desired results. If the level of threat is too low, it will fail to influence the enemy; if it is too high, there is an equally serious risk of deterrence failure because the enemy may lash out in desperation. Similarly, in another passage Zhao offers a cautionary note that deterrence operations could accidentally trigger escalation if they are poorly timed: "Whether the timing for conducting the military deterrence of the missile forces is correctly chosen will directly affect the progress of deterrence and its outcome. If the appropriate timing is chosen, then deterrence will deter the enemy, contain the eruption of war, and obtain the objective of peace with the small price of deterrence. If inappropriate timing is chosen, then deterrence may cause the situation to deteriorate, even leading to the eruption and escalation of war." Nonetheless, the available sources suggest that Chinese thinking about the risks of specific actions may be rather underdeveloped, which in turn could make attempts at escalation management in a U.S.-China crisis or conflict extremely challenging and potentially very dangerous for both parties.

28. National Air and Space Intelligence Center, "Ballistic and Cruise Missile Threat," NA-SIC-1031-0985-09, Wright-Patterson Air Force Base, OH, April 2009, 3.

29. Ibid.

30. See Yao, "Chinese Nuclear Policy and the Future of Minimum Deterrence"; Chu Shulong and Rong Yu, "China: Dynamic Minimum Deterrence," in *The Long Shadow: Nuclear Weapons and Security in 21st Century Asia*, ed. Muthiah Alagappa (Stanford, CA: Stanford University Press, 2008), 161–87.

Table A.1 China's Nuclear Missile Force Structure

Chinese designation	NATO designation	Mobility	Type	Estimated maximum range (km)	Propellant	Estimated number deployed
DF-3	CSS-2	Road	IRBM	3,000+	Liquid	14–18
DF-21	CSS-5 Mod 1	Road	MRBM	1,750+	Solid	60–80
DF-21A	CSS-5 Mod 2	Road	MRBM	1,750+	Solid	60–80
DF-4	CSS-3	Silo/ transportable	ICBM	5,400+	Liquid	16–24
DF-5	CSS-4	Silo	ICBM	13,000+	Liquid	20
DF-31	CSS-10 Mod 1	Road	ICBM	7,250+	Solid	<10
DF-31A	CSS-10 Mod 2	Road	ICBM	11,200+	Solid	<15
DF-41	N/A	Road	ICBM/ MIRV	Unknown	Solid	Possibly in development
JL-2	N/A	Sea	SLBM	Unknown	Solid	In development

Sources: National Air and Space Intelligence Center, “Ballistic and Cruise Missile Threat,” NA-SIC-1031-0985-09, Wright-Patterson Air Force Base, OH, April 2009; U.S. Department of Defense, “Annual Report to Congress: Military Power of the People’s Republic of China 2009,” Washington, DC, 2009; and Stockholm International Peace Research Institute, *SIPRI Yearbook 2011: Armaments, Disarmament and International Security* (New York: Oxford University Press, 2011), 342.

Note: IRBM = intermediate-range ballistic missile; MRBM = medium-range ballistic missile; ICBM = intercontinental ballistic missile; MIRV = multiple independently targetable reentry vehicle; SLBM = submarine-launched ballistic missile.

Nuclear MRBMs and IRBMs

China currently deploys the DF-3 (CSS-2) intermediate-range ballistic missile (IRBM) and the DF-21 and DF-21A (CSS-5 Mod 1 and CSS-5 Mod 2) medium-range ballistic missiles (MRBMs) for regional nuclear deterrence missions.³¹ China has 14–18 DF-3 (CSS-2), which was first deployed in 1971 and is a single-stage, liquid propellant IRBM with a maximum range of about 3,000 kilometers (1,900 miles). NASIC believes the DF-3 (CSS-2) is “transportable” but has “limited mobility.”³² The 2009 U.S. Department of Defense report on China’s military power suggests that the DF-3 (CSS-2) IRBMs are likely nearing retirement from service.³³

China has been transitioning to a more survivable, road-mobile theater nuclear force featuring the DF-21 (CSS-5 Mod 1) and DF-21A (CSS-5 Mod 2) MRBMs. According to the 2009 U.S. Department of Defense report on China’s military power, the PLA has about 60–80 nuclear-armed DF-21 (CSS-5 Mod 1) and DF-21A (CSS-5 Mod 2) MRBMs and 70–90 associated launchers.³⁴ Both are two-stage, solid propellant, road-mobile missiles with maximum ranges of more than 1,750 kilometers (1,100+ miles).³⁵

31. National Air and Space Intelligence Center, “Ballistic and Cruise Missile Threat,” 14.

32. *Ibid.*, 17.

33. U.S. Department of Defense, “Military Power of the People’s Republic of China 2009,” Washington, DC, 24.

34. *Ibid.*, 66.

35. National Air and Space Intelligence Center, “Ballistic and Cruise Missile Threat,” 17.

Nuclear Intercontinental Ballistic Missiles (ICBMs)

The silo-based DF-5 (NATO designator CSS-4) ICBM, a two-stage, liquid propellant missile, has been the mainstay of China's intercontinental nuclear deterrence force since its initial deployment in 1981. China currently deploys about 20 silo-based DF-5 ICBMs, which have a range of at least 13,000 kilometers (8,000+ miles), or enough to strike targets throughout the continental United States.³⁶

China has also fielded two road-mobile ICBMs, the DF-31 and DF-31A. The DF-31 (CSS-10 Mod 1) is a three-stage, solid propellant, road-mobile ICBM with a maximum range of more than 7,200 kilometers (4,500+ miles). The DF-31 is probably intended to replace China's aging limited-range DF-4 missiles. Deployed on a mobile erector launcher (MEL), the DF-31 is likely intended to mainly cover targets in Russia and Asia, but the missile's range is sufficient to reach U.S. missile defense sites in Alaska, U.S. forces in the Pacific, and targets in parts of the western United States.³⁷ After a protracted development history that began in the 1980s, China conducted the first developmental flight test of the DF-31 in August 1999. After this initial flight test, the system remained under development for several more years, despite numerous predictions that its deployment was imminent. The DF-31 road-mobile ICBM was finally deployed in 2006.³⁸ By 2008, China had deployed fewer than 10 DF-31 launchers, according to the U.S. Department of Defense.³⁹

The DF-31A (CSS-10 Mod 2) is a three-stage, solid propellant, road-mobile ICBM with a maximum range of more than 11,200 kilometers (7,000+ miles). The DF-31A's longer range allows it to reach targets throughout most of the continental United States. According to the 2009 edition of the U.S. Department of Defense report on China's military power, China began deploying the DF-31A (CSS-10 Mod 2) road-mobile ICBM in 2007.⁴⁰ China had fielded "fewer than 15" CSS-10 Mod 2 launchers by the time NASIC published its most recent unclassified report on worldwide missile developments in April 2009.⁴¹

China also still has about 16–24 of its older and shorter-range, liquid-fueled DF-4 (CSS-3) ICBMs.⁴² The DF-4 is a two-stage, liquid propellant missile with a range of about 5,400 kilometers (3,400+ miles). The DF-4 can be deployed as a silo-based system, but it is also transportable. China has about 10–15 launchers, according to NASIC.⁴³ Many observers anticipate that China will decommission its DF-4 limited-range ICBMs now that it has deployed the road-mobile DF-31 ICBM.

China may also be developing one or more additional ICBMs. According to the 2010 U.S. Department of Defense report on the Chinese military, "China may also be developing a new road mobile ICBM, possibly capable of carrying a multiple independently targeted re-entry vehicles (MIRV)."⁴⁴ This statement followed many years of speculation about possible follow-on ICBM systems.

36. Ibid., 21.

37. Robert D. Walpole, "The Ballistic Missile Threat to the United States," Statement for the Record to the Senate Subcommittee on International Security, Proliferation, and Federal Services on the Ballistic Missile Threat to the United States, February 9, 2000, https://www.cia.gov/news-information/speeches-testimony/2000/nio_speech_020900.html.

38. U.S. Department of Defense, "Military Power of the People's Republic of China 2009," 24.

39. Ibid., 66.

40. Ibid.

41. National Air and Space Intelligence Center, "Ballistic and Cruise Missile Threat," 21.

42. This estimate comes from the NASIC report. The 2009 Department of Defense report states that China maintains about 20 DF-4s.

43. National Air and Space Intelligence Center, "Ballistic and Cruise Missile Threat," 21.

44. U.S. Department of Defense, "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2010," Washington, DC, 2.

Future Decisions

In the coming years, it is highly likely that China will continue to deploy the forces it perceives as necessary to ensuring a credible retaliatory capability. It is therefore likely that the specific size and type of the future nuclear force that Beijing deploys will be highly contingent on China's assessment of the size and capabilities of the military forces of its nuclear rivals (i.e., the United States, Russia, and, to a lesser extent, India).

As Fravel and Medeiros point out, "Chinese leaders have believed that nuclear weapons were basically unusable on the battlefield and that once mutual deterrence was achieved, a larger arsenal or arms racing would be costly, counterproductive, and ultimately self-defeating."⁴⁵ Beijing also recognizes that a large-scale expansion of its nuclear forces would entail very high political and diplomatic costs, almost certainly spurring countervailing responses by the United States, Russia, India, and other nations.⁴⁶ China is thus unlikely to attempt to match or exceed the United States or Russia in terms of the number of nuclear weapons it deploys under the current conditions in which the United States and Russia retain a substantially greater number of such weapons. Nonetheless, there is ample reason to believe Beijing will increase the size of its nuclear arsenal as needed to ensure that it maintains a retaliation capability in response to the perceived security challenges. This could result in quite substantial increases in the quantity and quality of China's nuclear arsenal.

Yet the modernization and expansion of China's nuclear missile force capabilities have led some analysts to suggest that China possesses a far larger number of nuclear weapons than the U.S. government and most outside experts assess.⁴⁷ These far higher estimates, however, are not justified by the evidence. Neither U.S. government nor independent outside experts credit these numbers, pointing, for example, to the limited amount of highly enriched uranium and plutonium that China has available for nuclear weapons production. In unclassified March 2009 congressional testimony, Lt. Gen. Michael D. Maples, director of the Defense Intelligence Agency (DIA), assessed that "China's nuclear weapon stockpile likely will grow over the next 10 years as new ballistic missiles are activated and older ones are upgraded. China likely has produced enough weapon-grade fissile material to meet its needs for the immediate future."⁴⁸

45. Fravel and Medeiros, "China's Search for Assured Retaliation," 87.

46. See, for example, Sun Xiangli, "Analysis of China's Nuclear Strategy," *China Security* 1 (Autumn 2005): 27; Yao, "Chinese Nuclear Policy and the Future of Minimum Deterrence."

47. See, for example, the analysis of Philip Karber, cited in Bret Stephens, "How Many Nukes Does China Have? Plumbing the Secret Underground Great Wall," *Wall Street Journal*, October 24, 2011, <http://online.wsj.com/article/SB10001424052970204346104576639502894496030.html>. For a counterargument to Karber, see James M. Acton, "The 'Underground Great Wall': An Alternative Explanation," Carnegie Endowment for International Peace, October 26, 2011, <http://carnegieendowment.org/2011/10/26/underground-great-wall-alternative-explanation/67s0>. In addition, the sources cited in the Karber report do not support its conclusions. For critiques of the sources used, see M. Taylor Fravel, "Open Sources and Information Laundering," M. Taylor Fravel (blog), January 6, 2012, <http://taylorfravel.com/2012/01/open-sources-and-information-laundering/>; Hans M. Kristensen, "No, China Does Not Have 3,000 Nuclear Weapons," FAS Strategic Security Blog, Federation of American Scientists, December 3, 2011, <http://www.fas.org/blog/ssp/2011/12/chinanukes.php#more-5086>; Gregory Kulacki, "The Sources of Karber's Sources," All Things Nuclear (blog), Union of Concerned Scientists, December 7, 2011, <http://allthingsnuclear.org/the-sources-of-karbers-sources/>.

48. Lt. Gen. Michael D. Maples, "Annual Threat Assessment," Statement before the Committee on Armed Services, U.S. Senate, March 10, 2009, <http://www.dia.mil/public-affairs/testimonies/2009-03-10.html>.

In addition, recent assessments by nongovernmental experts suggest that China likely has enough fissile material to expand its arsenal significantly, but not enough to build a force anywhere close to the size suggested by a widely reported study that claimed China might already have as many as 3,000 nuclear weapons.⁴⁹

That said, many observers expect China to field a larger and more sophisticated nuclear force over the next 10–15 years. For example, according to unclassified congressional testimony in March 2011 by DIA director lieutenant general Ronald L. Burgess Jr., “The PRC currently has fewer than 50 ICBMs that can strike the continental United States, but probably will more than double that number by 2025.”⁵⁰ The key factors likely to influence Chinese decisionmaking about what exactly it requires in terms of nuclear force structure include China’s perception of the external security environment and its relationships with the major powers, principally the United States, India, Russia, and Japan; China’s perception of potential nuclear and conventional threats to its silo-based, road-mobile, and sea-based nuclear forces; and China’s concerns about future missile defense developments that could undermine its ability to maintain an assured retaliation posture capable of deterring potential adversaries.

Some Chinese military scholars suggest that missile defense is the most important factor in determining China’s future requirements. According to Maj. Gen. Yao Yunzhu, for example, U.S. missile defense deployments will be “the most significant factor that will influence China’s nuclear calculus.”⁵¹ Furthermore, according to Chu and Rong, “Trying to retain the credibility of its nuclear deterrent in the face of a BMD system, China may increase its nuclear arsenal until it is beyond doubt that it is large enough.”⁵² Chinese writers rarely provide specific numbers, but Chu and Rong suggest that perhaps 200 nuclear warheads could be needed today, with that number increasing to 300–400 in the future.

49. Kristensen, “No, China Does Not Have 3,000 Nuclear Weapons.”

50. Lt. Gen. Ronald L. Burgess Jr., “World Wide Threat Assessment,” Statement before the Committee on Armed Services, U.S. Senate, March 10, 2011, <http://www.dia.mil/public-affairs/testimonies/2011-03-10.html>.

51. Yao, “Chinese Nuclear Policy and the Future of Minimum Deterrence,” 121.

52. Chu and Rong, “China: Dynamic Minimum Deterrence,” 171.



TRIP REPORT, BEIJING, SEPTEMBER 12–15, 2012

In September 2012, members of the Center for Strategic and International Studies (CSIS) Project on Nuclear Issues (PONI) Working Group on U.S.-China Nuclear Issues and Relations traveled to Beijing to discuss its preliminary findings with Chinese experts and scholars. The U.S. delegation consisted of seven working group members—cochairs Elbridge Colby and Abraham Denmark, executive director John Warden, along with Patrick Lobner, Oriana Mastro, Ely Ratner, and Robert Zarate. Chinese participants were as follows:

Meeting 1—Peking University

- Zhu Feng, Peking University
- Yu Wanli, Peking University
- Zha Daojiong, Peking University
- Han Hua, Peking University
- Gu Guoliang, Chinese Academy of Social Sciences
- Wu Zhengyu, Renmin University
- Wu Riqiang, Renmin University

Meeting 2—Chinese Arms Control and Disarmament Association (CACDA)

- Gong Xianfu, CACDA
- Li Changhe, CACDA (former Chinese ambassador for disarmament affairs)
- Chen Te'an, *People's Daily*
- Sr. Col. Xu Weidi, National Defense University
- Lu Yin, National Defense University
- Li Deshun, CACDA

Meeting 3—Chinese Institute of Contemporary International Relations (CICIR)

- Yang Mingjie, CICIR
- Da Wei, CICIR
- Guo Xiaobing, CICIR
- Liu Chong, CICIR

Meeting 4—China Reform Forum

- Xue Fukang, China Reform Forum
- Dai Fengning, China Reform Forum
- Su Hao, China Foreign Affairs University
- Qian Wenrong, Xinhua (former)
- Duan Zhanyuan, CACDA
- Pang Zhongying, Renmin University

The following is a summary of the key findings from the trip:

- There was general agreement that U.S.-China nuclear weapons relations would benefit from a mutually agreed on conceptual foundation that is currently lacking. One idea proposed by several Chinese experts was mutual recognition that both U.S. and Chinese nuclear arsenals possess second-strike capability.
 - However, one Chinese participant argued that such a relationship cannot be based on rhetoric alone and must include legally binding limitations.
- A profound suspicion of U.S. ballistic missile defense (BMD) plans surfaced in every meeting. Many Chinese interlocutors mentioned the U.S. decision to deploy additional X-band radars in the Pacific, and all were skeptical of U.S. declarations that such capabilities are not targeted at China and will not threaten China's nuclear second-strike capability.
 - Chinese interlocutors could not or would not disaggregate between national and theater missile defense capabilities.
 - One participant expressed particular concern about the recommendation for expanded ground-based midcourse interceptors in the recent U.S. National Academy of Sciences ballistic missile defense study.⁵³
 - None of the Chinese interlocutors was able or willing to recommend any actions that the United States could take to reassure China of the limitations of U.S. BMD.
 - By comparison, there was very little discussion of the conventional prompt global strike as a potential threat to China's strategic deterrent.
- The wide disparity in U.S. and Chinese strategic force sizes informed most discussions. Most Chinese thought the United States should not be worried about China's nuclear developments because U.S. forces are significantly more numerous and sophisticated.
 - This linkage directly informed Chinese understanding of "strategic stability," which for most interlocutors was equated with numerical parity and mutually assured destruction—both viewed as Cold War legacies that are inappropriate for China.
 - Many Chinese interlocutors attempted to tie strategic stability in the nuclear dimension to other areas such as maritime, space, and cyberspace. Others said that strate-

53. Committee on an Assessment of Concepts and Systems for U.S. Boost-Phase Missile Defense in Comparison to Other Alternatives, *Making Sense of Ballistic Missile Defense: An Assessment of Concepts and Systems for U.S. Boost-Phase Missile Defense in Comparison to Other Alternatives* (Washington, DC: National Academies Press, 2012), http://www.nap.edu/catalog.php?record_id=13189.

gic stability can only be attained through the development of mutual trust across the entirety of U.S.-China relations.

- Most Chinese interlocutors acknowledged that China's nuclear force is modernizing, but noted that U.S. systems are much more advanced. They also argued that such modernization is natural for a growing country. All demurred when asked if China's nuclear numbers are growing; some declared that China will not build a large nuclear force, nor seek parity with the United States. Others declared that China will not accept a ceiling on its nuclear force structure.
 - Chinese participants were willing to acknowledge that China's nuclear modernization is driven primarily by a need to balance U.S. forces; many noted that China is listed as a potential target in the most recent *Nuclear Posture Review Report*.
 - Many Chinese interlocutors argued that China faces a threat environment much severer than that faced by the United States. They said that the United States does not have a major nuclear threat to its homeland, but China is surrounded by nuclear armed states such as Russia, India, and Pakistan. One participant noted that India's nuclear forces and the U.S.-India civil nuclear cooperation deal (the implementation of which has freed up India's domestic uranium for potential military use) are a partial driver of China's modernization.
 - One participant said he preferred to refer to Chinese modernization goals as "limited retaliation" rather than "minimum deterrence" because deterrence cannot be measured.
- Chinese interlocutors recognized U.S. concerns about China's nuclear no-first-use (NFU) pledge. One even hinted that there may be some conditionality to it, especially when it comes to conventional attacks seeking to deny China a retaliatory capability. Yet one Chinese participant said that U.S. experts and officials should not push China to clarify its position on NFU, as they may not like what they hear.
- Many Chinese participants were critical of U.S. extended deterrence commitments in East Asia, describing them as destabilizing. One Chinese participant argued that there are few bilateral issues that could bring the two countries to the brink of war, but once third-party actors are introduced, then the possibility greatly increases. Another went further in claiming that the United States was behind recent Japanese assertiveness in the Senkaku/Diaoyutai dispute.



ABOUT THE WORKING GROUP PARTICIPANTS

Elbridge A. Colby, cochair, is a principal analyst and division lead for global strategic affairs at the Center for Naval Analyses (CNA), where he focuses on strategy, deterrence, nuclear weapons, and related issues. Previously, he served as policy adviser to the secretary of defense's representative for the new Strategic Arms Reduction Treaty, as an expert adviser to the Congressional Strategic Posture Commission, as a staff member on the President's Commission on the Intelligence Capabilities of the U.S. Regarding WMD, and in a number of other government positions. Mr. Colby also serves or has served as a consultant to a number of U.S. government bodies. He publishes and speaks regularly on strategic issues in the United States, Europe, and Asia. Mr. Colby is a graduate of Harvard College and Yale Law School and is a member of the Council on Foreign Relations (term) and of the International Institute of Strategic Studies.

Abraham M. Denmark, cochair, is vice president for political and security affairs at the National Bureau of Asian Research (NBR) and is an Asia-Pacific security adviser at the Center for Naval Analyses. He manages NBR research programs, dialogues, projects, and initiatives related to political and security issues in the Asia-Pacific region. He has experience both inside and outside of government, having previously worked as a fellow at the Center for a New American Security and as country director for China affairs in the Office of the Secretary of Defense. Mr. Denmark holds an M.A. in international security from the Josef Korbel School of International Studies at the University of Denver and has studied at China's Foreign Affairs University and Peking University.

John K. Warden, executive director, is a research assistant with the Defense and National Security Group at the Center for Strategic and International Studies (CSIS) and a master's candidate in the Security Studies Program at Georgetown University. While at CSIS, Mr. Warden has worked primarily with the Project on Nuclear Issues (PONI), contributing to research on U.S. nuclear-weapons policy and strategy, arms control, and missile defense. He has led a number of PONI activities—including the 2011 and 2012 Nuclear Scholars Initiative and the Next Generation Working Group on next steps in U.S.-Russia nuclear arms control—and coordinated the CSIS U.S.-Japan-South Korea Trilateral Dialogue on Nuclear Issues. After receiving a B.A. in history and political science from Northwestern University, he joined CSIS as a recipient of the William J. Taylor debate internship.

James M. Acton is a senior associate in the Nuclear Policy Program at the Carnegie Endowment for International Peace. His latest book, *Deterrence During Disarmament: Deep Nuclear Reductions and International Security*, was published in the Adelphi series in 2011. He is the coauthor of a second Adelphi Paper, *Abolishing Nuclear Weapons*, and coeditor of the follow-up volume, *Abolishing Nuclear Weapons: A Debate*. He is a member of the International Panel on Fissile Materials and during 2010–2011 cochaired the Next Generation Working Group on U.S.-Russia Arms Control. Dr. Acton has published in *Bulletin of the Atomic Scientists*, *Foreign Affairs*, *International Herald Tribune*, *Jane's Intelligence Review*, the *New York Times*, *Nonproliferation Review*, *Survival*, and the *Washington Quarterly*. He holds a Ph.D. in theoretical physics from Cambridge University.

Jay K. Brotz is a senior systems engineer in the Nuclear Monitoring and Transparency Department at Sandia National Laboratories. He is the hardware and operations design lead for the Chain of Custody Project and is primarily concerned with the evaluation of candidate technologies to be used for arms control monitoring at the Engineering Test Bed at Sandia and the National Chain of Custody Test Bed in Nevada. Previously, Mr. Brotz has been a lead system design engineer on the Second Line of Defense Megaports Initiative, a systems engineer in the Nuclear Weapons Systems Center, and an electrical engineer in the Electromechanical Components Department. He graduated with a B.S. in computer engineering from Rose-Hulman Institute of Technology and an M.S. in electrical and computer engineering from Carnegie Mellon University.

Michael S. Chase is an associate research professor in the Warfare Analysis and Research Department at the U.S. Naval War College and director of the Mahan Research Group, a student-faculty research group that focuses on strategic deterrence and escalation issues related to nuclear, space, cyber, and conventional strike capabilities. Prior to joining the faculty at the War College, Professor Chase served as a research analyst with Defense Group Inc. and an associate international policy analyst with the RAND Corporation. Professor Chase earned a Ph.D. in international affairs from the Johns Hopkins University School of Advanced International Studies (SAIS) in Washington, D.C. He also holds an M.A. in China studies from SAIS and a B.A. in politics from Brandeis University.

M. Taylor Fravel is an associate professor of political science and member of the Security Studies Program at the Massachusetts Institute of Technology. He studies international relations, with a focus on international security, China, and East Asia. His first book, *Strong Borders, Secure Nation: Cooperation and Conflict in China's Territorial Disputes*, was published by Princeton University Press in 2008. His other publications have appeared in *International Security*, *Foreign Affairs*, *Security Studies*, *International Studies Review*, *China Quarterly*, the *Washington Quarterly*, *Journal of Strategic Studies*, *Armed Forces & Society*, *Current History*, and *Asian Survey*, as well as in edited volumes. Professor Fravel is a graduate of Middlebury College and Stanford University, where he received his Ph.D. He also holds graduate degrees from the London School of Economics and Oxford University, where he was a Rhodes scholar.

Michael S. Gerson is a senior research manager at the Gerson Lehrman Group. He previously worked as a principal analyst and project director at the Center for Naval Analyses (CNA), where his work focused on nuclear and conventional deterrence, nuclear strategy, arms control, and weapons of mass destruction proliferation. From September 2011 to September 2012, he was on loan from CNA to the Office of the Secretary of Defense, where he worked on a range of strategic issues associated with the Middle East and homeland defense. In 2009, he was a staff member on the Nuclear Posture Review, where he was lead author of a report on international perspectives on U.S. nuclear policy and posture. Mr. Gerson holds a B.A. with special honors in history from the University of Texas and an M.A. in international relations from the University of Chicago.

Michael C. Horowitz is an associate professor of political science at the University of Pennsylvania. His first book, *The Diffusion of Military Power: Causes and Consequences for International Politics*, won the Furniss Award, given by the Merishon Center for International Security Studies to a first-time author writing about national or international security. With a Ph.D. from the Department of Government at Harvard University, Professor Horowitz has served as a postdoctoral fellow at the Belfer Center for Science and International Affairs, as the Sidney R. Knafel Fellow at the Weatherhead Center for International Affairs, and as a predoctoral fellow at the Olin Institute for Strategic Studies, all at Harvard. He has previously worked at Science Applications International Corporation and at the Center for Strategic and International Studies.

Patrick Lobner is a senior consultant at Booz Allen Hamilton in the Advanced Analytics Group, focusing on model development, simulation, and budget efficiencies. Mr. Lobner previously served as a policy adviser in the U.S. Navy's Nuclear Weapons Policy and Arms Control Office, responsible for developing navy policy for topics including arms control treaties, nuclear weapons strategy, and nuclear weapons security. Mr. Lobner has also served as policy adviser in the Joint Staff Office for Strategic Stability, as adviser to the chairman of the Joint Chief's representative to the START Follow-On Treaty (New START), and as the youngest member of the U.S. delegation to New START in Geneva, Switzerland. Prior to working at the Pentagon, he served as a nuclear submarine officer in the U.S. Navy.

Oriana S. Mastro is a doctoral candidate in the Politics Department at Princeton University, where she focuses on military operations and strategy, war termination, and Northeast Asia, China in particular. She will begin teaching at the Edmund A. Walsh School of Foreign Service at Georgetown University in fall 2013 as an assistant professor of security studies. Ms. Mastro is also a fellow at the Center for a New American Security and a first lieutenant in the U.S. Air Force Reserve, where she works as an Asia-Pacific strategist at the Pentagon. Proficient in Mandarin, she has worked on China policy issues at the Carnegie Endowment for International Peace, RAND Corporation, U.S. Pacific Command, Project 2049, and the U.S. Department of Defense. She holds a B.A. in East Asian studies from Stanford University and an M.A. in politics from Princeton University.

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Robert Zarate is policy director at the Foreign Policy Initiative. He worked previously as a legislative assistant to Representative Jeff Fortenberry (R-NE) on foreign affairs, national security, and appropriations issues; as a legislative fellow on the House Foreign Affairs Subcommittee on Terrorism, Nonproliferation, and Trade; and as a research fellow at the Nonproliferation Policy Education Center. In 2009, he coedited *Nuclear Heuristics: Selected Writings of Albert and Roberta Wohlstetter*, an anthology of enduring writings on nuclear-age strategy and policy by two of America's most controversial, innovative, and consequential analysts. He received his undergraduate and graduate degrees from the University of Chicago.



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