

The 2020+ Security Environment: Describing the Demand Function for the 2021 Affordable Force¹

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Purpose

After a decade of steadily increasing defense budgets – from 2001 to 2012, the base budget of the Department of Defense (DoD) increased about 40 percent in real terms – DoD must, in order to comply with the Budget Control Act of 2011 (BCA), reduce spending by \$487 billion from FY2012-2021. If sequestration is triggered, as it will be on 2 January 2013 in the absence of a “grand bargain” deal on deficit reduction or alternative act of Congress, it will impose approximately \$500 billion in additional defense budget cuts. For this reason, it is necessary for defense planners to engage in serious discussion of the implications of the fiscal climate for U.S. defense strategy and the 2021 Force.

In identifying an appropriate portfolio of capabilities for the 2021 Affordable Force, defense planners must first consider the multi-dimensional demand for such capabilities (Step D-1 of the methodology). As such, this paper will outline potential threats to American interests, as well as the future security environment in which military missions are likely to be executed and the partnership capacity that could be called upon for assistance. An examination of these factors, which together compose the demand function, is intended to provide defense planners with a context for assessing the implications of the future security environment for the nation’s defense requirements (Step D-2), thereby beginning the process of aligning the demand for military capabilities with the available supply, as established by Step S-1. Finally, this paper is intended to aid defense planners in weighing the difficult tradeoffs between military capabilities and prioritizing among the capabilities deemed vital to meeting future security demands. This process will result in a demand-driven statement of the Common Core of Capabilities required by the 2021 Force (Step D-3).

¹ This paper is an illustration of Step D-1 of the methodology outlined in Clark A. Murdock, “Preparing for a Deep Defense Drawdown: The Defense Drawdown Working Group (DDWG) and the ‘Cost-Capped’ Methodology,” Center for Strategic and International Studies, October 12, 2012, http://csis.org/files/publication/121012_DD_Revised_Methodology.pdf.

² The author would like to thank the members of the Defense Drawdown Working Group for their feedback on previous drafts of this paper. Any errors that remain are her own.

International Security Environment

Global Context

In many ways, the international system is both more secure and more stable than at any other time in the past fifty years. Violent conflict has declined, democratic governance has increased, and life expectancy and living standards have improved. And as Micah Zenko and Michael A. Cohen have observed, “the United States faces no plausible existential threats, no great-power rival, and no near-term competition for the role of global hegemon.”³

Nonetheless, the United States will face a challenging international security environment in the longer term, as civil unrest (in some cases accelerated by advances in communications technology), leadership transitions, and redistributions of power manifest unpredictable and potentially destabilizing dynamics. Furthermore, changes in the nature of warfare, diffusion of technical knowledge, and proliferation of advanced weapons systems, including weapons of mass destruction, will introduce new sources of instability by empowering previously marginalized actors and raising the costs – in both blood and treasure – of conflict.

The challenges of the 2020+ international security environment will be discussed below.

China

As the preeminent rising power within the international system, China is becoming increasingly assertive in both internal and external affairs, consolidating domestic power through the exertion of authoritarian control in its hinterlands (e.g., Xinjiang), while additionally preparing for the consolidation of regional power through the development of A2/AD and advanced power projection capabilities. These efforts are intended to bolster China’s “comprehensive national power,” a term it invokes to describe “all elements of state power including economic capacity, military might, and diplomacy.”⁴

In particular, economic development is vital to the perpetuation of regime legitimacy in China, and thus, the need for secure access to energy markets and natural resources is

³ Micah Zenko and Michael A. Cohen, “Clear and Present Safety,” *Foreign Affairs*, March/April 2012, 91(2): 79-93.

⁴ Department of Defense, *Military and Security Developments Involving the People’s Republic of China*, 2011, http://www.defense.gov/pubs/pdfs/2011_cmpr_final.pdf.

likely to guide the country's activity in the coming years.⁵ Indeed, China's rapid economic growth underscores the necessity of maintaining such access, which it currently ensures through various bilateral agreements. Chinese leaders distrust these agreements, however, and given the large quantity of petroleum that the country is forced to import – projected to reach nearly three-quarters of the total supply by 2030 – continued reliance upon foreign producers is seen as risk intensive.⁶ For this reason, the People's Liberation Army (PLA) is pursuing capabilities that will allow China to assert itself in any regional dispute over resources, with a particular eye towards securing sea lines of communication through the Indian Ocean, South China Sea, and Strait of Malacca.⁷ It is also pursuing basing agreements in the Indian Ocean that would reduce its reliance on Malacca and enhance its ability to project power.⁸

China has also become increasingly assertive with regard to territorial matters over the past five years, challenging traditional interpretations of the Law of the Sea Convention to which it is a party. For example, in defiance of the convention's legal guidelines for territorial attribution, which assign sovereignty on the basis of geographic features, China has advanced claims of historical sovereignty over a number of territories. As a result, it has seized Vietnamese possessions in the Spratly Islands and occupied Mischief Reef, a possession of the Philippines.⁹ More recently, it has conducted aggressive naval maneuvers against both American and Vietnamese survey ships and challenged Philippine sovereignty over Scarborough Shoal.¹⁰ If this trend continues, Chinese provocations could

⁵ China has, for example, sought to diversify energy imports by deepening ties with resource abundant partners in Africa. "In return for equity stakes in African oil fields," Robert Kaplan notes, "China has granted \$19 billion in aid and concessionary financing to African governments." Robert D. Kaplan, *Monsoon: The Indian Ocean and the Future of American Power*, New York, (Random House, 2010), 296. See also Robert Kaplan, "The Geography of Chinese Power: How Far Will Beijing Reach on Land and at Sea?," *Foreign Affairs*, May/June 2010, 89(3): 22-41.

⁶ Department of Defense, *Military and Security Developments*, 2011.

⁷ *Ibid.*

⁸ Robert D. Kaplan, *Monsoon*.

⁹ Richard D. Fisher, Jr. *China's Military Modernization: Building for Regional and Global Reach*. Westport, Connecticut (Praeger Security International, 2008).

¹⁰ "Pentagon says Chinese vessels harassed U.S. ship," CNN, March 9, 2009, http://articles.cnn.com/2009-03-09/politics/us.navy.china_1_chinese-ships-chinese-vessels-chinese-media?s=PM:POLITICS; and "Vietnam accuses China in seas dispute," BBC, May 30, 2011, <http://www.bbc.co.uk/news/world-asia-pacific-13592508>; and Jane Perlez, "Beijing Exhibiting New Assertiveness in South China Sea," *New York Times*, May 31, 2012,

begin to compromise freedom of navigation in the global commons and, eventually, undermine U.S. alliance commitments in the Asia-Pacific.

Implications for U.S. Defense: In support of its expanding regional ambitions, China has accelerated its program of military modernization, with a particular focus on deterring Taiwanese independence and enhancing A2/AD capabilities. To this end, it is developing anti-ship ballistic missiles (with an estimated range of 810 nautical miles [nm]) that can be paired with maritime surveillance and targeting systems to force the U.S. Navy beyond its operational reach and capacity to project tactical airpower (the F-18 has an unrefueled combat radius of between 290 and 390 nm [dependent on variant]; the F-35C, approximately 600 nm).¹¹ Furthermore, China is developing advanced naval mines and is scheduled to begin receiving deliveries of the Russian-built S-400 air defense system (with a range of approximately 215 nm) in 2017, both of which will enhance the country's area denial capabilities in the Taiwan Strait.¹² China also appears to be amassing a substantial inventory of anti-ship cruise missiles, which could be used to overwhelm and incapacitate the Aegis Defense System, thereby markedly increasing the vulnerability and restraining the freedom of action of U.S. and allied vessels operating in the broader Asia-Pacific.¹³ Relatedly, it continues to pursue advanced cyber capabilities and directed-energy assets that could be used to compromise U.S. satellites or disrupt command and control systems.¹⁴

<http://www.nytimes.com/2012/06/01/world/asia/beijing-projects-power-in-strategic-south-china-sea.html?pagewanted=all>.

¹¹ Ronald O'Rourke, "China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress," Congressional Research Service, March 23, 2012, <http://www.fas.org/sgp/crs/row/RL33153.pdf>; "U.S. Military Aircraft," Federation of American Scientists, 2011, <http://www.fas.org/programs/ssp/man/uswpns/index.html>; Dave Majumdar, "F-35's Range Falls Short of Predictions," Defense News, May 12, 2011, <http://www.defensenews.com/article/20110512/DEFSECT01/105120304/F-35-s-Range-Falls-Short-Predictions>.

¹² "Russia Looking at China S-400 Deliveries in 2017," RIA Novosti, June 27, 2012, <http://en.rian.ru/world/20120627/174264185.html>.

¹³ Roger Cliff, Mark Burles, Michael S. Chase, Derek Eaton, and Kevin L. Pollpeter, *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, RAND Corporation, 2007, http://www.rand.org/pubs/monographs/2007/RAND_MG524.pdf.

¹⁴ China's 2007 anti-satellite test provided a vivid demonstration of its progress in developing such capabilities.

The People's Liberation Army Air Force has undertaken a similar program of modernization, acquiring Russian Su-27 and Su-30 fighters; producing its first indigenous fighter, the J-10; and additionally developing the J-15, a carrier-based fighter, and the J-20, a 4.5-generation air superiority fighter.¹⁵ As the Congressional Research Service reports, some observers believe that the design characteristics of the J-20 suggest that "it might be intended as a land-based strike aircraft for attacking ships at sea," thus providing further support to China's A2/AD capabilities.¹⁶

Finally, the Chinese nuclear arsenal, consisting of 50-75 ICBMs and 80-120 IRBMs and MRBMs, will remain an important consideration for defense planners.¹⁷ Although China maintains a policy of no-first use and professes to adhere to a strategy of minimal deterrence, the United States will likely want to maintain its own arsenal at a level that both assures regional allies of its continued ability to provide extended deterrence and denies China the ability to sprint to parity.

Korean Peninsula

Tension has long-characterized relations on the Korean Peninsula, a factor that is unlikely to be resolved by the ascension of Kim Jong-un. The North Korean sense of insecurity is deeply embedded in the nation's psyche, with its leadership pointing to factors that include the U.S. treaty with and nuclear umbrella over the South, as well as additional U.S. security treaties and significant military presence in the region, as evidence of its encirclement.¹⁸

North Korea's path under Kim Jong-un remains to be seen; however, Kim has indicated that he will maintain the country's military first policy and appears intent on establishing his military credentials.¹⁹ To this end, North Korean media outlets have attributed both the sinking of South Korea's *Cheonan* – in which 46 sailors were killed – and the shelling of

¹⁵ Little is known about the design characteristics or intended mission set of the recently revealed J-31 stealth fighter prototype.

¹⁶ O'Rourke, 28.

¹⁷ Department of Defense, *Military and Security Developments Involving the People's Republic of China*, 2012, http://www.defense.gov/pubs/pdfs/2012_CMPR_Final.pdf.

¹⁸ See Victor D. Cha and David Kang, *Nuclear North Korea: A Debate on Engagement Strategies*, New York (Columbia University Press, 2003).

¹⁹ Choe Sang-Hun, "North Korean Leader Stresses Need for Strong Military," *New York Times*, April 15, 2012, <http://www.nytimes.com/2012/04/16/world/asia/kim-jong-un-north-korean-leader-talks-of-military-superiority-in-first-public-speech.html?pagewanted=all>.

Yeonpyeong Island to his involvement.²⁰ And, at any rate, the country's April 2012 missile launch, which occurred in defiance of UNSCRs 1718 and 1874, would not have been conducted without his imprimatur. Such uncertainty can be expected to continue as Kim jockeys for the respect of his generals.

Neither a substantial escalation of conflict (due to the moderating effect of the nuclear overhang) nor a collapse of the Kim regime appears imminent at this time; however, unforeseen developments could alter this assessment in the longer term. And given the U.S. interest in ensuring stability and maintaining extended deterrence on the Peninsula, the area will remain an important focal point for defense planning.

Implications for U.S. Defense: While the precise size of North Korea's nuclear arsenal is unknown, U.S. intelligence officials believe that Pyongyang has produced at least a handful of plutonium weapons – having conducted two nuclear tests, in 2006 and 2009 – and is likely pursuing a supplementary capability to produce uranium weapons.²¹

In addition, North Korea possesses substantial conventional capabilities, boasting an armed force of 1.2 million – the world's fourth largest – as well as an arsenal of hundreds of short- and medium-range ballistic missiles. Perhaps more importantly, "North Korea deploys approximately 70 percent of its military units, and up to 80 percent of its estimated aggregate firepower, within 100km of the DMZ."²² While this force posture could be intended to provide a deterrent against South Korean encroachment, it could additionally enable North Korea to execute an offensive strike against the South "without recourse to further deployments and with minimal warning time," a strategy it terms the "One Blow Non-stop Attack."²³ Under this strategy, the North would utilize its sizable supply of missiles and chemical weapons²⁴ to strike U.S. and South Korean assets in theater. This

²⁰ "Kim Jong-un 'Masterminded Attacks on S.Korea,'" Chosun Ilbo, August 3, 2011, http://english.chosun.com/site/data/html_dir/2011/08/03/2011080300499.html.

²¹ James R. Clapper, *Unclassified Statement for the Record on the Worldwide Threat Assessment of the U.S. Intelligence Community for the Senate Select Committee on Intelligence*, 31 January 2012, <http://intelligence.senate.gov/120131/clapper.pdf>.

²² Andrew Scobell and John M. Sanford, *North Korea's Military Threat: Pyongyang's Conventional Forces, Weapons of Mass Destruction, and Ballistic Missiles*, Strategic Studies Institute, April 2007, <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA466538>.

²³ Ibid.

²⁴ It is estimated to have between 180 and 250 metric tons of chemical stockpiles. See Joseph Circincione, Jon B. Wolfsthal, and Miriam Rajkumar, *Deadly Arsenals: Nuclear, Biological, and Chemical Threats*, Washington D.C. (Carnegie Endowment Press, 2005), 289.

would be followed by a large-scale regional deployment of naval mines and Special Operations Forces, consisting of between 80,000 and 100,000 highly trained troops.²⁵ North Korea also possesses a number of submarines, fast-attack watercraft, and guided-missile patrol boats – equipped with short-range (approximately 43 nm) anti-ship Styx cruise missiles – that could be employed in an A2/AD capacity in littoral waters.²⁶

In the event of such an attack, the United States is committed to providing military assistance to the South – pursuant to the 1953 Mutual Defense Treaty between the United States and South Korea – and, given concerns about nuclear security and regional destabilization, is further likely to intervene in the event of regime collapse in the North (current operational plans for such a contingency reportedly call for Marine assault operations as well as the deployment of U.S. Special Forces).²⁷

Iran

As a Shiite state with numerous Sunni rival states, Iran is sensitive to any perceived challenges to its sovereignty. Its prime location at the maritime chokepoint of the Strait of Hormuz, as well as its prodigious oil and natural gas reserves, has historically invited foreign interference.²⁸ Iran's leadership has pointed to such factors as having contributed to the country's heightened threat perception and desire for an effective military deterrent, a desire that was in turn strengthened by Iraqi aggression and frequent use of chemical weapons during the Iran-Iraq War.²⁹

Although it is not clear that Iran is determined to obtain nuclear weapons (it may instead be satisfied with reaching breakout capacity, in which it would be positioned to quickly manufacture nuclear weapons if so desired), its ongoing research into nuclear weapon components, expanding stockpile of medium-enriched uranium, and failure to uphold Nuclear Nonproliferation Treaty (NPT) obligations³⁰ are causes for concern that could elicit

²⁵ Scobell and Sanford, 39.

²⁶ Ibid., 51-52.

²⁷ "S.Korea, U.S. 'Complete N.Korea Contingency Plan,'" *Chosun Ilbo*, November 2, 2009, http://english.chosun.com/site/data/html_dir/2009/11/02/2009110200526.html.

²⁸ As in, for example, the 1941 British-Soviet invasion and the 1984 "Tanker War." See Steven R. Ward, *Immortal: A Military History of Iran and Its Armed Forces*, Washington, D.C. (Georgetown University Press, 2009).

²⁹ See Ray Takeyh, *Guardians of the Revolution*, Oxford (Oxford University Press, 2009).

³⁰ See IAEA, *Implementation of the NPT Safeguards Agreement and Relevant Provisions of Security Council Resolutions in the Islamic Republic of Iran*, 24 May 2011, <http://isis-online.org/uploads/isis->

a preventive military strike.³¹ This would likely have a profoundly destabilizing effect on the region, as would any formal decision by Iran to nuclearize.

And while a nuclear Iran would be highly unlikely to launch its weapons offensively given the potential for a catastrophic retaliatory strike, nuclear capability could embolden the regime to escalate its involvement in state-sponsored terrorism – potentially targeting American and/or allied troops in the region - or, more dramatically, initiate a proliferation cascade in the Middle East.

Implications for U.S. Defense: Having absorbed the lessons of both the Iran-Iraq War and the so-called Tanker War, in which it suffered heavy losses at the hands of the U.S. Navy, Iran adheres to a military doctrine that promotes the use of asymmetric tactics and strategic depth to achieve an advantage against a technologically superior adversary. To this end, it has sought to bolster conventional deterrence through the acquisition of cruise – including anti-ship – and ballistic missiles. It additionally possesses a number of naval mines, minelayers, and fast-attack watercraft, all of which could be used in a sea denial capacity to close or disrupt traffic in the Strait of Hormuz.³² In the unlikely event that Iran were to deploy these capabilities (Iran expert Alireza Nader has called such a move “suicidal”), the U.S. military would likely be called upon to conduct or support mine countermeasure operations and to maintain freedom of navigation in the Strait.³³

Broader Middle East

As a result of the Arab Spring and the subsequent election of Islamist governments in Egypt, Tunisia, and Morocco, the broader Middle East will continue to be a source of

[reports/documents/Iran_24May2011.pdf](#) and IAEA, *Implementation of the NPT Safeguards Agreement and Relevant Provisions of Security Council Resolutions in the Islamic Republic of Iran*, 30 August 2012, <http://www.iaea.org/Publications/Documents/Board/2012/gov2012-37.pdf>.

³¹ For example, Israeli Prime Minister Benjamin Netanyahu has repeatedly insisted that his country will not tolerate a nuclear Iran and has threatened to utilize military strikes as a means of preventing Iranian weaponization. See Mark Landler, “Obama Presses Netanyahu to Resist Strikes on Iran,” *New York Times*, March 5, 2012, <http://www.nytimes.com/2012/03/06/world/middleeast/obama-cites-window-for-diplomacy-on-iran-bomb.html?pagewanted=all>.

³² See Michael Connell, “Iran’s Military Doctrine,” *United States Institute of Peace*, <http://iranprimer.usip.org/resource/irans-military-doctrine>; Steven R. Ward, “The Continuing Evolution of Iran’s Military Doctrine,” *Middle East Journal*, Autumn 2005, 59(4): 559-576.

³³ See Daniel Sagalyn, “Iran Watching as U.S. Military Launches Exercise in Strait of Hormuz,” *PBS*, September 16, 2012, <http://www.pbs.org/newshour/runtdown/2012/09/navy-exercise.html>.

uncertainty with regard to civil stability as well as the ideological sympathies and strategic intentions of nascent governments. Furthermore, the potential for contagious uprisings or other political disruptions, particularly in the Gulf Arab states, will remain a long-term threat to regional stability, as will the Palestinian-Israeli flashpoint, fledgling governments in Iraq and Afghanistan, and ongoing conflict in Syria.

Implications for U.S. Defense: Given the criticality of this region for maintaining U.S. security commitments and access to natural resources, the United States may feel compelled to intervene if tensions escalate to a point at which allied governments or the diversity of oil supplies is threatened. In addition, regime changes or other political realignments – perhaps arising from increased Iranian influence – could test the durability of U.S. basing agreements in the region and potentially jeopardize military installations – which the U.S. maintains in Oman, the UAE, Qatar, and Kuwait – or disrupt the operations of the Fifth Fleet.³⁴

Pakistan

Relations with Pakistan have been plagued by the lack of alignment between Pakistani and American perspectives: while the United States is primarily concerned with stanching the regeneration of terrorist safe havens in the region, Pakistan is focused on preserving strategic depth as a hedge against conflict with India, in turn resulting in its tolerance of destabilizing elements within both Afghanistan and its own border areas.³⁵ For example, the Federally Administered Tribal Area “is not federally administered in any sense of the word,” instead serving as “a launching pad for attacks to destabilize Afghanistan and Pakistan, as well as a training ground for terrorist attacks worldwide.”³⁶ This complication

³⁴ Alexander Cooley and Daniel H. Nexon, “Bahrain’s Base Politics,” *Foreign Affairs*, April 5, 2011, <http://www.foreignaffairs.com/articles/67700/alexander-cooley-and-daniel-h-nexon/bahrains-base-politics?page=show>.

³⁵ See *The 9/11 Commission Report*, National Commission on Terrorist Attacks Upon the United States, July 2004, <http://www.9-11commission.gov/report/911Report.pdf>.

³⁶ In addition to Taliban and al-Qaida militants, this region “is home to insurgent forces led by Afghan Islamist Gulbuddin Hekmatyar’s Hizb-i-Islami (HIG) Party, the jihadi network of Maulawi Jalaluddin Haqqani (known as the Haqqani Faction), the Tora Bora Front, fighters from Hizb-i-Islami Khalis...the growing Tehrik-e-Taliban Pakistan [formerly] under Baitullah Mahsud, as well as other foreign and domestic jihadi forces.” Quoted Thomas H. Johnson and M. Chris Mason, “No Sign until the Burst of Fire: Understanding the Pakistan-Afghanistan Frontier, *International Security*, Spring 2008, 32(4): 41-77.

is unlikely to be resolved in the coming years and will continue to undercut both U.S. antiterrorism operations and efforts to ensure the development of a stable Afghanistan.

As a nuclear power, Pakistan also presents a proliferation concern. Although it has implemented a personnel reliability program and may have additionally installed permissive action links on its nuclear devices, state collapse or the election of an Islamist government could severely undermine the security of the country's arsenal. Furthermore, Pakistan's policy of storing its weapons in component form, which guards against accidental launch, could ease the diversion of fissile material in the event of a loss of centralized control.³⁷

Pakistan's past engagement in nuclear entrepreneurship provides another cause for concern. As Jeffrey Goldberg and Marc Ambinder have observed, Pakistan "has been the foremost supplier of nuclear technology to such rogue states as Iran and North Korea," and it is possible that the country could revive its nuclear export enterprise in the future.³⁸

Finally, given the historically tenuous relationship between Pakistan and India - which approached the threshold of preventive war in both the 1986-1987 "Brasstacks" crisis and the 1990 Kargil crisis - concerns regarding the durability of strategic stability in South Asia will remain even as confidence building measures between the nuclear-armed adversaries continue.³⁹

Implications for U.S. Defense: As in the case of North Korea, state collapse in Pakistan would likely tempt U.S. intervention – at the very least, requiring the deployment of U.S. Special Forces to ensure the security of nuclear materials – as would any regionally destabilizing conflict with India. In addition, a persistently uncooperative Pakistan will require the ability to remotely monitor suspected terrorist activity along the Afghan-Pakistan border.

³⁷ See Paul K. Kerr and Mary Beth Nikitin, "Pakistan's Nuclear Weapons: Proliferation and Security Issues," Congressional Research Service, July 2011, <http://fpc.state.gov/documents/organization/169328.pdf>.

³⁸ Jeffrey Goldberg and Marc Ambinder, "The Ally from Hell," *The Atlantic*, December 2011, <http://www.theatlantic.com/magazine/archive/2011/12/the-ally-from-hell/308730/>; See also Gordon Corera, *Shopping for Bombs: Nuclear Proliferation, Global Insecurity, and the Rise and Fall of the A.Q. Khan Network*, Oxford: (Oxford University Press, 2006).

³⁹ See Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: A Debate Renewed*, New York (W.W. Norton & Company, 2003).

Russia

In the decade following the collapse of the Soviet Union, the Russian military confronted the challenges of both a decline in conventional capabilities and an atrophied military industrial base. While the Kremlin began to address this trend in 2008, embarking upon “a wide-ranging military reform and modernization program designed to field a smaller, more mobile, better-trained, and high-tech force,”⁴⁰ Russia is not thought to be capable of posing an existential threat to NATO forces. Instead, it relies largely upon its nuclear arsenal to meet defense requirements. This posture has resulted in the country’s use of coercive nuclear diplomacy, exemplified by its periodic threats and/or simulations of nuclear attacks on neighboring countries, particularly those that have agreed to host U.S. BMD installments.⁴¹

Implications for U.S. Defense: Given the primacy of the nuclear arsenal within Russia’s defense planning, preserving functional parity in strategic nuclear forces will continue to serve as an important signal of U.S. national power, thus encouraging Russia to behave as a “responsible stakeholder” in regional affairs, and additionally provide a source of strategic stability in bilateral relations.⁴² In the absence of a successor agreement to New START or a unilateral reduction in the Russian arsenal, both of which seem highly unlikely over even the longer term,⁴³ this is likely to require the United States to maintain its arsenal at levels that loosely approximate the upper limits of those allowed under the treaty (i.e. 1550 deployed strategic nuclear warheads.) This will remain the case through at least 2021, when, barring extension, it is set to expire.

⁴⁰ This program ultimately resulted in a 60 percent reduction in Russian armor and infantry battalions; Quoted Clapper, *Unclassified Statement for the Record*.

⁴¹ Matthew Day, “Russia ‘simulates’ nuclear attack on Poland,” *Telegraph* (UK), November 1, 2009, <http://www.telegraph.co.uk/news/worldnews/europe/poland/6480227/Russia-simulates-nuclear-attack-on-Poland.html>; Andrew E. Kramer, “Russian General Makes Threat on Missile-Defense Sites,” *New York Times*, May 3, 2012, <http://www.nytimes.com/2012/05/04/world/europe/russian-general-threatens-pre-emptive-attacks-on-missile-defense-sites.html>.

⁴² Clark A. Murdock, “Impact of Nuclear Parity (or lack thereof) on Strategic Stability, Deterrence, Extended Deterrence, and Assurance,” Presentation to the U.S. STRATCOM Deterrence Symposium, August 8, 2012.

⁴³ James M. Acton, “Low Numbers: A Practical Path to Deep Nuclear Reductions,” Carnegie Endowment for International Peace, 2011, http://carnegieendowment.org/files/low_numbers.pdf.

Terrorism and Violent Islamism

Past planning documents – including, most recently, the 2012 Defense Strategic Guidance – have emphasized terrorism as a primary threat to the future security environment. But with the recent elimination of Osama bin Laden and the decapitating drone strikes on al Qaeda’s leadership, this is a threat that the United States appears to be successfully managing. Indeed, “between 2006 and 2010, the total number of terrorist attacks declined by almost 20 percent, and the number of deaths caused by terrorism fell by 35 percent.”⁴⁴

Implications for U.S. Defense: As a result of its disproportionate psychological and political impact, as well as the potential for either the migration or regeneration of terrorist havens under conditions of diminished attention, terrorism will continue to demand high levels of vigilance over the longer term. Thus, the United States will need to sustain its ability to independently detect and eliminate terrorist cells both at home (via robust homeland security capabilities) and abroad and additionally maintain its partnerships with foreign militaries and, in some cases, law enforcement.

Declining Capabilities of Allies and Partners

In addressing the challenges of the future security environment, the United States would greatly benefit from strong partnerships with allied nations throughout the world. But with global economies flagging, many states have implemented austerity measures that negatively impact defense budgets and force structure, thereby undermining their capabilities and capacity to provide military support.

Among European members of NATO, for example, defense spending “is expected to decline by 2.9 percent, after adjusting for inflation, between 2010 and 2015.”⁴⁵ As a result of this overall decline, “the United States [now] accounts for 75 percent of all NATO defense spending, up from 50 percent during the Cold War” and roughly 66 percent in

⁴⁴ Zenko and Cohen, 83.

⁴⁵ Quoted Stephen Fidler and Alistair MacDonald, “Europeans Retreat on Defense Spending,” Wall Street Journal, August 24, 2011, <http://online.wsj.com/article/SB10001424053111903461304576524503625829970.html>; See also Bettina Wassener, “Weak Economies in the United States and Europe Weigh Down Asia,” New York Times, July 11, 2012, <http://www.nytimes.com/2012/07/13/business/global/weak-us-and-european-economies-weigh-on-asia.html?pagewanted=all>.

1991.⁴⁶ The impact of this reduction could be seen in NATO's March 2011 Libya campaign, for which the United States supplied the vast majority of precision-guided munitions and ISR [intelligence, surveillance, and reconnaissance] and refueling aircraft, prompting NATO Secretary General Anders Fogh Rasmussen to concede that "it is hard to see how Europe could maintain enough military capabilities to sustain similar operations in the future."⁴⁷ Over the longer term, austerity measures can be expected to progressively erode NATO Europe's capacity for power projection and ability to execute missions requiring more robust lift, logistic, and ISR capabilities.⁴⁸

Implications for U.S. Defense: Given the general downward trend in allied defense spending, particularly in Europe, the United States will likely be required to continue to assume a disproportionate burden of obligations – with regard to both funding and the provision of capabilities and capacity – if it is to maintain its current system of alliances.

Physical Environment

Climate Change and Resource Scarcity

In the coming years, climate change could exert increasingly destabilizing effects on the international security environment. Rising sea levels could lead to the loss of territory and displaced populaces, while in other regions, water shortages – projected to affect more than two-thirds of the world's population by 2025⁴⁹ – and reduced agricultural production could lead to conflict over scarce resources. The effects of climate change could additionally accelerate instances of natural disasters and extreme weather events.

⁴⁶ Craig Whitlock, "NATO allies grapple with shrinking defense budgets," Washington Post, January 29, 2011, http://www.washingtonpost.com/world/national-security/nato-allies-grapple-with-shrinking-defense-budgets/2012/01/20/gIQAkBg5aQ_story.html; Stewart M. Patrick, "NATO's Chicago Agenda," Council on Foreign Relations, May 17, 2012, <http://www.cfr.org/nato/natos-chicago-agenda/p28267>.

⁴⁷ Eric Schmitt, "NATO Sees Flaws in Air Campaign Against Qaddafi," New York Times, April 14, 2012, <http://www.nytimes.com/2012/04/15/world/africa/nato-sees-flaws-in-air-campaign-against-qaddafi.html?pagewanted=all>; Quoted Anders Fogh Rasmussen, "NATO After Libya," Foreign Affairs, July/August 2011, <http://www.foreignaffairs.com/articles/67915/anders-fogh-rasmussen/nato-after-libya?page=show>.

⁴⁸ John Gordon, Stuart Johnson, F. Stephen Larrabee, and Peter A. Wilson, "NATO and the Challenge of Austerity," *Survival*, 2012, 54(4): 121-142.

⁴⁹ Brahma Chellane, "Asia's Worsening Water Crisis," *Survival*, 2012, 54(2): 143-156.

Implications for U.S. Defense: Neither rising sea levels nor resource scarcity is likely to pose a direct threat to the American homeland; however, associated conflicts or humanitarian crises could require the U.S. to consider taking action. Such developments would likely increase the demand for humanitarian assistance capabilities (e.g., disaster mitigation or disaster relief) and/or the deployment of peacekeeping forces. Furthermore, extreme weather could lead to an unanticipated rise in domestic demand for emergency management capabilities (e.g., firefighting, energy infrastructure repair, environmental cleanup, search and rescue operations, etc.)

Demographics

As RAND has noted, “the dynamics of population growth, settlement patterns, and movement across borders will have an effect on international security in the coming decades,” potentially stressing resources, threatening territorial integrity, and increasing tensions in already unstable regions.⁵⁰

Implications for U.S. Defense: If these trends continue, the international system could witness an increase in urban conflict that could in turn impact U.S. security interests. This would likely raise the demand for development assistance and/or urban warfighting capabilities.

Changes in the Nature of Warfare

Cyber Warfare

As the Department of Defense formally recognized with the 2009 establishment of U.S. Cyber Command, cyber warfare poses a growing threat to U.S. national security. Recent years have seen the steady expansion of not only foreign capabilities - with over thirty countries having established military cyber units – but also attacks, which increased tenfold between 2001 and 2007.⁵¹ Furthermore, these attacks are increasing in both

⁵⁰ Brian Nichiporuk, “The Security Dynamics of Demographic Factors,” RAND Corporation, 2000, http://www.rand.org/content/dam/rand/pubs/monograph_reports/2007/MR1088.pdf.

⁵¹ See William J. Lynn III, “The Pentagon’s Cyberstrategy, One Year Later,” Foreign Affairs, September 28, 2011, <http://www.foreignaffairs.com/articles/68305/william-j-lynn-iii/the-pentagons-cyberstrategy-one-year-later>; and Wesley K. Clark and Peter L. Levin, “Security the Information Highway,” Foreign Affairs, November/December 2009, <http://www.foreignaffairs.com/articles/65499/wesley-k-clark-and-peter-l-levin/securing-the-information-highway>.

sophistication and scope, as is evidenced by Russia's 2007 and 2008 denial-of-service attacks on Estonia and Georgia, respectively, and by the joint U.S.-Israeli deployment of the Stuxnet and Flame viruses.⁵²

Cyberspace will continue to be an attractive domain of warfare, as it provides a cost-effective means of compromising the networks of, and thus achieving information dominance against, any adversary, particularly one that is technologically superior. This appeal is strengthened by the difficulty of attribution as well as the frequent lack of distinction between state-sponsored and private activities.

For example, Russia and China "have highly capable and highly visible non-state cyber capabilities [in the form of 'patriot hackers'] that interact with their governments" and execute both sanctioned and unsanctioned attacks on foreign networks.⁵³ This arrangement allows those states to draw upon vast pools of expertise while also preserving the ability to invoke plausible deniability in the event of discovery, which can, in turn, undermine confidence in state sponsorship and politically complicate the administration of retaliatory measures.

These factors may incentivize greater employment of cyber warfare or espionage, and the absence of clearly defined rules of engagement or established means of escalation control could result in unanticipated levels of direct conflict or military action.

Implications for U.S. Defense: Given the vulnerability of U.S. electronic networks, and the attendant threat to defense systems, domestic infrastructure, and financial transactions, it will be essential for the U.S. military to develop robust cyber defense capabilities. Of necessity, this means that the U.S. will also have robust cyber offensive capabilities, if only to ensure that its defense capabilities are second to none.

⁵² See Kim Zetter, "How Digital Detectives Deciphered Stuxnet, the Most Menacing Malware in History," *Wired*, July 11, 2001, http://www.wired.com/threatlevel/2011/07/how-digital-detectives-deciphered-stuxnet/all/1?utm_source=Contextly&utm_medium=RelatedLinks&utm_campaign=Previous; and Kim Zetter, "Meet 'Flame,' The Massive Spy Malware Infiltrating Iranian Computers," *Wired*, May 28, 2012, <http://www.wired.com/threatlevel/2012/05/flame/>.

⁵³ Alexander Klimburg, "Mobilising Cyber Power," *Survival*, 2011, 53(1): 41-60.

*Space*⁵⁴

As the number of national and commercial space programs continues to expand, space will become an increasingly accessible and utilized domain. Already, the commercial sector provides numerous communications, imagery, and positioning services, as well as a growing number of launch services, upon which the U.S. military depends. In addition, the military-operated GPS system has become a critical element of national infrastructure that must be protected.

Implications for U.S. Defense: The U.S. military is heavily reliant upon space assets for communications, ISR, and PNT [positioning, navigation, and timing] capabilities, many of which are provided by largely unprotected commercial systems. And with the proliferation of space technologies, there is an increasing risk that these systems will be vulnerable to attack. Both Russia and China are developing the ability to rapidly field anti-satellite systems while many other states are pursuing the ability to interfere with or deny space services through cyber, jamming, and other methods of infrastructure disruption.

The Outer Space Treaty prohibits the deployment of nuclear weapons or other weapons of mass destruction in space; however, no such treaty governs the deployment of conventional weapons.⁵⁵ For this reason, the potential for the weaponization of space will remain. To hedge against this possibility, the U.S. military should consider employing distributed architectures and other cost-effective means of ensuring the protection of key capabilities.

Chemical and Biological Weapons (CB)

The acquisition and possible use of CB by either state or non-state actors will remain a concern to the U.S. and its allies for the foreseeable future, given the exceptionally high impact – and, according to U.S. intelligence assessments, growing likelihood⁵⁶ – of a consequential CB event. Indeed, there is demonstrated interest in acquiring CB among

⁵⁴ The author would like to thank Jim Beale for his contribution to this section of the paper.

⁵⁵ “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,” United Nations General Assembly, Ratified 1967, http://www.oosa.unvienna.org/oosa/en/SpaceLaw/gares/html/gares_21_2222.html.

⁵⁶ Dennis C. Blair, “Annual Threat Assessment of the Intelligence Community for the Senate Armed Services Committee,” 10 March 2009, http://www.dni.gov/files/documents/Newsroom/Testimonies/20090310_testimony.pdf.

both state and non-state actors,⁵⁷ and, as globalization and the democratization of information expand access to previously controlled technologies, the barriers to CB entry will continue to decline. Additionally, scientific advancements, including more stable pathogens and improved dispersal mechanisms, are likely to raise the perceived utility of CB capabilities, thereby incentivizing acquisition.⁵⁸

Although traditional deterrence theory suggests that state actors will be more restrained in the actual use of CB than non-state actors, the mere proliferation of capabilities could generate instability by initiating regional arms races or emboldening states to engage in intimidation/coercion, adventurism, or terrorism.

Implications for U.S. Defense: Any substantial acceleration of CB proliferation will likely increase the demand for intelligence, interdiction, and passive defense (e.g., detectors, protective garments, etc.) capabilities as well as S&T capabilities (e.g., predictive modeling) that could be used to formulate mitigation strategies and improve emergency preparedness.⁵⁹

Limitations of Analysis

While an assessment of the future security environment provides a useful point of departure for identifying a portfolio of key military capabilities, it is necessary to recognize the limitations of such an approach. As Richard Danzig has observed, “both the experience of the Department of Defense and social science literature demonstrate that long-term predictions [about the future security environment] are consistently mistaken.”⁶⁰ This

⁵⁷ For example, Aum Shinrikyo (chemical) and the Rajneeshees (biological) have successfully employed CB in terrorist attacks, while numerous other groups, including al Qaeda in the Arabian Peninsula, are known to have pursued such capabilities. Among state actors, the steady expansion of dual-use industrial technologies complicates efforts to identify offensive CB capabilities; however, U.S. officials estimate that as many as a dozen states possess active chemical and/or biological weapons programs. George J. Tenet, “Statement by Director of Central Intelligence George J. Tenet Before the Senate Foreign Relations Committee on The Worldwide Threat in 2000: Global Realities of Our National Security,” 21 March 2000, https://www.cia.gov/news-information/speeches-testimony/2000/dci_speech_032100.html.

⁵⁸ Bruce W. Bennett, Jonathan Kaufman, James Byrnes, Pamela L. Gordon, and McRae Smith, “Early Observations on Possible Defenses by the Emerging Threat Agent Project,” RAND Corporation, 2011, http://www.rand.org/content/dam/rand/pubs/occasional_papers/2011/RAND_OP290.pdf.

⁵⁹ Ibid.

⁶⁰ Richard Danzig, “Driving in the Dark: Ten Propositions about Prediction and National Security,” Center for a New American Security, October 2011,

problem is compounded by rapid or unforeseen changes in technology and warfare, to which the sluggish pace of the acquisitions process has historically struggled to adapt.⁶¹

In addition, the civilian leadership frequently fails to exercise restraint in dispatching the conventional force for missions to which it is not optimally suited (stability operations in contested environments, guerilla warfare against indigenous adversaries, etc.) or sized, a problem inherent in the so-called “militarization of foreign policy.”⁶² Thus, given these factors, even the most fulsome assessment of the future security environment will not result in a force structure capable of meeting the full demand function, nor would such a force structure be affordable under current economic conditions.

Nonetheless, this exercise provides a useful baseline for planning for uncertainty and highlights the importance of prioritizing capabilities for the 2021 Affordable Force.

http://www.cnas.org/files/documents/publications/CNAS_Prediction_Danzig.pdf, 5; Former Secretary of Defense Robert Gates expressed a similar sentiment when he noted that “our record of predicting where we will use military force since Vietnam is perfect. We have never once gotten it right.” Robert Gates, “Remarks by Secretary Gates to the American Enterprise Institute,” May 24, 2011, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4827>.

⁶¹ Ibid.

⁶² General Martin E. Dempsey, “Gen. Dempsey at the National Press Club,” October 10, 2012, <http://www.jcs.mil/speech.aspx?id=1733>.