

# NATO's Deterrence and Defense Posture

*After the Chicago Summit*

**David S. Yost**  
*Naval Postgraduate School*

*November 2012*

## Report Documentation Page

*Form Approved*  
*OMB No. 0704-0188*

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE <b>NOV 2012</b>	2. REPORT TYPE	3. DATES COVERED <b>00-00-2012 to 00-00-2012</b>			
4. TITLE AND SUBTITLE <b>NATO's Deterrence and Defense Posture After the Chicago Summit</b>		5a. CONTRACT NUMBER			
		5b. GRANT NUMBER			
		5c. PROGRAM ELEMENT NUMBER			
6. AUTHOR(S)		5d. PROJECT NUMBER			
		5e. TASK NUMBER			
		5f. WORK UNIT NUMBER			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Naval Postgraduate School (NPS), Center on Contemporary Conflict (CCC), 1411 Cunningham Road, Monterey, CA, 93943</b>		8. PERFORMING ORGANIZATION REPORT NUMBER			
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)			
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)			
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>	<b>Same as Report (SAR)</b>	<b>38</b>	

# NATO's Deterrence and Defense Posture After the Chicago Summit

David S. Yost  
*Naval Postgraduate School*

**November 2012**

---

This report is the product of a collaboration between the Naval Postgraduate School Center on Contemporary Conflict and the Defense Threat Reduction Agency.

The views expressed herein are those of the authors and do not necessarily reflect the official policy or position of the Naval Postgraduate School, the Defense Threat Reduction Agency, the Department of Defense, or the United States Government.

NPS acknowledges with thanks the support of the U.S. Defense Threat Reduction Agency, provided to NPS via the Project on Advanced Systems and Concepts for Countering WMD (PASCC). Thanks are also owed to those who commented on earlier drafts of this report, particularly Fred Frederickson, Ryan French, Karl-Heinz Kamp, Joseph Pilat, and Guy Roberts.

This report is approved for public release; distribution is unlimited.



**U.S. Naval Postgraduate School (NPS),  
Center on Contemporary Conflict (CCC)  
Project on Advanced Systems and Concepts for  
Countering WMD (PASCC)**

**Project Cost: \$185,929**

PASCC Report Number 2012 016

The Naval Postgraduate School Center on Contemporary Conflict is the research wing of the Department of National Security Affairs (NSA) and specializes in the study of international relations, security policy, and regional studies. One of the CCC's programs is the Project on Advanced Systems and Concepts for Countering WMD (PASCC). PASCC operates as a program planning and implementation office, research center, and intellectual clearinghouse for the execution of analysis and future-oriented studies and dialogues for the Defense Threat Reduction Agency.

For further information, please contact:

**The Center on Contemporary Conflict**

Naval Postgraduate School  
1411 Cunningham Road  
Monterey, CA 93943

[ccc@nps.edu](mailto:ccc@nps.edu)

or

[OSRDInfo@dtra.mil](mailto:OSRDInfo@dtra.mil)

## TABLE OF CONTENTS

Executive Summary.....	1
Nuclear, Conventional, and Missile Defense Capabilities.....	3
Missile Defense.....	4
Conventional Deterrence.....	4
Nuclear-Sharing Arrangements.....	5
Nuclear Force Modernization.....	6
U.S. Extended Deterrence and Strategic Stability.....	8
Extended Deterrence in the Asia-Pacific.....	9
An “Asian Model” for Extended Deterrence?.....	9
Cyber and Space: Beyond the DDP.....	10
Cyber Domain.....	11
Space Capabilities.....	12
Deterrence and Crisis Management.....	13
Strategic Communication and Deterrence.....	14
NATO Threat Assessments.....	15
NATO Intelligence.....	17
Negative Security Assurances in the DDP.....	17
NATO and Russia: Disagreements and Miscommunication.....	18
NATO-Russia Strategic Stability.....	19
Conventional and Nuclear Arms Control.....	21
Challenges for Conventional Arms Control.....	21
Russia and Non-Strategic Nuclear Forces.....	21
NATO Reductions in Non-Strategic Nuclear Forces.....	23
The Future of U.S.-Russia Nuclear Arms Reductions.....	24
Prospects for U.S.-Russia Arms Control Negotiations.....	25
Deterrence and Arms Control in the Middle East.....	25
NATO: Nuclear Deterrence and Nuclear Disarmament.....	26
Prospects for Nuclear Disarmament.....	29
Limitations of Deterrence.....	29
China and Russia: The Return of Great Power Politics?.....	30
References.....	32

## EXECUTIVE SUMMARY

On 25-27 June 2012 the NATO Defense College, the NATO Nuclear Policy Directorate, and the U.S. Naval Postgraduate School Center on Contemporary Conflict convened a workshop at the NATO Defense College in Rome concerning the future of NATO's deterrence and defense posture in light of the decisions taken at the Alliance's summit meeting in Chicago in May 2012. Much of the discussion focused on the Deterrence and Defense Posture Review (DDPR) approved by the Allies at the Chicago Summit.

Some workshop participants expressed reservations about a fundamental premise of the DDPR — that the Allies should define an “appropriate mix” of nuclear, conventional, and missile defense capabilities. Some participants argued that missile defense is burdened by questions about its effectiveness and cost, while “conventional deterrence” is threatened by cutbacks in defense spending in the current and potentially long-lasting financial crisis. In this situation, the Allies will be faced with the choice of continuing to rely on nuclear deterrence or seeing deterrence undermined.

Many workshop participants said that NATO's nuclear-sharing arrangements remain important for deterrence and assurance within the Alliance. The life extension program for the B-61 gravity bomb and the modernization of dual-capable aircraft remain central issues for the future of NATO's nuclear deterrence posture.

Several participants said that the DDPR's focus on nuclear, conventional, and missile defense capabilities was “too narrow” and that future assessments of the Alliance's capability requirements must take the cyber and space dimensions into account. Should the Alliance specify a threshold of damage that would provoke retaliation in these domains? Current U.S. policy has been not to specify “red lines” or possible retaliatory responses, in order to promote uncertainty in the assessments of adversary leaders.

Participants agreed that strategic communication is essential for credibility and effective deterrence and crisis management, and some participants analyzed how messages may be misinterpreted by potential adversaries. Instead of identifying potential adversaries in publicly articulated threat assessments, the Alliance has opted to concentrate on “generic” scenarios and planning situations. The Allies have found this approach to be advantageous for Alliance unity and diplomacy, but some participants held that it may increase the risk of miscalculation.

Several participants identified obstacles to negotiating limits on Russian non-strategic nuclear forces — above all, Moscow's reliance on these weapons to support its security and foreign policy objectives. In view of NATO's previous unilateral reductions in non-strategic nuclear forces, participants expressed reservations about "lead by example" proposals for further unilateral reductions. The U.S. government has promised to make no further reductions in its nuclear weapons deployed in Europe without an Alliance consensus and Russian reciprocity. Participants noted the continuing tension between NATO's reliance on nuclear deterrence and its long-term commitment to nuclear disarmament.

*The following sections report key findings from the workshop. As per the Chatham House Rule, comments are not attributed to specific individuals.*

## **NUCLEAR, CONVENTIONAL, AND MISSILE DEFENSE CAPABILITIES**

A French participant said that the “appropriate mix” language of the DDPR implied that the requirement for nuclear weapons in NATO’s deterrence posture could be readily adjusted: that is, greater missile defense or conventional military capabilities might substitute for nuclear forces. In his view, this proposition is true “to some extent” for missile defense, which might contribute to overall deterrence in four ways: adding an element of deterrence by denial, complicating the adversary’s planning, increasing decision time, and enhancing freedom of action.

The “substitution” theory is nonetheless “mostly wrong,” this French participant said, on both the theoretical and the practical levels. On the theoretical level, deterrence by denial capabilities are intrinsically less threatening, for psychological as well as technical reasons, than the deterrence by punishment potential of nuclear weapons. On the practical level of real-world politics, it is unrealistic to expect the United States to be satisfied with minimal European contributions to missile defense, and the United States is reducing its conventional military presence in Europe in conjunction with its “rebalance” to the Asia-Pacific region. The defense budget realities of all NATO countries mean that the Alliance will have less conventional military capability. Owing to these political and budget realities, the Alliance will at the end of the decade probably have a smaller conventional and nuclear deterrence posture and “just a little bit of missile defense.”

An American participant noted that the DDPR stated that “Missile defence can complement the role of nuclear weapons in deterrence; it cannot substitute for them.”<sup>1</sup>

Another French participant noted that the Allies at the Chicago Summit declared that “the Alliance has achieved an Interim NATO BMD Capability.”<sup>2</sup> It should be understood, he said, that this is “a very limited capability to defend a very limited area,” and the Alliance remains far from an “operational capability” that “could alter the strategic

---

<sup>1</sup> North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 20, available at [http://www.nato.int/cps/en/SID-140D258B-1322853B/natolive/official\\_texts\\_87597.htm](http://www.nato.int/cps/en/SID-140D258B-1322853B/natolive/official_texts_87597.htm).

<sup>2</sup> North Atlantic Council, Chicago Summit Declaration, 20 May 2012, par. 60, available at [http://www.nato.int/cps/en/SID-140D258B-1322853B/natolive/official\\_texts\\_87593.htm](http://www.nato.int/cps/en/SID-140D258B-1322853B/natolive/official_texts_87593.htm).



balances.” As far as conventional forces are concerned, the Chicago Summit documents included “bumper stickers” such as Smart Defense and the Connected Forces Initiative, but “there was not much new on conventional forces in terms of substance.” The “trends in budgets” are not promising in terms of enhanced conventional military capabilities. As a result, he concluded, the Alliance has strongly reaffirmed the importance of nuclear weapons, particularly strategic nuclear forces, in its deterrence posture.

### **Missile Defense**

A British participant pointed out that the DDPR calls for “a missile defence capability that provides full coverage and protection for all NATO European populations, territory and forces.”<sup>3</sup> He asked, will even Phase 4 of the EPAA provide the “full coverage” envisaged in the DDPR?

Given that the United States plans to provide most of NATO's strategic missile defense capability via its European Phased Adaptive Approach, this British participant asked, “What does the U.S. want in return for all this investment?”

A Lithuanian participant said that “the new project of missile defense is presumably quite expensive, especially given the austerity environment; and its returns on investment are quite doubtful.”

### **Conventional Deterrence**

An American participant said that, given long-standing underinvestment in conventional military forces in NATO Europe and current and prospective defense budget cuts, “it cannot be assumed that existing capabilities can be maintained over time at the current level of effectiveness.” This bounds, he said, the confidence that might be placed in “conventional deterrence, which on its own has not generally been demonstrated to be effective.” Indeed, he said, conventional deterrence is “unstable” and “expensive,” and “its failures have been striking.” He added that “Current and future conventional forces may not be able by themselves to provide an effective deterrent against nuclear, biological or chemical threats from states or terrorists. And the conventional forces sufficient to deter a threat may not be available in a region of concern in time to prevent aggression. In light of these and other factors, and the prospect that the Alliance's pledged nonnuclear investment

---

<sup>3</sup> North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 18.

will not be forthcoming, the real mix will need to be far more dependent on nuclear capabilities if deterrence is not to suffer a significant degradation.”

A German participant said that in foreseeable financial circumstances the NATO Allies will not be able to maintain their current conventional force capabilities. The Bundeswehr, for example, may be reduced from 185,000 to 160,000 troops.

A Lithuanian participant said that, “With regard to conventional forces, they are severely under-resourced, the few expeditionary capabilities that exist are overstretched in operations, and the force structures are unbalanced and do not enable the generation of deployable units.” Although the standard rhetoric asserts that NATO’s increasingly expeditionary focus since the early 1990s has not detracted from its collective defense capabilities, he said, “This is where I am not very reassured: expeditionary forces are trained to deal with poorly armed and trained insurgents, which is not the same as determined conventional armies. The NATO Response Force, which was supposed to be the ultimate insurance against unexpected contingencies, has struggled mightily and has never been used in combat.” Moreover, he said, the defense establishments of the European Allies have remained “fragmented,” with “a lot of spending wasted on administration and infrastructure costs. In many cases, only some 5 percent of troops are deployable and even fewer are sustained in operations.”

### **Nuclear-Sharing Arrangements**

A French participant said that for decades the Allies concerned have relied on NATO’s nuclear-sharing arrangements to provide for assurance and deterrence and that it is unrealistic to think that removing the remaining U.S. nuclear weapons and thus terminating the nuclear-sharing arrangements would not have grave security implications. “The system is there. If you break the system, there are consequences.”

An American participant noted that the DDPR states that the Allies will “develop concepts for how to ensure the broadest possible participation of Allies concerned in their nuclear sharing arrangements, including in case NATO were to decide to reduce its reliance on non-strategic nuclear weapons based in Europe.”<sup>4</sup>

---

<sup>4</sup> “Consistent with our commitment to remain a nuclear alliance for as long as nuclear weapons exist, Allies agree that the NAC will task the appropriate committees to develop concepts for how to ensure the broadest possible participation of Allies concerned in their nuclear sharing arrangements, including in case NATO were

“The point is not developed explicitly,” this American participant said, “but one could argue that this paragraph is not only about nuclear risk- and responsibility-sharing in the Alliance, but also about a criterion for deterrence. If multiple Allies are involved in nuclear sharing arrangements, including host and delivery responsibilities, and if multiple non-nuclear Allies are engaged in developing and exercising capabilities for possible combined air operations in support of nuclear deterrence and crisis management, this could send a message of Alliance cohesion and solidarity. The traditional view in NATO has been that the constitution of an Alliance nuclear deterrent involving Allies in addition to the nuclear-weapon states could be useful for deterrence in some circumstances.” In his view, “the Allies may conclude that it is difficult to surpass the advantages of nationally owned dual-capable aircraft within a NATO framework.”

### **Nuclear Force Modernization**

An argument advanced by some critics of NATO's current nuclear deterrence posture, an American participant said, is that it is “not credible but might become so.” Some critics deplore, he noted, what they call an “escalation by default” through the addition of a tailkit to the B-61 bomb and the deployment of the F-35 Joint Strike Fighter.<sup>5</sup> It would be more accurate, this American participant said, to say that the Alliance's nuclear deterrence posture is credible and will remain so. The NATO Allies agree that their mix of capabilities is “sound” and “appropriate,” and that it must be rightly “perceived as credible, effective, and capable of conducting nuclear operations if deterrence fails.”

In conformity with legislative guidance, this American participant said, the Obama Administration is reducing the number of types of nuclear warheads retained in the U.S. arsenal. This includes reducing the number of types of the B-61 bomb to a single type, in conjunction with a life extension program. This is consistent with the Obama Administration's policy of no “new nuclear warheads” and no “new military capabilities” as a consequence of life extension programs for U.S. nuclear weapons.<sup>6</sup>

---

to decide to reduce its reliance on non-strategic nuclear weapons based in Europe.” North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 12. The DDPR includes a note indicating that the “Allies concerned” are “all members of the Nuclear Planning Group” — that is, all Allies except France.

<sup>5</sup> Edmond Seay, *Escalation by Default: The Future of NATO Nuclear Weapons in Europe*, 10 May 2012, available at <http://www.europeanleadershipnetwork.org/escalation-by-default-the-future-of-nato-nuclear-weapons-in-europe-380.html>.

<sup>6</sup> According to the Nuclear Posture Review, “The United States will not develop new nuclear warheads. Life

The B-61 requires a life extension program, this American participant added. The earliest B-61 variant was first produced in 1966. Several variants of the B-61 have already been retired. Current variants of the B-61 that remain in service were fielded between 1978 and 1990 and are now either at the end of their design life or past it — hence the U.S. commitment to the B-61 life extension program. In order to promote stockpile efficiencies and reduce total life cycle costs, multiple variants will be consolidated into a single variant. As a result of consolidation and changes to enhance surety, the yield will be reduced as part of the life extension program. In order to meet military requirements for effectiveness against targets, it is necessary to compensate for this yield reduction with increased accuracy. The tailkit is being added for this purpose. Addition of the tailkit makes the parachute unnecessary, and this increases the space available inside the bomb volume for surety enhancements. This tailkit will not provide precision accuracy of the kind associated with modern conventional weapons, such as the Joint Direct Attack Munition (JDAM). While it will not incorporate GPS, it will provide sufficient accuracy to ensure that damage expectancy requirements continue to be met.

This American participant said that, while the United States is “sustaining the stockpile” of nuclear weapons, with no new nuclear weapons designs, it is modernizing nuclear delivery systems. The F-16 dates from 1978, and modernization is essential to preserve “the existing capability to deliver a weapon on target in an intensifying air defense environment.” The United States cannot allow this capability to simply “age out” by failing to modernize. In other words, he said, the United States must modernize to meet “the requirements of the 21st century security environment.”

Another American participant noted that the DDPN document made no reference to the need for dual-capable aircraft modernization. He said, “support for the status quo may mean little if there is no commitment to urgent modernization decisions — and their implementation — on both sides of the Atlantic.” The absence of any reference to DCA modernization reflects the fact, he said, that “the DDPN did not resolve deep differences among allies on nuclear and other issues. None of the contentious issues — over the need to maintain U.S. nuclear forces in Europe, on the steps needed to sustain these forces and on declaratory policy — appeared ripe for resolution in Chicago.”

---

Extension Programs will use only nuclear components based on previously tested designs, and will not support new military missions or provide for new military capabilities.” U.S. Department of Defense, *Nuclear Posture Review Report* (Washington, D.C.: U.S. Department of Defense, April 2010), p. 39.

Yet another American participant drew attention to the DDPR commitment to ensure that “all components of NATO’s nuclear deterrent remain safe, secure, and effective for as long as NATO remains a nuclear alliance.”<sup>7</sup> He said that, “Without saying so directly, the DDPR rejects assertions that the U.S. weapons in Europe have no deterrence value. It is subtle because the words ‘safe, secure, and effective’ imply a need for some level of modernization, such as the B-61 life extension and the F-35.”

A British participant said that one of the “main drivers” of the Alliance’s future is “the U.S. need to modernize its nuclear forces and thereby reassure its allies as it rebalances to Asia.”

A Lithuanian participant said that for NATO as a coalition “there is no better way to communicate deterrence than the DCA arrangement.” He said that “the much advertised smart defence rests upon the idea that several nations should pool and share certain capabilities that they cannot sustain individually. This, to me, sounds very much like NATO’s nuclear sharing arrangements. We already have a smart deterrent; and it would be smart to keep it.” In his judgment, U.S. nuclear weapons in Europe “are already at the lowest possible level” and “approaching the end of their life-cycle and therefore crucial replacement decisions, which we cannot take for granted.”

## U.S. EXTENDED DETERRENCE AND STRATEGIC STABILITY

An Australian participant said that strategic stability could be defined as “a managed system of deterrence and assurance that fits its environment.” Deterrence functions, he said, to prevent conflict, while the assurance of allies slows the pace of proliferation — i.e., their pursuit of self-help solutions on a national basis. Strategic stability is not stationary, like a rock, but in movement, like a bicycle. One of the elements that contributes to credibility in assurance, he said, is the “specificity” of commitments in alliance relations. This is particularly the case in U.S. alliance commitments because in Europe, Asia, and the Middle East the United States has been the “rearmost” power in the relationship and has been striving to extend nuclear deterrence forward to distant regions.

---

<sup>7</sup> North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 11.

## **Extended Deterrence in the Asia-Pacific**

An Australian participant said that the center of gravity in international politics has shifted from Europe to Asia. “This is a reversal of the Cold War pattern. . . Now what happens in Europe is secondary and relatively unimportant,” because the main problem has become the “uncertainty” arising from “the growth of power in Asia,” notably in China. Given the growing requirements of U.S. allies in Asia for extended nuclear deterrence and assurance, the Australian participant said, the NATO Allies should recognize that it is profoundly unhelpful to “badmouth” nuclear deterrence. In reality, he said, “nuclear weapons are used every day to shape the strategic environment and outcomes in international politics,” and nuclear weapons could be employed in conflicts to deter escalation. The dynamics of the Asia-Pacific region are such that, absent reliable U.S. extended nuclear assurance and deterrence, there is a high potential for nuclear assurance and deterrence to become “a national enterprise.”

## **An “Asian Model” for Extended Deterrence?**

A German participant said that removing U.S. nuclear weapons from Europe would not necessarily weaken NATO or U.S. extended deterrence for NATO. In his view, the NATO Allies could benefit from U.S. extended deterrence without the presence of U.S. nuclear weapons in Europe. He said that the “Asian model” of U.S. extended nuclear deterrence for Japan and South Korea shows that this could be possible.

An American participant said that Japan and South Korea are in fact profoundly concerned about the credibility of U.S. extended nuclear deterrence, owing to their assessments of China and North Korea. The fact that many South Koreans have called in recent years for the return of U.S. nuclear weapons to their soil or for the pursuit of a national nuclear weapons program shows that the “Asian model” has significant limitations. Similarly, Japanese observers who were concerned about the U.S. decision to retire the nuclear-armed variant of the Tomahawk Land-Attack Missile (TLAMN) take a great interest in the U.S. procurement of the dual-capable version of the F-35 Joint Strike Fighter as a substitute for the TLAMN. These countries fear that a North Korean ICBM capability to strike the United States could erode the credibility of U.S. extended nuclear deterrence; and this is one of the reasons why they support U.S. missile defense programs.

This American participant said that the United States has in recent years institutionalized extensive consultations with Japan and South Korea on the basis of the

unprecedented Nuclear Posture Review consultations in 2009-2010. The consultations have reached a level that is qualitatively higher than ever before. Japan has the “2+2 framework,” and the ROK has the Extended Deterrence Policy Committee. These consultative forums each meet approximately twice a year. Japan and South Korea watched NATO’s DDP, “like hawks,” he said. “They watched primarily for signals that European Allies lack confidence in America’s guarantees.” The Japanese also watched for any signs of the NATO Allies making agreements with Moscow to push Russian nuclear weapons toward Japan, as in the repudiated first version of the INF Treaty. The Japanese also fear that any signs of U.S. appeasement of Russia could portend U.S. appeasement of China.

Another American participant said that developments in NATO could have an adverse “domino effect” on international security in Asia. Japan and South Korea are closely following decision-making in NATO because it could affect the future of the B-61 and the F-35, capabilities that they regard as essential for the future credibility of U.S. extended deterrence in Northeast Asia.

## **CYBER AND SPACE: BEYOND THE DDP**

A Hungarian participant said that the focus in the Alliance’s DDP on “an appropriate mix of nuclear, conventional, and missile defence capabilities”<sup>8</sup> was “necessary,” but “too narrow” and simply “not sufficient” for future requirements. NATO’s deterrence and defense posture must, he said, be “far more comprehensive.” The DDP mentioned “cyber threats,” but cyber defense must be accorded “higher priority” in NATO. “It is inconceivable that any major future conflict would unfold without a cyber dimension,” he said. Coming to grips with cyber challenges effectively will require the Alliance to move beyond long-established bureaucratic categories, he said: “To defend against cyber attacks, for example, we need to work with the private IT [information technology] sector, but also with Ministries of the Interior.”

A British participant said that, “In terms of the considerations on which NATO leaders largely focus, vulnerability to nuclear or conventional attack or coercion, we have a stable enough strategic situation.” In contrast, he said, in space capabilities the Allies face

---

<sup>8</sup> North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 32.



“a situation of serious arms race instability with no end in sight,” and the cyber domain is “even worse,” and likely to “remain dominated by asymmetric vulnerabilities.”

### **Cyber Domain**

An American participant said that future U.S. and NATO deterrent forces will be increasingly vulnerable to cyber attacks, owing in part to their “greater dependence on sensor and information systems.”

Another American participant said that there is no such thing as “cyber deterrence” — that is, deterring adversaries with cyber means — but general military capabilities may deter a certain level of cyber attacks. One of the key issues for deterrence is the threshold for deciding when cyber attacks would justify a forceful response. Most malicious activity consists of espionage and crime, which are not deterrable, because they do not justify the use of force under prevailing interpretations of international law.

Opponents have uneven vulnerability levels, this American participant said. China and Russia are “peers” of the United States in the cyber sphere and “literally unstoppable.” Indeed, “Russia and China have beaten almost any defense we have erected.” The United States and its allies present such a rich array of targets for Russia and China that “we’ll run out of targets before they do.” Iran and North Korea, as “outlier states,” are pursuing cyber capabilities in conjunction with their ballistic missile and nuclear weapon efforts. Anarchic and jihadi groups are also gaining improved “disruptive capabilities.”

The key issues include not only attribution capabilities, this American participant said, but “opponent perception” of attribution capabilities and probable punitive consequences. “If they think they can get away with it, they’re likely to do something.”

An American participant said that one of the challenges in trying to establish norms in the cyber domain is determining how to handle proxies. Russia and China use proxies to benefit from “deniability.” Russian proxies conducted the cyber attacks against Estonia in 2007 and Georgia in 2008, and these attacks were coordinated with Russian military activities. At present meaningful norms are “out of reach.” This is partly because Russia and China are “threatened by the free flow of information” and are not willing to be as transparent as the United States.



## **Space Capabilities**

An American participant said that space capabilities function as “an integral enabler” for many purposes, including command and control, warning, guidance, navigation, and cueing. Space is, he noted, “increasingly congested, with debris; contested, with counter-space capabilities; and competitive, with many players.” The U.S. Strategic Command tracks over 22,000 items in space, of which about 1,000 are active satellites; and the rest is debris, from spent rocket bodies to ballpoint pens. China’s development of counter-space capabilities has attracted considerable attention, notably since its 2007 anti-satellite test, which “created about 14 percent of the debris that we track today.” In addition to direct ascent anti-satellite systems, China has developed jammers and other counter-space capabilities. Russia has also made considerable investments in counter-space capabilities. North Korea has demonstrated an ability to jam GPS signals. Iran has jammed the BBC and the Voice of America on commercial satellites, which “carry about 80 percent of military communications.” Space involves an increasing number of players, with 60 countries and operational consortiums now active in space.

The U.S. goal, this American participant said, is to promote the responsible use of space. To provide leadership in this domain, the United States notifies other space-faring nations, including China, of dangers of collision with debris. The United States is working with its allies, the European Union, and others to develop a code of conduct for the responsible use of space; and Washington strongly supports multilateral cooperative arrangements. For example, the Wideband Global SATCOM network involves Australia, Canada, Denmark, Luxembourg, the Netherlands, New Zealand, and the United States in a “smart common investment” that shares burdens, expands resilience, and increases coverage.<sup>9</sup>

Space has a role in deterrence, this American participant said. Strong space capabilities can reinforce deterrence, while “vulnerabilities in space can destabilize deterrence.” The United States supports a multilayered approach to deterrence in space. Peacetime norms of responsible behavior provide a benchmark of indicators for an international response to violators. International coalitions uphold the principle that an attack on one is an attack on all. Resilience may be acquired through various means, such

---

<sup>9</sup> The Wideband Global SATCOM network relies on a constellation of advanced military communications satellites and associated control systems. For background, see the fact sheet published by the U.S. Air Force Space Command, 8 June 2012, available at <http://www.afspc.af.mil/library/factsheets/factsheet.asp?id=5582>.

as the distribution of capabilities across a larger number of satellites, including “hosted payloads” on commercial and allied satellites. Moreover, a key element of deterrence is “a readiness to respond to an attack, but not necessarily in space.”<sup>10</sup> Finally, the United States and its allies need to cultivate an ability to operate even if space capabilities are disrupted — with, for example, GPS signals degraded and satellite communications jammed. NATO has to recognize that space is another domain of operations for deterrence, collective defense, and other operations. This means that the Alliance will have to update its doctrine, planning, training, command structure, and so forth to take space into account.<sup>11</sup> It is noteworthy in this regard that Australia and 9 NATO nations (Canada, Denmark, France, Germany, Italy, the Netherlands, Turkey, the United Kingdom, and the United States) participated in the 2012 Schriever Wargame concerning the space-cyber continuum.<sup>12</sup>

### **Deterrence and Crisis Management**

Should the United States or NATO specify a threshold of damage in space or the cyber domain that would provoke retaliation? A Hungarian participant said that the Allies should not specify the threshold or the means of retaliation, but simply say that damage to NATO's interests would elicit “a concerted response.”

An American participant said that “greater public clarity” about the threshold of unacceptable damage would be desirable because it would “reduce the opponent's uncertainty on the likelihood of a response.” For deterrence purposes, this American participant said, it would be useful to reach an agreement on criteria for cyber attacks that would justify forceful retaliation: that is, cyber attacks of a certain scope, duration, and intensity, with certain harmful consequences. Allies and adversaries would then know what sort of attack would trigger Article 5, the mutual defense commitment in the North Atlantic Treaty. It would then be more practical to pursue cross-domain deterrence. The message could then be, “If you launch a cyber attack against me, I may respond with a

---

<sup>10</sup> For an official discussion, see the *National Security Space Strategy: Unclassified Summary*, published by the U.S. Secretary of Defense and the U.S. Director of National Intelligence, January 2011, available at [http://www.defense.gov/home/features/2011/0111\\_nsss/docs/NationalSecuritySpaceStrategyUnclassifiedSummary\\_Jan2011.pdf](http://www.defense.gov/home/features/2011/0111_nsss/docs/NationalSecuritySpaceStrategyUnclassifiedSummary_Jan2011.pdf).

<sup>11</sup> For background, see Gregory L. Schulte, *Protecting NATO's Advantage in Space*, Transatlantic Current no. 5 (Washington, D.C.: Center for Transatlantic Security Studies, National Defense University, May 2012).

<sup>12</sup> For details, see *Schriever Wargame 2012 International*, available at <http://www.act.nato.int/mainpages/schriever-wargame-2012-international>.

cruise missile.” This message would get the attention of adversaries, he said, and make them “rethink their calculus” of consequences and benefits.

Another American participant said that, mindful of Dean Acheson’s experience in 1950,<sup>13</sup> the U.S. government has decided not to draw red lines. Specifying such boundaries could present the risk of opening the door to certain targets or types of targets. The U.S. decision has been not to draw lines and thereby to promote uncertainty in the assessments of adversary leaders. At the same time, the United States has made clear its capacity to respond and to escalate in ways that adversaries cannot anticipate and discount. In May 2012, he noted, the U.S. Deputy Assistant Secretary of Defense for Space Policy said that “interference with U.S. space capabilities . . . could prompt an asymmetric response, imposing strategic or operational costs that outweigh any tactical benefits,” and “create a real risk of miscalculation and rapid escalation.” As a result, an adversary’s national leadership should “understand the escalation risks, the strategic consequences . . . and the wisdom of restraint.”<sup>14</sup>

## STRATEGIC COMMUNICATION AND DETERRENCE

A British participant said that one might distinguish between deterrence with a small “d” and deterrence with a capital “D.” The first refers to the daily work of all government departments and agencies involved, consciously or not, in transmitting “continuous send” messages about that government’s capabilities and intentions. It also applies to NATO as a whole. For example, “has the debate over the future of the U.S. forward deployed weapons and the broader questions considered by the DDPR (declaratory policy for one, the role and future of BMD for another) had a similar effect on how potential adversaries view NATO’s commitment to using its nuclear deterrent in a crisis?”

---

<sup>13</sup> This was a reference to Secretary of State Dean Acheson’s controversial speech at the National Press Club on 12 January 1950. In this speech Acheson defined the U.S. “defensive perimeter” in the Asia-Pacific region in a way that seemed to deny protection to the Republic of Korea. Among many studies, see James I. Matray, “Dean Acheson’s Press Club Speech Reexamined,” *Journal of Conflict Studies*, vol. 22, no. 1 (Spring 2002), available at <http://journals.hil.unb.ca/index.php/jcs/article/view/366/578>.

<sup>14</sup> Ambassador Gregory L. Schulte, “Protecting Global Security in Space,” Presentation at the S. Rajaratnam School of International Studies, Nanyang Technological University, Singapore, 9 May 2012, p. 6, available at <http://singapore.usembassy.gov/events.html>.

Deterrence with a capital D, this British participant said, concerns specific and sharply focused communications during a “high end” crisis. In the post-Cold War world, NATO governments face a wider range of potential adversaries, a broader array of communications methods, and a more complex set of audiences. “Are our messages to be sent overtly or covertly? Which do we send via which route? What is most effective? How can we be sure that the message is received by the intended recipient? Has the message been corrupted en route? Will it be believed when it arrives?”

Effective strategic communication during crises is of crucial importance, this British participant said, to ensure that deterrence does not fail and that crises are brought to a peaceful conclusion. It involves multiple questions that should be considered well in advance of crises: “Do we understand the decision-making calculus of key adversaries? Can we reach the key individuals in the adversarial regime during a high end crisis? Can we successfully message simultaneously in a global environment? . . . What role is there for NATO at such a time? Could NATO co-ordinate a deterrent communications strategy or would this rest with the nuclear powers? If it were NATO, how would 28 nations manage the message when the stakes are so very high indeed? . . . What can we do now to prevent us from finding ourselves in a high end nuclear crisis?”<sup>15</sup>

### **NATO Threat Assessments**

A Turkish participant pointed out that, “given the diversity in priorities and perceptions” among the Allies, “it is a challenge for the Alliance to generate a common agreed picture of the strategic security environment that captures the full spectrum of threats, potential threats, risks and challenges in a politically and militarily meaningful and cohesive manner.” The Allies have found it advantageous to address this challenge via “generic” scenarios and planning situations, which double as a form of strategic signaling. The generic approach avoids “reference to specific geographic locations,” he said; and thus it skirts “political sensitivities” and promotes “Alliance unity.” He cited ballistic missile defense as an example: “NATO BMD capability is not based on a specific threat from a specific source. It does not target any specific country. It is being developed against the threat of proliferation rather than against a threat from a country. . . . It is intended to defend against potential threats emanating from outside the Euro-Atlantic area.”

---

<sup>15</sup> As an excellent study of “the risk of everything going terribly wrong,” owing in part to faulty strategic communication, he recommended Michael Dobbs, *One Minute to Midnight: Kennedy, Khrushchev, and Castro on the Brink of Nuclear War* (New York: Alfred A. Knopf, 2008).

An American participant agreed that the Allies were well-advised to state in the DDR that NATO is pursuing missile defense in order to counter potential missile threats from “outside the Euro-Atlantic area.”<sup>16</sup> In his view, this phrase offers “a great way to avoid referring explicitly to Iran or any other power in the Middle East or Asia that might in some future circumstances pose a threat to NATO’s security interests.” Moreover, it is consistent with another point made in the DDR: “NATO missile defence is not oriented against Russia nor does it have the capability to undermine Russia’s strategic deterrent.”<sup>17</sup>

A Turkish participant expressed reservations about the insistence of “some Allies . . . to call a cat a cat.”<sup>18</sup> In his view, there is no need “to give the cat a name.” He said, “to put it bluntly, being the only Ally that shares a border with Iran — and this border was delineated in 1639 and hasn’t changed since then — Turkey does not see Iran as a threat. . . . Iran hasn’t threatened NATO. It is not realistic to expect Iran to initiate hostilities with NATO either. . . . This does not mean we are imprudent or oblivious to developments. We continue to closely follow the developments regarding the Iranian nuclear program. We have undersigned the Chicago Summit Declaration, which devotes a paragraph to the shared concerns of the international community on Iran. But, we don’t think that the right way to address these concerns is to label Iran as a threat and turn it into . . . a self-fulfilling prophecy.” In his view, there is no need for the Alliance to name the objects of its deterrence policies, which are addressed “to whom it may concern.” The Alliance should develop core capabilities suitable for certain types of contingencies. In other words, the Allies should seek missile defenses, for example, against the threat of the proliferation of ballistic missiles, not against Iran.

A French participant said that Allies can “pretend that a cat is not a cat or pretend not to see the cat — or that it is a dog — but it may be like a Cheshire cat.” In not naming potential adversaries, the Alliance runs “a risk of miscalculation” and vulnerability to “a bear, a snake, a scorpion,” or some other threat. “If NATO cannot use the words used by the IAEA and the UN Security Council in public documents, what does this say about NATO as a

---

<sup>16</sup> North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 20.

<sup>17</sup> North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 21.

<sup>18</sup> In November 2010, at NATO’s Lisbon Summit, Nicolas Sarkozy, then the French president, said, “No name appears in NATO’s public documents, but France calls a cat a cat, and today’s missile threat is Iran.” Agence France Presse, “Selon Sarkozy, la menace des missiles vient d’Iran,” *Le Point*, 20 November 2010, available at [http://www.lepoint.fr/monde/selon-sarkozy-la-menace-des-missiles-vient-d-iran-20-11-2010-1264946\\_24.php](http://www.lepoint.fr/monde/selon-sarkozy-la-menace-des-missiles-vient-d-iran-20-11-2010-1264946_24.php).

security organization?" A Turkish participant replied that "NATO has a security role distinct from the roles of the IAEA and the UN Security Council. There is no need for NATO to mention names in order to be watchful and prudent."

### **NATO Intelligence**

An American participant said that intelligence is essential for strategic communication: "Who are you communicating to? How do they process information? How do we know those deterrence signals will be received?" A Hungarian participant said that "Intelligence should not just be seen as a process; it is an essential capability in a world of unpredictable threats."

An American participant said that NATO's intelligence system could benefit from "more flexible and adaptable warning systems" and greater reliance on "non-agreed situational awareness." In order to be more "agile" in a dynamic and rapidly evolving security environment, he said, the Allies need to rely more on "non-agreed intelligence" rather than "consensual agreed intelligence." The Alliance's Joint Threat Assessment refers to specific countries and types of activities, he said, and it is enriched by the option of Allies to express dissenting views. A Turkish participant questioned whether the Joint Threat Assessment should be considered a "consensus document" when it includes dissenting views.

### **Negative Security Assurances in the DDPR**<sup>19</sup>

A German participant said that the German government was pleased with the statement on negative security assurances in the DDPR because "the fundamental purpose of nuclear weapons finally is focused on deterrence of nuclear threats."

---

<sup>19</sup> "Allies acknowledge the importance of the independent and unilateral negative security assurances offered by the United States, the United Kingdom and France. Those assurances guarantee, without prejudice to the separate conditions each State has attached to those assurances, including the inherent right to self-defence as recognised under Article 51 of the United Nations Charter, that nuclear weapons will not be used or threatened to be used against Non-Nuclear Weapon States that are party to the Non-Proliferation Treaty and in compliance with their nuclear non-proliferation obligations. Allies further recognise the value that these statements can have in seeking to discourage nuclear proliferation. Allies note that the states that have assigned nuclear weapons to NATO apply to these weapons the assurances they have each offered on a national basis, including the separate conditions each state has attached to these assurances." North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 10.

A French participant said that advocates of NATO taking the lead “to push forward the so-called ‘sole purpose’ agenda” labored under “a major misunderstanding of the way in which nuclear weapons states address negative security assurances.” As the language agreed in the DDPR made clear, these assurances are “the sole responsibility of nuclear weapon states and cannot therefore be issued by NATO as such.”

An American participant noted that the paragraph on negative security assurances in the DDPR “highlights the fact that these negative security assurances are ‘independent and unilateral’ commitments by the three NATO nuclear weapon states. Furthermore, the final sentence in the paragraph uses the formula ‘states that have assigned nuclear weapons to NATO’ in order to make clear that the final sentence concerns Britain and the United States, not France. Finally, in this single paragraph the DDPR twice refers to ‘the separate conditions each state has attached to these assurances.’ It points out that these ‘separate conditions’ include ‘the inherent right to self-defence as recognised under Article 51 of the United Nations Charter.’”

## **NATO AND RUSSIA: DISAGREEMENTS AND MISCOMMUNICATION**

A British participant said that some NATO-Russia differences derive from disagreement, not miscommunication. Significant failures in strategic communication nonetheless hamper the development of trust and confidence in NATO-Russia relations. Often messages are “received, corrupted, and not believed,” while on other occasions messages are “received, corrupted, and believed.”

According to the NATO-Russia Council statement at the Lisbon Summit in November 2010, for example, Russia and the NATO Allies “recognised that the security of all states in the Euro-Atlantic community is indivisible.”<sup>20</sup> Owing to “linguistic false friends,” he said, “we were talking past each other while thinking that the messages were being delivered and in fact they were being corrupted.” When citizens of NATO nations hear that “the security of all states in the Euro-Atlantic community is indivisible,” they usually think of the Helsinki Final Act and the interdependence of the three dimensions of security covered in that political declaration: human rights, economic affairs, and political-military matters. From a Russian perspective, however, the statement that “the security of all states in the

---

<sup>20</sup> NATO-Russia Council Joint Statement at the meeting of the NATO-Russia Council held in Lisbon on 20 November 2010, available at [http://www.nato.int/cps/en/natolive/news\\_68871.htm](http://www.nato.int/cps/en/natolive/news_68871.htm).



Euro-Atlantic community is indivisible” reflects an unfulfilled aspiration. The Russians hold that NATO and the European Union have divided the Euro-Atlantic region through their treaty arrangements, and that the way to unite this region is through a new legal regime covering the entire region and subordinating NATO and the EU under the architecture of the Russian-proposed European Security Treaty.

More fundamentally, this British participant said, improvements in the NATO-Russia relationship are hampered by the fact that most Russians “don’t think NATO should exist” — a point they make “quite frequently.” Furthermore, the Russians generally view NATO as “a lying organization” that reneged on a promise not to enlarge made at the time of German reunification in 1990. The fact that this “regularly comes up” in discussions with Russians suggests “a failure of strategic communication” on NATO’s part.

In this British participant’s view, NATO should be “very careful” not to disregard clear Russian statements of policy. The Russians express their views “firmly and directly,” and yet observers in NATO countries continue to discount Russian statements by asserting that “they don’t really believe that” and “they’re just saying that.” This standard reaction to “robust” Russian statements demonstrates how messages may be “not received” or “corrupted” or “not believed.” A Turkish participant added that some messages may be “received, understood, and ignored.” That is, the recipient of the message may feign ignorance to avoid having to respond.

A German participant said that there is a risk of a “worsening” of the NATO-Russia relationship, owing to a “long-term decline” of Russia. In this context, he said, the prospects for negotiating arms control and transparency measures are “bleak.” A British participant said that the Russians often portray NATO as “on the decline while causing a mess,” so there is a certain parallelism in the image each side has of the other.

### **NATO-Russia Strategic Stability**

An American participant said that the term “strategic stability” was often used during the Cold War to mean “first strike stability” — that is, as he defined it, “neither side should be tempted to initiate a nuclear war based on a perception that some net gain was possible by striking first.” This concept helped to furnish the analytical basis for certain treaty provisions, including the START II prohibition of MIRVed ICBMs. Despite the limitations of this concept and related hypotheses as a means of forecasting behavior in



actual crises, he said, the Cold War theory of strategic stability provided a focus for negotiations.

The current meaning of the term strategic stability is less clear, he said, than the meaning attributed to it during the Cold War. Some Russians have offered wide-ranging lists of capabilities pertinent to strategic stability, he noted. In July 2010, for example, Russian Foreign Minister Sergey Lavrov expressed concern about “the totality of factors that could erode strategic stability,” including “the prospect of weapons in outer space, plans for the creation of non-nuclear strategic missile systems, the unilateral strategic missile defense buildup, and the growing imbalance in conventional weapons.”<sup>21</sup> The Russians appear, he said, to emphasize areas of actual or potential strength in NATO, with little reference to Russia’s disparity with NATO in non-strategic nuclear weapons or Russia’s pursuit of heavy and MIRVed ICBMs. Russia’s prescription for strategic stability would, he said, radically constrain NATO’s potential missile defense and long-range conventional precision strike capabilities. As a result, this American participant concluded, “accommodating Russian demands for strategic stability would be at the expense of effective deterrence of Iran and assurance for allies in NATO and the Persian Gulf region as well as deterrence of North Korea and assurance for Northeast Asian allies.”

A British participant said that another element in Russia’s concept of strategic stability concerns “the deference it feels entitled to from smaller powers on its periphery.” In pursuing this deference Russia relies on “retaining the possibility of threatening small scale disruptive or intimidatory maneuvers, linked to a claimed role in safeguarding the interests of the Russian diaspora or of client states.” In the interests of strategic stability, he said, the Allies might “in their planning and investment decisions, systematically enhance stability though improved Alliance agility.” In other words, the Allies might “remove temptation from Russia by becoming evidently able to abort threats to the security of exposed members. Agility here could be operationalized by short notice units, better transport infrastructure, and effective contingency plans.”

---

<sup>21</sup> Foreign Minister Sergey Lavrov, “The New START Treaty in the Global Security Matrix: The Political Dimension,” *Mezhdunarodnaya Zhizn*, No. 7, July 2010, available at [http://www.mid.ru/brp\\_4.nsf/e78a48070f128a7b43256999005bcbb3/25909cfe1bbd1c6ec325777500339245?OpenDocument](http://www.mid.ru/brp_4.nsf/e78a48070f128a7b43256999005bcbb3/25909cfe1bbd1c6ec325777500339245?OpenDocument).

## CONVENTIONAL AND NUCLEAR ARMS CONTROL

### Challenges for Conventional Arms Control

Participants noted the challenge of integrating and complementing a comprehensive deterrence posture with nuclear and conventional arms control. Illustrative of this challenge is the current impasse with Russia over the CFE Treaty. Despite the commitment of the NATO Allies to conventional arms control and the CFE Treaty, an American participant said, the prospects in this regard are at an impasse, owing in large part to Russia's decision in 2007 to suspend its compliance with the treaty. The NATO countries party to the CFE Treaty decided in 2011 to stop implementing certain provisions of the treaty with respect to Russia. In the Chicago Summit Declaration, however, the Alliance noted that these Allies are prepared to resume their own implementation of the Treaty with respect to Russia whenever Moscow decides to meet its CFE obligations.<sup>22</sup>

A British participant said that conventional arms control in Europe faces problems more fundamental than suspension of compliance with the CFE Treaty: "Doctrines and force structures have changed. Holdings of heavy equipment are no longer the right metric, and there is no agreement on what the right metric should be." In his view, "Given the continuing flux in force structure and dominant technologies, parties will resist obligations or constraints that may turn out to be inconsistent with military requirements. Building confidence and reducing uncertainty will have to be the dominant aims of arms control if there are no realistically acceptable formal balances to be calculated and agreed to."

### Russia and Non-Strategic Nuclear Forces

A British participant said that one of the factors limiting Russian interest in nuclear arms control is Moscow's reliance on nuclear weapons for "setting up a force field of inhibition operating at an even more fundamental level than generalised deterrence. In attempting to generate inhibition, building or keeping big stockpiles is not embarrassing but an important albeit unquantifiable source of national confidence. And it will probably help to deploy some of the weapons well forward for greater psychological salience. In the Russian case, sub-strategic weapons in Europe are already paid for, and are stationed in the right places for this."

---

<sup>22</sup> North Atlantic Council, Chicago Summit Declaration, 20 May 2012, par. 63.

A Lithuanian participant said that “for Russia tactical nuclear warheads are operational weapons that they envisage using in regional conflicts if Russia feels sufficiently threatened. In other words, the threshold is incomparably lower than the one present in the Western countries.” An American participant agreed: “They still believe that they would use it.”

A British participant said that negotiating a relocation of Russian non-strategic nuclear weapons further from NATO territory would not represent a meaningful achievement: “Remember that they are mobile (within a few hours by air, or a couple of days by train) and that their westward return (even if partial or suspected) might itself be a means of intimidation in a crisis.”

Difficult questions are raised, a Polish participant said, by the Alliance’s agreement to consider “what NATO would expect to see in the way of reciprocal Russian actions to allow for significant reductions in forward-based non-strategic nuclear weapons assigned to NATO.”<sup>23</sup> Allies may attribute different interpretations to the phrase “reciprocal Russian actions.” Some may see it as calling for “in-kind reciprocity” concerning reductions and/or relocations of non-strategic nuclear weapons, while others might be satisfied with Russian actions on missile defense, conventional forces, frozen conflicts, or other matters on the international security agenda. Moreover, if the Allies decided for their own reasons to reduce the number of U.S. non-strategic nuclear weapons in Europe, “any positive action” by Russia could be “sold as reciprocity” in a “face-saving” maneuver by the Allies. If the Russians took the initiative by announcing some unilateral reductions in their non-strategic nuclear weapons and called for the United States and its NATO Allies to follow, the Alliance would be obliged to decide whether these reductions constituted satisfactory “reciprocal Russian actions.” In this Polish participant’s judgment, the Alliance does not “badly need” Russian non-strategic nuclear weapons reductions, and “there are therefore limits to the incentives we may offer and to the stretching of the meaning of reciprocity.”

It is particularly important, a German participant said, to pursue “possible reciprocal measures aiming to reinforce and increase transparency, mutual trust and confidence with Russia, particularly on tactical nuclear weapons.” At present, given the numerical imbalance between NATO and Russia in non-strategic nuclear weapons, Russia should take “proactive steps to close the gap of disparity.” At the same time, NATO nations must decide what requirements would have to be satisfied by Russia to justify further

---

<sup>23</sup> North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 27.

reductions in the remaining U.S. nuclear weapons in Europe. The goal in the U.S. and NATO negotiations with Russia should be to deepen “transparency, mutual understanding, and trust.” Russia may not cooperate readily in this endeavor, because the Russians have their own ideas. Putin’s announcement in October 2011 that Russia intends to lead the construction of a Eurasian Union “shocked us.”<sup>24</sup>

### **NATO Reductions in Non-Strategic Nuclear Forces**

A Lithuanian participant said that “NATO is already a global leader in disarmament,” but dreadful at communicating its steps in support of disarmament, such as the drastic reductions in its nuclear weapons since the early 1970s.

An American participant pointed out that some critics of NATO’s deterrence posture have argued that “U.S. theater nuclear weapons in Europe provide Russia with the perfect excuse to do nothing about its own massive holdings of such weapons,” and that “Moscow can simply invoke its precondition for talks on the removal of the U.S. weapons from Europe.”<sup>25</sup> In his view, “These critics have aligned themselves with traditional Russian policy, which says that the pathway forward is by unilateral U.S. action. In fact, however, we’ve led by 95 percent reductions and have nothing to show for it.” This gives grounds for “deep skepticism” about the ability of additional unilateral action by the Alliance to induce any restraint by Russia in this area.

A French participant said that the disarmament advocates should recognize that NATO has significant credentials in the reductions in the number of U.S. nuclear weapons in Europe (by over 95 percent) and in reducing reliance on nuclear deterrence. Moreover, as noted in the 2010 Strategic Concept, “The circumstances in which any use of nuclear weapons might have to be contemplated are extremely remote.”<sup>26</sup>

---

<sup>24</sup> Vladimir Putin, “A new integration project for Eurasia: The future in the making,” *Izvestia*, 4 October 2011, available at <http://premier.gov.ru/eng/events/news/16622/>.

<sup>25</sup> Edmond Seay, “NATO’s Incredible Nuclear Strategy: Why U.S. Weapons in Europe Deter No One,” *Arms Control Today*, November 2011, available at [http://www.armscontrol.org/act/2011\\_11/NATO\\_Incredible\\_Nuclear\\_Strategy\\_Why\\_US\\_Weapons\\_in\\_Europe\\_Deter\\_No\\_One#](http://www.armscontrol.org/act/2011_11/NATO_Incredible_Nuclear_Strategy_Why_US_Weapons_in_Europe_Deter_No_One#).

<sup>26</sup> North Atlantic Council, Active Engagement, Modern Defence: Strategic Concept for the Defence and Security of The Members of the North Atlantic Treaty Organisation adopted by Heads of State and Government in Lisbon, 19 November 2010, par. 17, available at [http://www.nato.int/cps/en/natolive/official\\_texts\\_68580.htm](http://www.nato.int/cps/en/natolive/official_texts_68580.htm).

A Polish participant said that, although some Allies, including Germany, have called for the Alliance to play a leading role in arms control and disarmament, “most of the new member states have been wary of the calls to use the DDPR process to expand NATO’s role in arms control and disarmament. While being generally supportive of the international non-proliferation and arms control efforts, as well as being active in the new NPT Review process, the countries of the Central and Eastern European region wanted the DDPR to concentrate on the NATO defence potential, not the disarmament aspect. They value the conservative, defence-oriented Alliance, which ‘does’ non-proliferation and arms control as a by-product of its primary mission.” From the viewpoint of these Allies, NATO’s proper role with regard to arms control and disarmament is as “a coordinator rather than a leader;” and the DDPR rightly rejected “lead by example” proposals to make further unilateral reductions in U.S. non-strategic nuclear weapons in Europe.

### **The Future of U.S.-Russia Nuclear Arms Reductions**

An American participant said that the U.S. government remains “cautiously optimistic” about the initiation of negotiations with Russia as a follow-on to the New START treaty. While the number of U.S. non-strategic nuclear weapons in Europe is “paltry” compared to those maintained by Russia, making a negotiation confined to weapons of that category of arms “unrealistic,” Russian concerns about the upload capacity of U.S. strategic nuclear delivery systems may lead Moscow to accept the U.S. proposal for an aggregate ceiling negotiation encompassing all U.S. and Russian nuclear weapons. There is time for such a negotiation because the New START Treaty will not expire until 2021, and it could be extended for five years. The United States is “eager” to pursue such a negotiation, but it appears that “Russia is going to test our patience.”

In the meantime, this American participant said, the United States is studying the possibility of further reductions in the U.S. nuclear stockpile. In March 2012, President Obama said, “That study is still underway. But even as we have more work to do, we can already say with confidence that we have more nuclear weapons than we need.”<sup>27</sup> The United States has made a commitment to its NATO Allies to make no further reductions in its nuclear weapons deployed in Europe without an Alliance consensus and “reciprocal steps by Russia.”

---

<sup>27</sup> Remarks by President Obama at Hankuk University, Seoul, Republic of Korea, March 26, 2012, available at <http://www.whitehouse.gov/the-press-office/2012/03/26/remarks-president-obama-hankuk-university>.

This American participant observed that the NATO Allies have linked prospective reductions in the remaining U.S. nuclear weapons in Europe to Russian reciprocity. This implies that at some point NATO will make reductions in the number of these weapons in the context of an agreement with Russia “while also delivering on the clearly stated political requirement to ensure broad participation in peacetime basing.” In his view, “This is a complex set of connected questions which we’ve kind of glossed over once lightly.”

### **Prospects for U.S.-Russia Arms Control Negotiations**

A British participant said that the DDPR’s “appropriate mix” language about nuclear, conventional, and missile defense capabilities implies linkages among these capabilities. This may have complicated the arms control challenge facing the United States, he said, by “implicitly recognizing certain aspects of the Russian terms of reference” for future negotiations. The DDPR language, in other words, makes it “more difficult to not discuss these capabilities as part of the follow-on negotiations.”

An American participant replied that “strategic stability is influenced by a great many factors.” The goal is to negotiate an accord that provides “strategic predictability supplemented by verification,” but it is “impossible” to “address directly everything that bears on strategic stability” in a single legally binding agreement. “The curse of arms control is that it keeps the United States and Russia focused on the nuclear balance of power between them and that Cold War-derived planning framework,” he said. The United States is trying to move beyond that through a dialogue with Russia on strategic stability. If the Russians insist on negotiations encompassing everything of strategic relevance in a single legally binding framework, however, this will lead to a stalemate in bilateral arms control. The United States will not accept legally binding restraints on missile defense. The Russian concerns about U.S. missile defense programs are “factually not sound,” and the European Phased Adaptive Approach will not affect the credibility of Russia’s strategic deterrent. U.S. missile defense programs are tailored to “emerging regional challengers.”

### **Deterrence and Arms Control in the Middle East**

An American participant said that the DDPR did not “fully resolve differences” among the NATO Allies about “the Middle East and its impact on NATO’s deterrence and defense posture.” He contended that NATO Allies are divided on this point. Some Allies view Russia as the only issue that could affect decisions on the future of U.S. nuclear weapons in Europe. Other Allies hold that NATO’s deterrence and defense posture is

“becoming relevant to a more anarchic and complex nuclear landscape to its south and east.” It is noteworthy, he said, that the DDPR stated that “Arms control, disarmament and non-proliferation play *an important role* in the achievement of the Alliance’s security objectives. Both the success and failure of these efforts can have a direct impact on the threat environment of NATO and therefore affect NATO’s deterrence and defence posture.”<sup>28</sup> This is significant, he said, because the “nonproliferation regime is at risk in the Middle East,” with the danger of “new capabilities on the edge of the Euro-Atlantic security environment.”

Another American participant said that the DDPR’s references to “the broader security environment” evidently mean that the Allies recognize that Russia is not the only potential security challenge that they could face and that should be taken into account in determining the future of the Alliance’s nuclear deterrence posture.

In this regard, a French participant pointed out that the Allies had agreed in the DDPR “to further consider, in the context of the broader security environment, what NATO would expect to see in the way of reciprocal Russian actions to allow for significant reductions in forward-based non-strategic nuclear weapons assigned to NATO.”<sup>29</sup> This task will be, he said, “difficult” and intellectually demanding, as well as “very challenging politically.” Moreover, the phrase “broader security environment” is “a code word for all the other things that are out there in NATO’s neighborhood — sometimes, quite literally, neighboring states to some of the Allies — that should affect the future of the nuclear element of NATO’s force posture.”

## **NATO: NUCLEAR DETERRENCE AND NUCLEAR DISARMAMENT**

A Lithuanian participant said that “nuclear deterrence will continue to be an indispensable element” for the Alliance’s security. “The problem is that pressure from within NATO’s political and academic elites is undermining this element. . . There are two different worlds inside NATO: a world of politicians and political activists who think that the whole world is now flat and liberal and ripe for change and there is a world of military and security experts and professionals who remember the hard lessons of the 20th

---

<sup>28</sup> North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 22; italics in the original.

<sup>29</sup> *Ibid.*, par. 27.



century.” In his view, the DDPR’s advocacy of nuclear disarmament is incoherent: “there can be no balance between deterrence and disarmament, because they are mutually exclusive.”

An American participant drew attention to the DDPR’s statement that “The Alliance is resolved to seek a safer world for all and to create the *conditions for a world without nuclear weapons* in accordance with the goals of the Nuclear Non-Proliferation Treaty, in a way that promotes international stability, and is based on the principle of undiminished security for all.”<sup>30</sup> He said that, “By highlighting the need to create the conditions for disarmament, the Alliance seems to be arguing that this is a long-term project. This reduces the inherent tensions between the objectives of deterrence and defense on the one hand, and arms control, disarmament, and nonproliferation on the other, while apparently bolstering the argument that NATO’s nuclear weapon states are committed to Article VI and the associated NPT benefits.”

Another American participant noted that the DDPR reaffirmed the long-term vision of “a world without nuclear weapons,” and said that this objective would be pursued “in accordance with” the goals of the NPT.<sup>31</sup> He said that the reference to the NPT’s goals as figuring among the conditions for nuclear disarmament is “subtle” because in some statements France and the United Kingdom have pointed out that the full text of Article VI of the NPT includes a call for “a treaty on general and complete disarmament under strict and effective international control,” and that their commitment to nuclear disarmament is contingent on the fulfillment of this condition.<sup>32</sup>

---

<sup>30</sup> Ibid., par. 24; italics in the original.

<sup>31</sup> “The Alliance is resolved to seek a safer world for all and to create the *conditions for a world without nuclear weapons* in accordance with the goals of the Nuclear Non-Proliferation Treaty, in a way that promotes international stability, and is based on the principle of undiminished security for all.” North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 24; italics in the original.

<sup>32</sup> “France supports the objective of the final elimination of nuclear weapons in the framework of general and complete disarmament. From now until the realization of this objective . . . France intends to maintain in all circumstances the credibility and the effectiveness of its nuclear deterrent force.” Hervé de Charette, Foreign Minister, answer to a written question, *Journal officiel de la République Française, Débats Parlementaires, Assemblée Nationale*, 24 February 1997, p. 935. “Article VI of the NPT does not establish any timetable for nuclear disarmament, nor for the general and complete disarmament which provides the context for total nuclear disarmament. Nor does it prohibit maintenance or updating of existing capabilities.” *The Future of the United Kingdom’s Nuclear Deterrent*, Presented to Parliament by the Secretary of State for Defence and the Secretary of State for Foreign and Commonwealth Affairs by Command of Her Majesty, Cm 6994 (London: Her Majesty’s Stationery Office, December 2006), p. 14, par. 2-10.



A Lithuanian participant said that “The disarmament community — both Western NGOs and the non-aligned movement — has allied against NATO nuclear sharing. . . What I do not understand is how abandoning NATO’s nuclear deterrence posture will make NATO territory and populations more secure.” It is, he said, unclear how unilateral nuclear disarmament in NATO would help the Alliance deal with Russia, China, Iran, North Korea, and other potential adversaries.

A German participant said that nuclear deterrence and nuclear disarmament are not in contradiction, but are “two sides of one medal, of one coherent concept.” He noted that NATO’s “cooperative security” mission includes “strengthening partnerships, contributing to arms control, non-proliferation and disarmament, and assisting new countries to prepare for potential NATO membership. This provides frameworks for political dialogue and regional cooperation, and increases military interoperability, common understanding, transparency and trust.”

A French participant said that the DDR is “a consensus document” reconciling divisions among the NATO Allies and even within some national governments. Many people in the disarmament-oriented NGOs and in some governments favored the termination of NATO nuclear sharing arrangements, the removal of the remaining U.S. nuclear weapons in Europe, and the articulation of new declaratory policies. To some extent, the decision to conduct the DDR originated in an effort to resolve the debate within the Alliance between proponents of such policies and champions of NATO’s long-standing arrangements.

This French participant said that the Allies found “the right balance between the desire expressed by some to demonstrate commitment to disarmament objectives and preserving the basis of the Alliance’s nuclear deterrence policy.” This balance will not, however, satisfy disarmament advocates, he said; and “the Alliance must be ready to face criticism about its upcoming nuclear modernization that will come on top of the traditional attacks based on the assertion that the NATO nuclear sharing arrangements are incompatible with the NPT.” The disarmament advocates create, he said, a “never enough” situation; some even question the Alliance’s agreed policy that, “As long as nuclear weapons exist, NATO will remain a nuclear alliance.”<sup>33</sup> The danger with promoting a

---

<sup>33</sup> North Atlantic Council, Active Engagement, Modern Defence: Strategic Concept for the Defence and Security of The Members of the North Atlantic Treaty Organisation adopted by Heads of State and Government in Lisbon, 19 November 2010, par. 17, available at [http://www.nato.int/cps/en/natolive/official\\_texts\\_68580.htm](http://www.nato.int/cps/en/natolive/official_texts_68580.htm).

“delegitimization of nuclear deterrence” is that the NATO Allies could end up being the only group of countries “setting a good example” and reducing their reliance on nuclear weapons for deterrence.

### **Prospects for Nuclear Disarmament**

A French participant noted that the DDPR included the statement that “The Alliance is resolved to seek a safer world for all and to create the *conditions for a world without nuclear weapons* in accordance with the goals of the Nuclear Non-Proliferation Treaty, in a way that promotes international stability, and is based on the principle of undiminished security for all.”<sup>34</sup> He said that eliminating nuclear weapons “would not automatically” create “a safer world for all,” and that it is not clear how to achieve that objective. A German participant asked, “How could we prevent conventional wars in such a world?” This is, he said, “a very serious question,” and he has not yet received a convincing reply.

### **LIMITATIONS OF DETERRENCE<sup>35</sup>**

A Hungarian participant said that “nuclear deterrence remains a valid concept in deterring inter-state war. But we must also acknowledge that many current and future threats cannot be deterred by the threat of a military response. For example, cyber attacks are going to happen whether we have a nuclear deterrent or not. What counts most is the resilience of our information systems; our ability to identify the perpetrator; and our ability to adapt our operations. The same is true for terrorist attacks or problems related to energy or climate change. Deterrence won’t work. But prevention could work. And so could resilience.”

A British participant said that deterrence nonetheless remains indispensable. He added that resilience measures such as accumulating and exercising consequence management capabilities could simultaneously contribute to deterrence of adversaries, provide a hedge against terrorist or cyber attacks, and assure public opinion in NATO countries. Moreover, he said, “resilience would make it easier for our political classes,

---

<sup>34</sup> North Atlantic Council, Deterrence and Defence Posture Review, 20 May 2012, par. 24; italics in the original.

<sup>35</sup> For an incisive analysis of the growing importance of the Alliance’s prevention and resilience missions, see Michael Rühle, “NATO and Emerging Security Challenges: Beyond the Deterrence Paradigm,” *American Foreign Policy Interests*, vol. 33 (2011), pp. 278-282.

opinion formers, and activists to accept that NATO has secured what might be called 'politically satisfactory strategic stability,' without either hankering over financially impossible build-ups or agitating to negotiate with ourselves for unilateral withdrawals or build-downs."

## CHINA AND RUSSIA: THE RETURN OF GREAT POWER POLITICS?

An American participant said that Russia and China have in recent years engaged in close "diplomatic coordination," notably concerning Libya and Syria, owing to "a perceived commonality of interest." In fact, however, Russia is (like the United States) engaged in a "rebalance" toward Asia owing to the rise of Chinese power; and Russia is in "an infinitely worse position" than the United States and its allies in relation to China. Putin would like to promote economic development to defend Russia's massive territories in Siberia, but the Russians have always treated Siberia as a colony to exploit; and there has been "no organic growth" to sustain Russian rule. Owing to the growing asymmetry in conventional military forces between Russia and China, deepened by China's probable success in surpassing Russia in C4ISR, "Russian non-strategic nuclear weapons have been aimed at China." For Russia, China is "the threat that dare not speak its name." The Russians have recently conducted exercises in the Far East against "a hypothetical opponent" that could only be China.

Putin has recently consolidated his grip on power, this American participant said; and there is no question about Putin's commitment to pursuing traditional great power politics. People in NATO countries would like to believe that they have "superseded" the era of traditional great power politics, but such politics "will be staring us right in the face" in coming years. The NATO Allies must therefore "look at the global security arrangements" involving the great powers; and they did not do so in the DDPR or at the Chicago Summit.

A Latvian participant said that "our societies don't understand that kind of policy" — that is, the competition in traditional great power politics — and "they don't expect us to name enemies any more." A British participant said that the European Allies have cultivated "postmodern norms not shared by anybody else," and as a result the "modern" world of traditional great power politics may "crash into us a bit like Hitlerian Germany." Another British participant said that "incurable liberal internationalism" may contribute to

“our incomprehension of alien strategic sensibilities;” but these great power competitors have “their own weaknesses — military, economic, and ideological.” An Australian participant agreed, stating that liberal internationalism is “not a doomed project.”

Given the U.S. “rebalancing to Asia,” a Hungarian participant asked, should the European Allies help the United States dedicate more resources to the Asia-Pacific by undertaking greater responsibilities in the Mediterranean and the Middle East?

A British participant said that Europe should play “a stabilizing role” from North Africa to Central Asia. For “political legitimacy” purposes, he added, at least a couple of European NATO Allies should accompany the United States in some activities in the Asia-Pacific. In his view, the DDPR’s focus on capabilities omitted any attention to the “big security picture” and “threat assessment” for which an “appropriate mix” of capabilities is required. The danger in focusing on capabilities and budgets instead of assessments of the broader security environment is that “we only recognize as much threat as we can afford.”

## REFERENCES

Agence France Presse. "Selon Sarkozy, la menace des missiles vient d'Iran." *Le Point*. 20 November 2010. Available at [http://www.lepoint.fr/monde/selon-sarkozy-la-menace-des-missiles-vient-d-iran-20-11-2010-1264946\\_24.php](http://www.lepoint.fr/monde/selon-sarkozy-la-menace-des-missiles-vient-d-iran-20-11-2010-1264946_24.php).

De Charette, Hervé. *Journal officiel de la République Française, Débats Parlementaires, Assemblée Nationale*. 24 February 1997.

Dobbs, Michael. *One Minute to Midnight: Kennedy, Khrushchev, and Castro on the Brink of Nuclear War* (New York: Alfred A. Knopf, 2008).

Lavrov, Sergey. "The New START Treaty in the Global Security Matrix: The Political Dimension." *Mezhdunarodnaya Zhizn*, no. 7. July 2010. Available at [http://www.mid.ru/brp\\_4.nsf/e78a48070f128a7b43256999005bcbb3/25909cfe1bbd1c6ec325777500339245?OpenDocument](http://www.mid.ru/brp_4.nsf/e78a48070f128a7b43256999005bcbb3/25909cfe1bbd1c6ec325777500339245?OpenDocument).

Matray, James I. "Dean Acheson's Press Club Speech Reexamined." *Journal of Conflict Studies*, vol. 22, no. 1 (Spring 2002). Available at <http://journals.hil.unb.ca/index.php/jcs/article/view/366/578>.

NATO-Russia Council Joint Statement at the meeting of the NATO-Russia Council held in Lisbon on 20 November 2010. Available at [http://www.nato.int/cps/en/natolive/news\\_68871.htm](http://www.nato.int/cps/en/natolive/news_68871.htm).

North Atlantic Council. Active Engagement, Modern Defence: Strategic Concept for the Defence and Security of The Members of the North Atlantic Treaty Organisation adopted by Heads of State and Government in Lisbon. 19 November 2010. Available at [http://www.nato.int/cps/en/natolive/official\\_texts\\_68580.htm](http://www.nato.int/cps/en/natolive/official_texts_68580.htm).

North Atlantic Council. Chicago Summit Declaration. 20 May 2012. Available at [http://www.nato.int/cps/en/SID-140D258B-1322853B/natolive/official\\_texts\\_87593.htm](http://www.nato.int/cps/en/SID-140D258B-1322853B/natolive/official_texts_87593.htm).

North Atlantic Council. Deterrence and Defence Posture Review. 20 May 2012. Available at [http://www.nato.int/cps/en/SID-140D258B-1322853B/natolive/official\\_texts\\_87597.htm](http://www.nato.int/cps/en/SID-140D258B-1322853B/natolive/official_texts_87597.htm).

President Barack Obama. Remarks at Hankuk University, Seoul, Republic of Korea. 26 March 2012. Available at <http://www.whitehouse.gov/the-press-office/2012/03/26/remarks-president-obama-hankuk-university>.

Putin, Vladimir. "A new integration project for Eurasia: The future in the making." *Izvestia*. 4 October 2011. Available at <http://premier.gov.ru/eng/events/news/16622/>.

Rühle, Michael. "NATO and Emerging Security Challenges: Beyond the Deterrence Paradigm," *American Foreign Policy Interests*, vol. 33 (2011).

*Schriever Wargame 2012 International*. Available at <http://www.act.nato.int/mainpages/schriever-wargame-2012-international>.

Schulte, Gregory L. "Protecting Global Security in Space." Presentation at the S. Rajaratnam School of International Studies, Nanyang Technological University, Singapore. 9 May 2012. Available at <http://singapore.usembassy.gov/events.html>.

Schulte, Gregory L. *Protecting NATO's Advantage in Space*. Transatlantic Current no. 5 (Washington, D.C.: Center for Transatlantic Security Studies, National Defense University, May 2012).

Seay, Edmond. *Escalation by Default: The Future of NATO Nuclear Weapons in Europe*. 10 May 2012. Available at [http://www.europeanleadershipnetwork.org/escalation-by-default-the-future-of-nato-nuclear-weapons-in-europe\\_380.html](http://www.europeanleadershipnetwork.org/escalation-by-default-the-future-of-nato-nuclear-weapons-in-europe_380.html).

Seay, Edmond. "NATO's Incredible Nuclear Strategy: Why U.S. Weapons in Europe Deter No One." *Arms Control Today*. November 2011. Available at [http://www.armscontrol.org/act/2011\\_11/NATO\\_Incredible\\_Nuclear\\_Strategy\\_Why\\_US\\_Weapons\\_in\\_Europe\\_Deter\\_No\\_One#](http://www.armscontrol.org/act/2011_11/NATO_Incredible_Nuclear_Strategy_Why_US_Weapons_in_Europe_Deter_No_One#).

*The Future of the United Kingdom's Nuclear Deterrent*. Presented to Parliament by the Secretary of State for Defence and the Secretary of State for Foreign and Commonwealth Affairs by Command of Her Majesty, Cm 6994 (London: Her Majesty's Stationery Office, December 2006).

U.S. Air Force Space Command. "Fact Sheet." 8 June 2012. Available at <http://www.afspc.af.mil/library/factsheets/factsheet.asp?id=5582>.

U.S. Department of Defense. *Nuclear Posture Review Report* (Washington, D.C.: U.S. Department of Defense, April 2010).

U.S. Secretary of Defense and the U.S. Director of National Intelligence. *National Security Space Strategy: Unclassified Summary*. January 2011. Available at [http://www.defense.gov/home/features/2011/0111\\_nsss/docs/NationalSecuritySpaceStrategyUnclassifiedSummary\\_Jan2011.pdf](http://www.defense.gov/home/features/2011/0111_nsss/docs/NationalSecuritySpaceStrategyUnclassifiedSummary_Jan2011.pdf).