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Deterrence in the Shadow of Terror: US Nuclear Weapons Policy in the Aftermath of 9/11

S. Samuel C. Rajiv



**INSTITUTE FOR DEFENCE
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Studies & Analyses**

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I - Introduction

US policy makers throughout the previous decade have insisted that they will strive to reduce the role and numbers of nuclear weapons in US security strategy. This was to better face the twin challenges of nuclear proliferation and nuclear terrorism – which the 2010 Nuclear Posture Review (NPR) terms as the ‘most urgent priorities’, as well as to take into account the diminished Russian threat. The paper makes an assessment of US nuclear weapons policy in the light of the above imperatives.

It argues that efforts to improve and sustain the potency of US nuclear arsenal are far more pertinent than efforts undertaken to reduce the salience of its nuclear arsenal in its security strategy. This contention is in contrast to some analyses of US nuclear weapons policy in the middle of the decade that assessed that terrorism has ‘proven to be the greatest challenge to the US nuclear posture and possibly also a sign that the significance of nuclear weapons is in decline amid new threats to national security’.¹

Firstly, the paper assesses the efforts that have been undertaken to reduce the role and numbers of US nuclear arsenal and the efforts to develop non-nuclear options to face contemporary threats like Prompt Global Strike (PGS) and conventional ‘bunker-busters’. The non-nuclear roles for strategic delivery vehicles (SDV’s) such as inter-continental ballistic missiles (ICBM’s) and nuclear-powered submarines – Ohio-class SSBN (ballistic, nuclear submarines) conversions to SSGN (guided-missile, nuclear-powered) – to face new threats generated at the ‘crossroads of radicalism and technology’, as defined by President George Bush at West Point in

¹ See Josiane Gabel, ‘The Role of US Nuclear Weapons after September 11’, *The Washington Quarterly*, 28(1), Winter 2004-05, p. 192.

June 2002, are highlighted. There have also been a significant quantitative reductions in the numbers of US nuclear warheads and SDV's.

The paper then goes on to assess efforts for increasing the salience of US nuclear arsenal in its security strategy. Policy prescriptions in national strategy and nuclear policy documents and statements of key officials reinforced the value of US nuclear deterrence not just to deter other nuclear weapon states (primarily Russia and China) but also 'rogue' states with WMD programmes. Continuing improvements to the existing stockpile through technological measures like the Stockpile Stewardship Programme (SSP) and the Life Extension Programme (LEP) and budgetary investments in the nuclear complex are equally relevant. The Bush administration's efforts (though unsuccessful) to build new kinds of warheads like the Robust Nuclear Earth Penetrators (RNEP) and the Reliable Replacement Warhead (RRW) are then discussed. The factoring in of a 9/11-type adversary in the US nuclear targeting war plans is another concrete manifestation of the increase in US nuclear missions and role.

The paper then goes on to suggest that one of the major consequences of continued US modernisation efforts and uncertainties associated with it has been a largely negative US role in arms control/disarmament initiatives that were held to be at variance with its security objectives. This is evident in US policy towards multi-lateral efforts like the Comprehensive Test Ban Treaty (CTBT) and the Fissile Material Control Treaty (FMCT). At the bilateral level, pursuit of technologies like ballistic missile defences (BMD) created complications for arms control efforts ranging from the ABM Treaty to New START.

The paper closes by noting the post-2010 NPR environment where in budgetary pressures on the nuclear weapons complex in the light of the Obama administration's efforts to reduce the overall defence burden are apparent. The ongoing comprehensive review of US nuclear weapons policy in order to make it conform to Obama's 'nuclear vision' as laid out in Prague in April 2009 is then discussed.

II - Reduced Salience of the US Nuclear Arsenal

Quantitative Reductions

Warheads

There has been a quantitative reduction in the number of US nuclear warheads and delivery systems. This has been due to extant arms control agreements with Russia along with the fine-tuning of US nuclear postures and force structures in the aftermath of the reduced Russian threat. The US department of defence released a Fact Sheet on May 3, 2010 indicating that the total US stockpile of warheads stood at 5113 as on September 30, 2009 and the number ‘does not include the weapons that are currently retired and awaiting dismantlement. There are several thousand more of them’.² The Fact Sheet noted that the US had 22,217 warheads on September 30, 1989, and given the September 2009 figure, there has been a 75 per cent reduction in the total number of US warheads.

The DoD Fact Sheet does not provide information relating to the numbers of *operational* or *active* warheads in the US arsenal.³ Leaked portions of the 2002 Nuclear Posture Review (NPR) indicated that

² See ‘Fact Sheet: Increasing Transparency in the US Nuclear Weapons Stockpile’, May 3, 2010, at <http://www.defense.gov/news/d20100503stockpile.pdf> (accessed August 15, 2011); See also ‘DOD Background Briefing with Senior Defense Official from the Pentagon’, May 3, 2010, at <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4619> (accessed August 13, 2011).

³ ‘Operationally deployed warheads are those loaded on delivery vehicles. Operational includes deployed and weapons on bases with operational delivery vehicles (bomber weapons mainly). Active includes all warheads that are fully intact with all limited life components installed, including intact weapons in the reserve. Inactive weapons in contrast include warheads that have had their limited life components removed.’ I want to thank one of the external reviewers for providing the above explanation.

the US had about ‘8,000 warheads in *active stockpile*’.⁴ The then undersecretary of defence for policy Douglas Feith, informed the Senate Armed Forces Committee on February 14, 2002 that the US had about 6,000 ‘*operationally deployed warheads*’ [emphasis added].⁵ The *Bulletin of Atomic Scientists* (BAS) states that as of January 2010, the US had 2,468 *operational* warheads.⁶ In the light of the above and the DoD Fact Sheet number, it can be surmised that there has been a reduction of about 2900-3500 *active/operational* warheads in US arsenal during the decade.

The Fact Sheet however indicates that as the numbers went down further, the pace of warheads reductions has slackened. Between 1994 and 2003, the total number of US warheads hovered around the 10,000 mark. The number came down to 5709 in 2007 (a reduction of 4300 in four years) and has since come down to 5113 (a reduction of 600 in three years) in September 2009.⁷ The Fact Sheet also notes that from 1994 till September 2009, the US had dismantled 8748 weapons.

The reduction in numbers of warheads from 1989 to 2009 - from 22,217 to 5113 - is noteworthy. However, it is pertinent to note that the major reduction numbering 12190, took place between 1989-2003 and 4914 from 2003-2009. Reductions post-2003 included the de-activation of SDVs like the Peacekeeper ICBM and its complement of 500 warheads and the conversion of 4 Ohio-class SSBNs to SSGNs and their complement of about 800 warheads.

⁴ ‘US Nuclear Posture Review 2002’, p. 32. Portions of the report available at http://www.fas.org/blog/ssp/united_states/NPR2001re.pdf (accessed August 8, 2011).

⁵ Cited in Kurt Guthe, ‘The Nuclear Posture Review: How is the New Triad New?’, Centre for Strategic and Budgetary Assessments, 2002, at http://www.bits.de/NRANEU/docs/R.20020729.Nuclear_Posture_Review.pdf (accessed August 8, 2011)

⁶ Robert S. Norris and Hans M. Kristensen, ‘US Nuclear Forces 2010’, *Bulletin of Atomic Scientists*, May/June 2010, pp. 57-71, at <http://www.thebulletin.org/files/066003008.pdf> (accessed August 13, 2011).

⁷ See ‘Fact Sheet: Increasing Transparency in the US Nuclear Weapons Stockpile’

Strategic Delivery Vehicles (SDVs)

The 1991 START I treaty – which expired in December 2009, limited the number of SDVs (which include bombers, ICBMs and SLBMs) to 1600. The US indicated in the 2010 NPR that it had about 1200 SDVs out of which ‘fewer than 900 are associated with deployed strategic nuclear weapons’.⁸ The New START meanwhile limits the total number of deployed and non-deployed SDVs to 800.

It is pertinent to note that the only nuclear weapon system/SDV that was completely taken off active duty by the US during the previous decade was the Peacekeeper MIRVed ICBM – all 50 of which were de-activated between 2003 and 2005 under the terms of the 2002 Strategic Offensive Reductions Treaty (SORT/ Moscow Treaty). The ICBM was initially to have been withdrawn from service by 2003 under the terms of START II. This was however derailed following the US withdrawal from ABM Treaty in December 2001 and the subsequent Russian rejection of START II.

The only land-based US ICBM still in service is the Minuteman, about 450 of which are in service as per the 2010 NPR. Some of the 500-odd W87 nuclear warheads of the Peacekeeper (each Peacekeeper can carry up to 10 Re-entry Vehicles/RV’s) are intended to be used along with the Minuteman.⁹ The Pentagon had indicated in the aftermath of 2002 NPR that apart from the four SSBN’s and the 50 Peacekeeper ICBM’s, “18 B-52H bombers will be retired during the next few years. These reductions will leave a

⁸ See ‘Nuclear Posture Review Report’, April 2010, at <http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf>, p. 21 (accessed August 11, 2011).

⁹ See ‘LGM-118A Peacekeeper’, at <http://www.globalsecurity.org/wmd/systems/lgm-118.htm> (accessed August 12, 2011); See also Joshua Edwards, ‘Peacekeeper Missile Mission Ends during Ceremony’, September 19, 2005, at <http://www.af.mil/news/story.asp?storyID=123011845> (accessed August 12, 2011).

force structure of 14 Trident SSBNs (each capable of carrying 24 D-5 SLBMs), 500 silo-based Minuteman III ICBMs, 76 B-52H bombers with cruise missiles or gravity bombs, and 21 B-2 bombers with gravity bombs”.¹⁰ The 2010 NPR indicates that the US has “450 silo-based Minuteman III ICBM’s, each with one to three warheads’ and ‘76 B-52H bombers and 18 B-2 bombers that can be equipped with nuclear weapons”.¹¹

Therefore, there has been a reduction in the SDVs of 4 SSBNs, 50 Peacekeeper ICBMs, 50 Minuteman ICBMs (the difference between the figure NPR 2002 indicated will be achieved in 2010 (500) to that stated in NPR 2010 (450), 18 B-52H bombers and 3 B-2 bombers in 8 years. The 2010 NPR envisions a reduction in the current Trident fleet of 14 SSBNs to 12 after 2015.¹²

Pursuing Non-Nuclear Roles for SDVs

Prompt Global Strike

Faced with the task of responding to threats which gained policy significance in the aftermath of 9/11, new types of conventional weaponry was sought to be developed and innovative changes were carried out in existing nuclear weapons platforms to cater to the new security imperatives. These changes to a certain extent indicate the transformative pressures that were brought to bear on the nuclear weapons complex.

A prominent effort has been the Prompt Global Strike (PGS), which envisages the use of long-range missiles, primarily inter-continental ballistic missiles (ICBM’s), tipped with conventional warheads to strike high-value ‘time-sensitive targets’ as the incoming defence secretary Leon Panetta told the US Senate Armed Services

¹⁰ Cited in Guthe, ‘Nuclear Posture Review: How is the New Triad New?’ p. 20.

¹¹ ‘Nuclear Posture Review Report, 2010’, pp. 23, 24.

¹² ‘Nuclear Posture Review Report, 2010’, p. 22.

Committee in June 2011.¹³ The importance of such a weapons system was stressed by armed forces personnel like Gen. James Cartwright, the Vice-Chairman of the Joint Chiefs of Staff and formerly Commander-in-Chief of US Strategic Command who affirmed in March 2010 that ‘deterrence can no longer just be nuclear weapons. It has to be broader’.¹⁴ A similar logic was advanced by former US defence secretaries Harold Brown and James Schlesinger in 2006 while advocating the employment of submarine-launched conventional long-range missiles to tackle potential threats posed by terrorists. They wrote that ‘in a world in which terrorist groups may have access to nuclear weapons, it is imperative to give future US presidents more options to prevent nuclear attacks’.¹⁵

The PGS though generated concerns that included the imponderables associated with the introduction of new types of weapons systems, problems associated with cost (\$10 billion according to one estimate), and offering assurances to Russia or other nuclear weapon states that these ICBMs did not carry a nuclear warhead.¹⁶ A US navy programme to modify the Trident SLBMs for carrying out conventional roles was abandoned in 2008 due to the difficulties distinguishing between a nuclear-armed and a non-nuclear-armed Trident. Other concerns apart from potential nuclear ambiguity associated with the programme include the problem of defining: what constitutes ‘actionable intelligence’ for the president to order such a strike; about crisis stability if regional nuclear powers ‘conventionalise their nuclear missiles’; the possibility of

¹³ Dave Majumdar, ‘Panetta Backs Prompt Global Strike Capability’, June 14, 2011, at <http://www.defensenews.com/story.php?i=6816900> (accessed August 10, 2011).

¹⁴ Craig Whitlock, ‘US Looks to Non-nuclear Weapons to Use as Deterrent’, *Washington Post*, April 8, 2010, at <http://www.washingtonpost.com/wp-dyn/content/article/2010/04/07/AR2010040704920.html> (accessed August 10, 2011).

¹⁵ Harold Brown and James Schlesinger, ‘A Missile Strike Option We Need’, May 22, 2006, at <http://www.washingtonpost.com/wp-dyn/content/article/2006/05/21/AR2006052101180.html> (accessed February 17, 2012).

¹⁶ See n. 14.

undermining the global regime for curbing the proliferation of ballistic missiles; and ‘jeopardising the prospects of deep cuts in the US and Russian nuclear arsenals’, among others.¹⁷

The Pentagon informed the US Congress in February 2011 that instead of conventionally armed ICBMs or SLBMs, it would develop ‘boost-glide’ systems whose ‘basing, launch signature, and flight trajectory are distinctly different from that of any deployed nuclear-armed US strategic ballistic missile’.¹⁸ The test-flight on August 11, 2011, of one such system - the Falcon Hypersonic Technology Vehicle (FHTV) - which is an unmanned aircraft capable of reaching speeds over 13,000 miles per hour in the atmosphere and the ability to reach targets anywhere in the world within 60 minutes – conducted by the Defence Advanced Research Projects Agency (DARPA, however failed.

It is pertinent to note that one of the justifications advanced by US officials pitching for the PGS was that ‘non-nuclear strike forces ... have the potential, if fully exploited, fully developed, to reduce our dependency on nuclear forces for the offensive-strike leg’.¹⁹ Given that the Pentagon has given up on conventionally-armed ICBMs/SLBMs to carry out such missions, and alternative systems like FHTV are still in development stages, the promise of PGS to reduce US dependence on its nuclear arsenal to tackle threats posed

¹⁷ See Austin Long, Dinshaw Mistry, Bruce M. Sugden, ‘Correspondence: Going Nowhere Fast: Assessing Concerns about Long-Range Conventional Ballistic Missiles’, *International Security*, 34(4), Spring 2010, pp. 166-184. See also Bruce M. Sugden, ‘Speed Kills: Analyzing the Deployment of Conventional Ballistic Missiles’, *International Security*, 34(1), Summer 2009, pp. 113-146.

¹⁸ Tom Z. Collina, ‘US Alters Non-Nuclear Prompt-Strike Plan’, *Arms Control Today*, April 2011, at http://www.armscontrol.org/act/2011_04/PromptStrike (accessed August 10, 2011)

¹⁹ J.D. Crouch, ‘Special Briefing on the Nuclear Posture Review’, January 9, 2002. Cited in Sugden, ‘Speed Kills: Analyzing the Deployment of Conventional Ballistic Missiles’, p. 120.

by catastrophic terrorism are still far from being fulfilled. Funding for such a system was in fact cut by \$25 million in the 2012 budget.²⁰

The unilateral deployment of such weapons systems has also been open to various interpretations in the context of New START. The White House insists that ‘the Treaty [New START] does not contain any constraints on testing, development or deployment of current or planned US missile defence programs or current or planned United States long-range conventional strike capabilities’.²¹ Reports however indicate that Russia does not hold quite this view. Russia’s resolution on ratification of New START states that issues relating to deployment of any new systems like PGS should be tackled within the framework of the treaty’s Bilateral Consultative Commission (BCC) before decisions are taken to deploy such systems.²²

Ohio Conversions

A significant example of nuclear weapon platforms being transformed to perform non-strategic roles was the conversion of four Ohio-class ballistic missile submarines (SSBNs) to carry SSGNs and Special Forces (SF) personnel. A total of 18 Ohio-class submarines were commissioned between 1981 and 1997. The policy decision to convert the four submarines initially flowed out of the 1994 NPR which recommended that 14 SSBNs were enough for US strategic needs.²³ This in turn was co-terminus with the levels agreed to in the 1993 START II treaty which mandated a limit of 14 SSBNs for each country.

²⁰ Elaine M. Grossman, ‘Pentagon’s Conventional Prompt-Strike Effort Takes 2012 Funding Hit’, December 23, 2011, at <http://www.nti.org/gsn/article/pentagons-conventional-prompt-strike-effort-takes-2012-funding-hit/> (accessed March 16, 2012).

²¹ The White House, ‘Key Facts about the New START Treaty’, March 26, 2010, at <http://www.whitehouse.gov/the-press-office/key-facts-about-new-start-treaty> (accessed August 10, 2011).

²² Collina, ‘US Alters Non-Nuclear Prompt-Strike Plan’.

²³ ‘US Navy Fact Sheet: Guided Missile Submarines – SSGN’, at http://www.navy.mil/navydata/fact_display.asp?cid=4100&tid=300&ct=4 (accessed March 15, 2012).

Instead of de-commissioning the four submarines therefore, it was felt that it would make greater strategic sense to make use of the remaining 20 years of operational life of these submarines.²⁴ The move also made greater strategic sense in the aftermath of 9/11. The programme to modify them to carry cruise missiles and Sea, Air and Land (SEAL) teams eventually began in November 2002. The first modified submarine joined active operations in 2007. The conversions were carried out at an estimated cost of \$4 billion, - over 60 per cent higher than the initial estimates.²⁵

Each submarine could initially carry 24 D5 Trident II SLBMs with eight multiple-independently targetable vehicles (MIRVs). The modifications resulted in 22 of the submarine's missile tubes being made capable of carrying 7 Tomahawk missiles each (for a total of 154) and the remaining two tubes were modified to carry Advanced SEAL Delivery Systems (ASDS).²⁶ Due to developmental problems encountered with ASDS, the older generation SDVs continue to be in use. Each submarine can carry between 66-100 SF personnel. US officials described the platform as 'base at sea for special operations forces'.²⁷

Conventional 'Bunker-Busters'

A June 1998 report of the Defence Science Board Task Force pointed out that over 10,000 underground facilities (UGFs) were present in about 70 countries. The 2002 NPR citing this report stated that the Defence Intelligence Agency had concluded that

²⁴ See Ronald O'Rourke, 'Navy Trident Submarine Conversion (SSGN) Program: Background and Issues for Congress', May 22, 2008, at <http://www.fas.org/sgp/crs/weapons/RS21007.pdf> (accessed March 15, 2012).

²⁵ Ibid.

²⁶ 'SSBN/SSGN Ohio Class, United States of America', at <http://www.naval-technology.com/projects/ohio/> (accessed March 15, 2012).

²⁷ 'New Secret US Submarine Conversions Now Revealed', February 16, 2008, at <http://www.worldnavalships.com/forums/showthread.php?t=1035> (accessed March 15, 2012).

close to 1400 of these UGFs were ‘suspected strategic sites’. It went on to note that the ‘United States lacks adequate means to deal with these strategic facilities’.²⁸

Continuing US policy concerns regarding UGFs are evident in the Annual Threat Assessments of the Director of the US Defence Intelligence Agency (DIA) before the US Senate. In 2011 for instance, DIA Director Ronald Burgess identifying UGFs as a ‘trans-national threat’ noted that ‘dozens of heavily fortified, deep underground facilities are under construction to support command and control, nuclear, and ballistic missile operations. They will reduce the US government’s ability to monitor activities, in addition to greatly improving survivability’.²⁹ In the 2012 Assessment, Burgess identifies the ‘basing of ballistic and cruise missiles and other systems designed for anti-access/area denial weapons directly within UGFs’ as a ‘significant trend of concern’.³⁰

Conventional as well as nuclear instruments were developed to more effectively deal with the challenges posed by UGFs. An example of the former is the Massive Ordnance Penetrator (MOP) while an example of the latter is the RNEP. It is pertinent to note that the project to develop conventional bunker-busters in fact got a boost after funding for the nuclear bunker-buster – the RNEP which was started in 2002, - was eventually curtailed in 2006 (See section on RNEP below).

The US Air Force meanwhile has contracted to buy 20 of the 30,000 lb MOP, also known as the GBU-57A/B. Eight of these were ordered in August 2011 after a decade of development, each costing

²⁸ ‘US Nuclear Posture Review 2002’, p. 46.

²⁹ See ‘World-wide Threat Assessment’, Statement before the Committee on Armed Services, United States Senate, Ronald L. Burgess, Jr. Lieutenant General, US Army, Director, Defence Intelligence Agency, March 10, 2011, at <http://www.dia.mil/public-affairs/testimonies/2011-03-10.html> (accessed April 2, 2012)

³⁰ See ‘Annual Threat Assessment’, Statement before the Senate Armed Services Committee, United States Senate, February 16, 2012, <http://www.dia.mil/public-affairs/testimonies/2012-02-16.html> (accessed April 2, 2012)

about \$3.5 million.³¹ The utility of such ‘bunker-busters’ has gained relevance in the context of the on-going debate over possible bombing of Iran’s nuclear facilities. Reports in January 2012 noted that the Pentagon was seeking an additional \$80 million in funding to increase the potency of the MOP and make them effective against Iran’s UGFs in case they are required to be used.³²

Reduced Missions and Roles

Prominent among US efforts to reduce its nuclear missions and roles include the reduction, by almost half, of US nuclear weapons (primarily non-strategic/tactical) based in Europe. At the start of the Bush administration, the US had about 500 nuclear weapons in Europe. Analysts note that currently about 150-200 US nuclear weapons (B-61 gravity bombs) are deployed at six bases in five NATO countries – Belgium, Germany, Netherlands, Italy, Turkey, with the majority of them being in Italy and Turkey.³³

During this decade, US nuclear weapons have been completely removed from Greece (2001) and England (2008) and from one of two bases in Germany where US nuclear weapons were stored.³⁴

³¹ ‘Biggest Bunker Buster Ever is in Production’, August 8, 2011, at <http://www.strategypage.com/htmw/htweap/articles/20110808.aspx> (accessed August 9, 2011); See also ‘US Advances Deployment of “Bunker Buster” Bomb’, Voice of America, October 12, 2009, at <http://www.defencetalk.com/us-advances-deployment-of-bunker-buster-bomb-22512/> (accessed August 9, 2011).

³² Adam Entous and Julian E. Barnes, ‘Pentagon Seeks Mightier Bomb vs. Iran’, January 28, 2012, at <http://online.wsj.com/article/SB10001424052970203363504577187420287098692.html> (accessed March 15, 2012).

³³ Robert S. Norris and Hans M. Kristensen, ‘US Tactical Nuclear Weapons in Europe, 2011’, *Bulletin of Atomic Scientists*, pp. 64-73, at <http://www.nonukes.nl/media/files/2010-12-bas-us-tactical-nukes-in-europe-2011.pdf> (accessed March 15, 2012).

³⁴ Hans M. Kristensen, ‘United States Removes Nuclear Weapons From German Base, Documents Indicate’, July 9, 2007, at http://www.fas.org/blog/ssp/2007/07/united_states_removes_nuclear.php (accessed March 14, 2012); Idem, ‘US Nuclear Weapons Withdrawn from the United Kingdom’, June 26, 2008, at <http://www.fas.org/blog/ssp/2008/06/us-nuclear-weapons-withdrawn-from-the-united-kingdom.php> (accessed March 14, 2012).

These reductions also gel with the overall significant reductions in the inventory of US tactical nuclear weapons. The May 2010 DoD Fact Sheet as well the official of the DoD who released it pointed out that there was a '90 per cent reduction in non-strategic nuclear weapons from September 1991 to September 2009'.³⁵

There is increasing scope for more significant reductions as well as for the consolidation of US nuclear assets in fewer sites in Europe in the near future. A USAF study in February 2008, for instance, found that security at some of the sites where these weapons are stored do not measure up to 'DoD standards'.³⁶ Policy directions as contained in documents like the November 2010 NATO Strategic Concept as well as recent US nuclear weapons policy reviews also indicate further reductions in the US nuclear mission in Europe. The 2010 NPR envisages the elimination of the Tomahawk 'nuclear-equipped, sea-launched cruise missile'.³⁷ Over half of the entire stock of about 320 such missiles – though retired – was intended for possible use in NATO missions.³⁸

The 2010 NPR pledges to, "work with NATO Allies on a new Strategic Concept that supports Alliance cohesion and sustains effective extended deterrence ..."³⁹ Given that such effective, extended deterrence does not require the stationing of US nuclear assets in Europe, a reduced reliance on US nuclear weapons based in Europe seems inevitable. The November 2010 NATO document, a successor to the 1999 Strategic Concept, while asserting that "as long as nuclear weapons exist, NATO will remain a nuclear

³⁵ See 'DOD Background Briefing with Senior Defence Official from the Pentagon', May 3, 2010.

³⁶ Hans M. Kristensen, 'USAF Report: "Most" Nuclear Weapon Sites in Europe Do Not Meet US Security Requirements', June 19, 2008, at <http://www.fas.org/blog/ssp/2008/06/usaf-report-%e2%80%9cmost%e2%80%9d-nuclear-weapon-sites-in-europe-do-not-meet-us-security-requirements.php> (accessed March 14, 2012).

³⁷ 'Nuclear Posture Review Report', April 2010, p. 46.

³⁸ See n. 33, p. 71.

³⁹ 'Nuclear Posture Review Report', April 2010, p. 46.

alliance’ stresses that deterrence will be ‘based on an appropriate mix of nuclear and conventional capabilities’.⁴⁰

NATO countries have also been urging US and Russia to undertake greater confidence-building measures with regard to non-strategic nuclear weapons. Ten NATO countries in April 2011 for instance urged both the countries to be more transparent in their policies regarding these weapons as well as on “numbers, types, locations, command arrangements, operational status, and level of storage security”. They contended that such measures were “crucial to paving the way for concrete reductions”.⁴¹ These NATO countries have also expressed support for – as did the 2010 NATO Strategic Concept – reciprocal reductions between US and Russia. Analysts note that such a stance runs the risk of complicating the process of further reductions of nuclear weapons from European soil.⁴²

⁴⁰ See ‘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’, November 19, 2010, at http://www.nato.int/cps/en/natolive/official_texts_68580.htm (accessed March 16, 2012).

⁴¹ See Hans M. Kristensen, ‘10 NATO Countries Want More Transparency for Non-Strategic Nuclear Weapons’, April 4, 2011, at <http://www.fas.org/blog/ssp/2011/04/natoproposal.php> (accessed March 16, 2012); See also ‘Non-Paper submitted by Poland, Norway, Germany and Netherlands on Increasing Transparency and Confidence with Regard to Tactical Nuclear Weapons in Europe’, April 14, 2011, at <http://www.fas.org/programs/ssp/nukes/nuclearweapons/nato-nonpaper041411.pdf> (accessed March 16, 2012); See also Mustafa Kibaroglu, ‘Reassessing the Role of US Nuclear Weapons in Turkey’, June 2010, at http://www.armscontrol.org/act/2010_06/Kibaroglu (accessed March 16, 2012).

⁴² See n. 33, p. 72.

III - Increased Salience of the US Nuclear Arsenal

Nuclear Policy Pronouncements: Reinforcing Deterrence, Prescribing Innovation

The US national strategy and nuclear policy documents in the aftermath of 9/11 clearly reinforce the importance of nuclear deterrence in US grand strategy as well in ensuring US security while dealing with the new threats emanating from a combination of proliferation and terrorism. The policy prescriptions in these documents no doubt build on previous policy iterations like those contained in the 1994 NPR and the 1997 Presidential Decision Directive 60 (PDD 60) which detail the role of US nuclear weapons against regional threat scenarios involving WMD proliferators and terrorist use of WMD. The PDD 60 for instance explicitly allowed for nuclear weapons use against ‘rogue’ states.⁴³

The 2002 NPR built on the premises of the above such documents when it asserted that “US military forces themselves, including nuclear forces will now be used to dissuade adversaries from undertaking military programs or operations that could threaten US interests or those of allies and friends”.⁴⁴ Pointing out the deficiencies in US nuclear arsenal which included “moderate delivery accuracy, limited earth-penetrator capability, high-yield warheads ... limited retargeting capability”, it urged that ‘new capabilities must be developed to defeat emerging threats ...’⁴⁵

⁴³ I want to thank the external reviewer for pointing this out. See Hans M. Kristensen, ‘Nuclear Futures: Proliferation of Weapons of Mass Destruction and US Nuclear Strategy,’ *BASIC Research Report*, March 1998, at <http://www.nukestrat.com/pubs/nfuture2.pdf> (accessed November 10, 2011); See also Idem, ‘US strategic war planning after 9/11’, *Non-Proliferation Review*, Vol. 14, No. 2, July 2007, at <http://cns.miis.edu/npr/pdfs/142kristensen.pdf> (accessed November 10, 2011)

⁴⁴ ‘US Nuclear Posture Review 2002’, p. 9.

⁴⁵ ‘US Nuclear Posture Review 2002’, p. 46.

Consequently, 2002 NPR envisaged a new ‘triad’ of nuclear weapons infrastructure (in contrast to the ‘original’ triad of land-sea-air-based delivery systems and warheads) which included non-nuclear and nuclear offensive missile forces; missile defences; and responsive national security infrastructure. The aim of the new triad was to *assure* allies; *dissuade* adversaries; *deter* coercion against US or its allies; and decisively *defeat* an enemy.⁴⁶ The Bush administration affirmed that the new policy would limit the role of nuclear weapons in US security strategy, in view of the importance assigned to missile defences as well as non-nuclear missile forces in enforcing deterrence.

‘Rogue’ states with WMD programmes were a special cause for concern for US policy makers in the aftermath of 9/11. The 2002 NPR specifically identified North Korea, Iraq, Iran, Syria, and Libya as countries that ‘sponsor or harbour terrorists and all have active WMD and missile programs’.⁴⁷ Supporting a muscular counter-proliferation, the 2002 National Security Strategy (NSS) affirmed that the US “must be prepared to stop rogue states and their terrorist clients before they are able to threaten or use weapons of mass destruction against the United States and our allies and friends”.⁴⁸ The 2003 Proliferation Security Initiative (PSI) which envisaged intercepting suspicious merchandise at sea was an important offshoot of such policy reasoning. Apart from giving primacy to counter-proliferation, the December 2002 National Strategy to Combat Weapons of Mass Destruction advocated strengthened non-proliferation efforts and Consequence Management (CM) to respond to WMD use. Health service support, de-contamination activities, and logistics are all part of CM.⁴⁹

⁴⁶ ‘US Nuclear Posture Review 2002’, pp. 12-14.

⁴⁷ ‘US Nuclear Posture Review 2002’, p. 16.

⁴⁸ See ‘The National Security Strategy of the United States of America’, September 2002, at <http://www.globalsecurity.org/military/library/policy/national/nss-020920.pdf> (accessed August 8, 2011).

⁴⁹ The document is available at <http://www.state.gov/documents/organization/16092.pdf> (Accessed August 8, 2011).

Counter-proliferation efforts like the PSI are illustrative of US efforts to expand the nature of instruments available to tackle WMD concerns. However, despite such efforts, coupled with the explicit policy focus in documents like the 2002 NPR to reduce the role of US nuclear weapons in US strategy, they did not have their intended effect as subsequent paragraphs demonstrate. This was primarily due to continued privileging of US nuclear weapons not just to deter Russia and China but also ‘rogue states’ pursuing WMD programmes.

The 2006 US National Strategy for Combating Terrorism carried forward the policy innovations for dealing with WMD terrorism and included four priorities of action for the short-term – preventing attacks by terrorist networks; deny WMDs to rogue states and terrorist allies who seek to use them; deny terrorists the support and sanctuary of rogue states; and deny terrorists control of any nation they would use as a base and launching pad for terror. The long-term objectives included promoting international coalitions and partnerships, enhancing inter-agency collaboration among other prescriptions.⁵⁰ The February 2006 National Military Strategy to Combat Weapons of Mass Destruction listed out the military strategic objectives which included defeat, deny, deter, defend, dissuade potential adversaries; emphasised the imperative of developing strategic enablers like intelligence; and focussed on eight mission areas where capabilities and resources were needed to be developed. These included: offensive operations, active and passive defences, security cooperation and threat reduction cooperation, among others.⁵¹

Policy pronouncements by key US officials like the then National Security Advisor Stephen Hadley reinforced the value of nuclear

⁵⁰ See ‘National Strategy for Combating Terrorism’, September 2006, at <http://www.cbsnews.com/htdocs/pdf/NSCT0906.pdf> (accessed August 8, 2011).

⁵¹ The report is available at <http://www.defense.gov/pdf/NMS-CWMD2006.pdf> (accessed August 9, 2011), p. 8.

deterrence for responding to WMD use, even by non-state actors. Hadley in a speech at Stanford University in February 2008 asserted that the US: “reserves the right to respond with overwhelming force to the use of weapons of mass destruction against the United States, our people, our forces and our friends and allies”.⁵²

Apart from national strategy and nuclear policy documents and policy pronouncements by key officials, reviews of US nuclear weapons infrastructure by the individual services reinforced the value of nuclear deterrence. A US Air Force Nuclear Task Force in an October 2008 report stated that “the strategic deterrence provided by US nuclear enterprise is vital in preventing the proliferation of WMD by our allies and its use by our adversaries”.⁵³ The September 2008 Report of the Defence Science Board Task Force on ‘Nuclear Deterrence Skills’ categorised nuclear proliferation and nuclear terrorism as “near-term threats requiring high-priority responses” even as it recognised that “deterrence of major power nuclear threats and the prospects of global war have receded in national priority”. It goes on to note the “national nuclear weapons consensus” that “the United States should not renounce its nuclear weapons while other countries have them, [and] that America’s nuclear weapons should be as safe and secure as possible”.⁵⁴

The September 2008 Department of Defence-Energy document ‘*National Security and Nuclear Weapons in 21st Century*’ asserts “even as they are reduced in numbers (and ‘although not suited for every

⁵² See ‘Remarks by the National Security Advisor, Stephen Hadley, to the Centre for International Security and Cooperation’, Stanford University, February 11, 2008, at <http://georgewbush-whitehouse.archives.gov/news/releases/2008/02/20080211-6.html> (accessed August 16, 2011).

⁵³ See ‘Re-energizing the Air Force Nuclear Enterprise’, p. 18, at www.fas.org/irp/doddir/usaf/nuclear.pdf (Accessed August 10 2011)

⁵⁴ The report is available at <http://www.defense.gov/npr/docs/DSB%20Nuclear%20Deterrence%20Skills%20Chiles.pdf>, p. 12, (accessed August 8, 2011).

21st century challenge” as another part of the document admits), nuclear weapons remain an essential and enduring element of this new strategic triad [as enunciated in NPR 2002], and underpin in a fundamental way these new capabilities’. It states that “nuclear forces continue to represent the ultimate deterrent capability that supports US national security. ... The ability to deter certain threats rests ultimately and fundamentally on the availability and continued effectiveness of US nuclear forces”.⁵⁵ The May 2009 report of the Congressional Commission on the Strategic Posture of the United States asserts that “preventing nuclear terrorism is closely tied to preventing the proliferation of nuclear weapons” and calls for “maintaining an appropriately effective nuclear deterrent force”.⁵⁶

The February 2010 *Quadrennial Defence Review* asserts that “until such time as the [Obama] administration’s goal of a world free of nuclear weapons is achieved, nuclear capabilities will be maintained as a core mission for the Department of Defence”.⁵⁷ The Obama administration’s April 2010 NPR – which was held up by administration officials as being tailored to take forward Obama’s disarmament vision, also asserts – as did Obama himself at Prague in April 2009, that “as long as nuclear weapons exist, the United States will sustain safe, secure, and effective nuclear forces”.⁵⁸ The document goes on to state that:

“...there remains a narrow range of contingencies in which US nuclear weapons may still play a role in deterring a conventional or

⁵⁵ The document is available at www.defense.gov/news/nuclearweaponspolicy.pdf, p. 1, (accessed August 11, 2011).

⁵⁶ See ‘America’s Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States’, May 2009, p. x, at http://media.usip.org/reports/strat_posture_report.pdf (accessed August 15, 2011).

⁵⁷ See ‘Quadrennial Defence Review Report’, February 2010, p. 14, at <http://www.defense.gov/qdr/qdr%20as%20of%2029jan10%201600.PDF> (accessed August 15, 2011).

⁵⁸ See ‘Nuclear Posture Review Report’, April 2010, p. 6, at <http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf> (accessed August 11, 2011).

CBW attack against the United States or its allies and partners. The United States is therefore not prepared at the present time to adopt a universal policy that the “sole purpose” of US nuclear weapons is to deter nuclear attack on the United States and our allies and partners, but will work to establish conditions under which such a policy could be safely adopted.⁵⁹

Qualitative Improvement of Warheads and SDVs

Under the terms of the 2011 New Strategic Arms Reduction Treaty (New START), the total number of deployed warheads is limited to 1550, with the figures to be achieved 7 years after the treaty enters into force i.e., by 2018. New START in Article V however does not prevent the “modernisation or replacement of strategic offensive arms”.⁶⁰ While the 2010 NPR asserts that the US, “will not develop new nuclear warheads”, Life Extension Programmes (LEP) will be used to improve the quality and lifetime of current submarine (W-76) and ICBM warheads (W-78) in the US inventory.⁶¹

The Obama administration has pledged a \$85 billion modernisation budget during the current decade. Almost \$5 billion is slated to be spent for warhead modernisation (LEP) during 2011-2016.⁶² The warheads which will be modernised include primarily the B-61 (gravity bomb), W76 (Trident SLBM’s), and W78 (Minuteman ICBM). The LEP’s will ensure that these warheads remain robust for another three decades. Other pertinent efforts to improve the quality of US arsenal have included measures like the Reliable Replacement Warhead (RRW) initiated in May 2005 and which ended in 2010. (See later section for discussion on the issue)

⁵⁹ Ibid, p. 16.

⁶⁰ Text of the Treaty available at <http://www.state.gov/documents/organization/140035.pdf> (accessed August 13, 2011)

⁶¹ ‘Nuclear Posture Review Report; April 2010, p. 39.

⁶² Hans M. Kristensen, ‘The Nuclear Weapons Modernization Budget’, February 17, 2011, at <http://www.fas.org/blog/ssp/2011/02/nuclearbudget.php> (accessed March 17, 2012).

The Obama administration informed the US Senate after the signing of New START in April 2010 that:

...during the ten-year duration of New START, the triad of ICBMs, SLBMs, and nuclear-capable heavy bombers will be maintained, keeping all 14 Ohio-class strategic submarines (SSBNs) in the force at least for the near term and “de-MIRVing” all Minuteman III ICBMs to a single warhead each to increase stability in a crisis. The FY 2011 budget request includes funds to sustain the Triad, including: continuing the Minuteman III life extension program; developing new technologies to replace the current fleet of Ohio-class SSBNs, which begin to retire in the 2027 timeframe; and investing over \$1 billion over the next five years to support upgrades to the B-2 stealth bomber.⁶³

The 2010 NPR notes that “the Secretary of Defence has directed the Navy to begin technology development of an SSBN replacement” given that “the lead times associated with designing, building, testing, and deploying new submarines are particularly long”.⁶⁴

As regards SDVs, the Minuteman fleet with improved warheads and re-entry vehicles (like Safety Enhanced RV’s) is expected to be in service till about 2030 while the Pentagon will begin the “initial study of alternatives in 2011-12” according to 2010 NPR. There would be no reduction in 76 deployed B-52H bomber fleet in the near future, as Defence Secretary Gates had indicated at the Maxwell Air Force Base on April 15, 2009 itself.⁶⁵

As against the NNSA’s budget request of \$7.6 billion for 2012, it was provided \$7.2 billion, compared with \$6.4 billion in 2011. Apart

⁶³ See ‘The New START Treaty and Protocol’, at <http://www.whitehouse.gov/blog/2010/04/08/new-start-treaty-and-protocol> (accessed August 5, 2010).

⁶⁴ ‘Nuclear Posture Review Report’, April 2010, p. 21.

⁶⁵ See ‘Remarks by Secretary of Defense Robert Gates at Maxwell Air Force Base, Alabama’, April 15, 2009, at <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4403> (accessed August 8, 2011).

from warhead modernisation and improvements to SDVs, modernising nuclear weapons productions complex is an important part of the ongoing efforts. A new plutonium production complex being built at Los Alamos at an estimated cost of about \$6 billion was given \$200 million in 2012, instead of the requested \$300 million.⁶⁶ The administration instead is prioritising the completion of the uranium processing facility (UPF) at Tennessee, being built at an estimated cost of \$6.5 billion. For FY 2013, the budgeted request for the UCF was \$340 million, \$180 million more than the budgeted amount during 2012. Over \$2 billion was the budget request for LEP during FY 2013, out of which nearly \$370 million was for the B61 gravity bomb LEP.⁶⁷

Pursuit of ‘New’ Nuclear Options

RNEP

US administrations did pursue ‘new’ nuclear options to deal with contemporary threats. A significant example of this was the Robust Nuclear Earth Penetrator (RNEP). It is pertinent to note that though while the security environment created by 9/11 was used to justify RNEP, it had been mooted before 9/11 and was part of the 2001 NPR. The justification for the programme was a mix of traditional and new adversaries, including Russia, China, and more particularly Iran and North Korea.⁶⁸ The then Director of Plans and Policy for US Strategic Command told the House Armed Services Committee in June 2002 that the RNEP “would help the military in adapting nuclear weapons and strategic forces designed for Cold War missions to support deterrence in the 21st Century.”⁶⁹

⁶⁶ See ‘Fact Sheet: US Nuclear Modernization Programs’, *Arms Control Today*, November 4, 2011, at <http://www.armscontrol.org/factsheets/USNuclearModernization> (accessed March 17, 2012).

⁶⁷ Kelsey Davenport, ‘NNSA Budget Cuts Los Alamos Facility’, *Arms Control Today*, March 2012, at http://www.armscontrol.org/act/2012_03/NNSA_Budget_Cuts_Los_Alamos_Facility (accessed March 17, 2012).

⁶⁸ I am grateful to one of the external reviewers for pointing this out.

⁶⁹ Cited in ‘US could Use Limited Nuclear Weapons in Iraq’, June 17, 2002, at <http://usgovinfo.about.com/library/weekly/aa083102a.htm> (accessed August 11, 2011).

The programme faced similar concerns as encountered by the PGS. The programme was criticised by members of the US Congress for potentially creating a new class of tactical nuclear weapons (the last new nuclear warhead that was put into service was the W88 for the Trident II SLBM introduced in 1989), the possibility of lowering the threshold for nuclear weapons use, coupled with the dangers associated with radioactive fallout following their use.⁷⁰

The Sub-Committee of the House Appropriations Committee while considering the budget request for FY 2006 in May 2005 stated that the RNEP “threatens Congressional and public support for sustainable stockpile initiatives that will actually provide long-term security and deterrent value for the Nation. ... instead of conducting an RNEP study at a DOE national laboratory, the Department of Defense will conduct a non-nuclear penetrator study ...”⁷¹ Twenty-two members of the House Armed Services Committee also noted: “We believe that conventional means of holding hard and deeply buried targets (HDBTs) at risk are inherently more credible than nuclear options and also hold greater promise of military utility if used”.⁷² Consequently, the programme was rejected and never deployed. It could not proceed beyond a \$23 million study stage.⁷³

⁷⁰ See Jonathan Medalia, “‘Bunker Busters’: Robust Nuclear Earth Penetrator Issues”, CRS Report for Congress, February 21, 2006, at <http://www.fas.org/sgp/crs/nuke/RL32347.pdf> (accessed August 9, 2011).

⁷¹ American Institute of Physics, ‘Appropriators Take Issue with Administration’s Nuclear Weapons Initiatives’, May 23, 2005, at <http://www.aip.org/fyi/2005/073.html> (accessed March 15, 2012).

⁷² Cited in American Institute of Physics, ‘House Armed Services Committee Takes New Approach to Bunker Buster’, May 26, 2005, at <http://www.aip.org/fyi/2005/078.html> (accessed March 15, 2012).

⁷³ See ‘Bunker Busting Bombs Back on US agenda’, *New Scientist*, February 12, 2005, at <http://www.newscientist.com/article/mg18524863.800-bunkerbusting-bombs-back-on-us-agenda.html> (accessed August 9, 2011); See also ‘No nuke bunker buster’, *Defence News*, October 31, 2005, p. 3.

It is pertinent to note that in the face of Congressional opposition, while US officials admitted to work related to “Advanced Concepts Technology Demonstrations (ACTD) to improve modelling capability for ground shock against deep underground targets using conventional and *nuclear* weapons”, they were careful to note that these were ‘modelling’ exercises and not weapons development programmes per se.⁷⁴ The July 2001 Report to Congress on the Defeat of Hard and Deeply Buried Targets (HDBT) submitted by the Defence Secretary and the Energy Secretary also affirmed that “there is no current programme to design a new or modified HDBT Defeat nuclear weapon. However, DoD and DoE continue to consider and assess nuclear concepts that could address the validated mission needs ...”⁷⁵

RNEP was a deliberate effort on the part of the Bush administration to pursue nuclear options to face contemporary threats. The fact that the programme was stopped does not take away from the contention being explored in this section that new nuclear options were indeed being pursued by US administrations during the period under study.

RRW

The Reliable Replacement Warhead (RRW) programme was started in May 2005 for designing new warheads. This was deemed necessary because the National Nuclear Security Administration (NNSA) as well as task forces like those of the Defence Science Board (DSB) expressed apprehensions about the ability of the LEP (under the SSP which was started in 1995) in ensuring continued confidence in the US arsenal. Under the LEP, just specific

⁷⁴ See Office of Assistant Secretary of Defence, ‘Info Memo: Background Paper on The Secretary’s Response to Rep. Tauscher’s Question on New Small Nuclear Weapons’, House Armed Services Committee, February 5, 2003, at <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB372/docs/Underground-New26.pdf> (accessed April 2, 2012).

⁷⁵ The report is available at <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB372/docs/Underground-DeeplyBuried.pdf>, p. 18 (accessed April 2, 2012).

components of warheads were modified and no new warheads were to be developed.

The DSB report for instance noted that the existing US nuclear weapons production complex was “not configured, managed or funded to meet minimum immediate stockpile sustainment needs”.⁷⁶ Considering the budget request for RRW, the House Appropriations Committee in May 2005 noted that “Congressional testimony by NNSA officials is beginning to erode the confidence of the Committee that the Science-based Stockpile Stewardship is performing as advertised”.⁷⁷ Other factors in favour of the RRW included the need to maintain US capability to produce new weapons, and the cost of maintaining existing weapons as against manufacturing new ones, among others.⁷⁸

Critics of the RRW programme however charged that it was an “extraordinary flight of imagination” to build new warheads without testing when the existing US arsenal was the product of more than a 1,000 tests since 1945.⁷⁹ In the face of such criticism, the secretaries of energy, defence and state informed the Congress in July 2007 that the RRW “is critical to sustaining long-term confidence in our deterrent capability”. They further warned that “delaying progress on RRW will force the United States to maintain

⁷⁶ See US Department of Defence, Defence Science Board, Report of the Defence Science Board Task Force on Nuclear Capabilities: Report Summary, December 2006, at <http://www.acq.osd.mil/dsb/reports/ADA459527.pdf> (accessed March 17, 2012).

⁷⁷ Cited in Jonathan Medalia, ‘The Reliable Replacement Warhead Program: Background and Current Developments’, July 27, 2009, at <http://www.fas.org/sgp/crs/nuke/RL32929.pdf> (accessed February 18, 2012), p. 20.

⁷⁸ See for instance ‘The United States Nuclear Weapons Program: The Role of the Reliable Replacement Warhead’, Nuclear Weapons Complex Assessment Committee, American Association for the Advancement of Science, April 2007, at <http://cstsp.aaas.org/files/AAAS%20RRW%20Report.pdf> (accessed February 18, 2012).

⁷⁹ Sidney E. Drell and James E. Goodby, ‘What Are Nuclear Weapons For? Recommendations for Restructuring US Strategic Nuclear Forces’, April 2005, at http://www.armscontrol.org/pdf/USNW_2005_Drell-Goodby.pdf, (accessed February 21, 2012).

a large stockpile of nuclear weapons and sustain it through increasingly costly and risky Life Extension Programs”.⁸⁰

The first RRW was scheduled to be produced by 2012. The funds for the programme were however gradually reduced in the face of Congressional opposition to the prospect of the US developing new warheads and its possible negative effect on US non-proliferation goals, among others. The programme was eventually terminated by the Obama administration in 2010.

Increase in US Nuclear Missions and Roles

Another important policy arena wherein the value of nuclear deterrence in tackling 9/11-type threats was quite evidently manifest was the changes made in US strategic war plans. It is pertinent to note that in the aftermath of 9/11, these plans for the first time included executable ‘*regional*’ nuclear counter-proliferation strike options’. This was reportedly done on the specific guidance provided by the June 2002 National Security Presidential Directive (NSPD)-14.⁸¹ The US Strategic Command was subsequently assigned the ‘Global Strike’ mission in January 2003 which was made operational in June 2004.

The mission however faced problems ranging from what it entailed (employment of long-range strategic nuclear weapons or strategic bomber deployments or conventional prompt global strike) to concerns about privileging nuclear strike options despite policy pronouncements of the Bush administration, as in the 2002 NPR, which pledged to reduce the role of nuclear weapons in US security strategy. The mission has since December 2006 been subsequently

⁸⁰ ‘National Security and Nuclear Weapons: Maintaining Deterrence in the 21st Century’, A Statement by the Secretary of Energy, Secretary of Defence and Secretary of State, July 2007, at http://www.globalsecurity.org/wmd/library/report/2007/ns-nw-21st-century_jul2007.htm (accessed February 21, 2012).

⁸¹ Hans M. Kristensen, ‘White House Guidance Led to New Nuclear Strike Plans against Proliferators, Document Shows’, http://www.fas.org/blog/ssp/2007/11/white_house_guidance_led_to_ne.php (accessed November 14, 2011).

described as part of the ‘offensive’ leg of the new triad as proposed in the 2002 NPR.⁸²

Meanwhile, the latest US nuclear targeting war plan - OPLAN 8010 Change I of February 2009 titled ‘*Strategic Deterrence and Global Strike*’ purportedly contains a ‘family of plans’ directed against six adversaries. These include China, North Korea, Iran, Russia, Syria, and a ‘9/11-type scenario’ wherein “the sixth adversary might refer to a catastrophic WMD attack by a terrorist organization in collaboration with a regional state”.⁸³

⁸² Idem, ‘STRATCOM Cancels Controversial Pre-emption Strike Plan’, July 25, 2008, at <http://www.fas.org/blog/ssp/2008/07/globalstrike.php> (accessed November 10, 2011); See also idem, ‘US strategic war planning after 9/11’, *Non-proliferation Review*, Vol. 14, No. 2, 2007, at <http://cns.miis.edu/npr/pdfs/142kristensen.pdf> (accessed November 10, 2011).

⁸³ Idem, ‘Obama and the Nuclear War Plan’, *FAS Issue Brief*, February 2010, at <http://www.fas.org/blog/ssp/2010/02/warplan.php> (accessed February 15, 2011).

IV - US Strategic Imperatives and Arms Control and Disarmament Measures

The US implemented bilateral measures like START I or entered into agreements like SORT and New START. However, its robust pursuit of such technologies like BMD in order to tackle the threats posed by ‘rogue’ states with WMD programmes – which also happen to ‘sponsor or harbour terrorists’ as the 2002 NPR pointed out, created complications for bilateral arms control initiatives ranging from the ABM Treaty to New START. START II also could not enter into force.

The US role in bringing to fruition multi-lateral arms control and disarmament measures like CTBT and FMCT has generally been negative. This was on account of its perceived strategic considerations, including concerns regarding the level of US nuclear arsenal modernisation and the possible negative effect of CTBT on such considerations. The Obama administration meanwhile has put issues like FMCT and the CTBT on the front burner, as it were, though there are many domestic and international imponderables with regard to their further progress.

Ballistic Missile Proliferation and BMD

The Bush administration unilaterally withdrew from the Anti-Ballistic Missile (ABM) treaty in December 2001. While the notice to withdraw was given 6 months prior in May as mandated by the terms of the treaty, the formal withdrawal three months after 9/11 placed its extant concerns vis-à-vis ballistic missile proliferation – captured by the 1998 Rumsfeld Commission, more starkly.⁸⁴ Bush

⁸⁴ See ‘Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States’, July 15, 1998, <http://www.fas.org/irp/threat/bm-threat.htm> (accessed September 22, 2011). I am grateful to Dr. Manpreet Sethi for bringing this aspect to my attention during my Fellows Seminar presentation.

affirmed that the ABM treaty “hinders our government’s ability to develop ways to protect our people from future terrorist or rogue-state missile attacks”.⁸⁵ Ten years on, ballistic missile defences, the nature of those defences, and areas of deployment continue to be issues of contention between the US and Russia. Senior Russian armed forces officials like the then Deputy Chief of Staff Gen. Anatoly Nogovitsin in August 2008 warned Poland that it could face a nuclear attack if it houses a US BMD system on its soil.⁸⁶

The US on its part continues to insist on the importance of BMD in its overall strategy for dealing with proliferation risks like Iran and North Korea. The February 2010 Ballistic Missile Defence Review (BMDR) – the first ever such review done by the US, asserts that “the United States will continue to defend the homeland against the threat of limited ballistic missile attack; defend against regional missile threats to US forces, while protecting allies and partners and enabling them to defend themselves”.⁸⁷ The 2009 US Strategic Posture report affirmed that “defences that are effective against regional aggressors are a valuable component of the US strategic posture”.⁸⁸

US-Russia differences on BMD threatened to jeopardise arms control initiatives like the New START. After the treaty was signed, Russia insisted that it will “be viable only if the United States of America refrains from developing its missile defence capabilities quantitatively or qualitatively”. The US on its part insisted that

⁸⁵ ‘US Withdrawal from the ABM Treaty: President Bush’s Remarks and US Diplomatic Notes’, *Arms Control Today*, January/February 2002, at <http://www.armscontrol.org/print/972> (accessed August 5, 2011).

⁸⁶ Cited in Robert S. Norris and Hans M. Kristensen, ‘Nuclear Notebook: Russian Nuclear Forces 2009’, *Bulletin of the Atomic Scientists*, May/June 2009, p. 55.

⁸⁷ See ‘Ballistic Missile Defence Review Report’, February 2010, p. 47, at <http://www.defense.gov/bmdr/docs/BMDR%20as%20of%2026JAN10%200630for%20web.pdf> (accessed August 10, 2011).

⁸⁸ ‘America’s Strategic Posture’, p. xvii.

“missile defence systems are not intended to affect the strategic balance with Russia ...”⁸⁹

President Obama informed the US Senate in February 2011 that “it is the policy of the United States to continue development and deployment of United States missile defence systems to defend against missile threats from nations such as North Korea and Iran, including qualitative and quantitative improvements to such systems”.⁹⁰ Some of the strategies being pursued include Ground-based midcourse defence (GMD) to defend the homeland, assets for point defence like the Patriot, theatre high altitude area defence (THAAD), sea-based defence with assets like Aegis, among others.

CTBT

The US Senate rejected the CTBT in October 1999, after the Clinton administration signed it in 1996, by a narrow margin of 51-48. The US had stopped nuclear weapons testing in 1992, after conducting 1054 tests. The then Republican candidate George W. Bush stated that he “supports the current US moratorium on all nuclear testing but doesn’t support the [test ban] treaty”.⁹¹ Bush asserted in an interview with *Arms Control Today* in September 2000 that the CTBT “does not stop proliferation ... is not verifiable. It is not enforceable. And it would stop us from ensuring the safety and reliability of our nation’s deterrent, should the need arise”.⁹²

⁸⁹ Cited in Amy Wolf, ‘The New START Treaty: Central Limits and Key Provisions’, April 21, 2011, p. 16, at www.fas.org/sgp/crs/nuke/R41219.pdf (accessed August 13, 2011).

⁹⁰ The White House, ‘Message from the President on the New START Treaty to the Senate of the United States’, February 2, 2011, at <http://www.whitehouse.gov/the-press-office/2011/02/02/message-president-new-start-treaty-0> (accessed August 10, 2011).

⁹¹ Daryl Kimball, ‘CTBT in Crisis: How the US Senate Rejected CTBT Ratification’, *Disarmament Diplomacy*, Issue No. 40, September - October 1999, at <http://www.acronym.org.uk/dd/dd40/index.htm> (accessed August 16, 2011).

⁹² See ‘Presidential Election Forum: The Candidates on Arms Control’, *Arms Control Today*, September 2000, at http://www.armscontrol.org/act/2000_09/pressept00, (accessed February 21, 2012).

After coming into office, such strategic reasoning became more pronounced. The Bush administration suspended financial and technical support to the CTBT on-site monitoring mechanism, boycotted efforts like the 2001, 2003, and 2005 Article XIV conferences of states parties to promote the treaty's entry into force, initiated work on a new nuclear weapons like the RNEP (though stopped later), among other measures.⁹³

Apart from scepticism about verification and enforcement mechanisms, the most pressing concerns of the Bush administration as well as for those critics not in favour of the CTBT were regarding the state of the US nuclear arsenal and perceived deficiencies in US efforts to modernise it. As pointed out earlier, the SSP was begun in 1995 to ensure the safety, security, and reliability of the US nuclear arsenal without the need to conduct underground tests. President Bill Clinton established an annual certification process in 1996 regarding the safety and reliability of the US nuclear arsenal by the departments of defence and energy.

Despite the annual certification expressing confidence in the state of the US nuclear arsenal however, various technical, organisational and systemic difficulties have continued to plague the NNSA, which was itself established in 2000 to oversee the US nuclear weapons complex. A September 2000 Audit report of the DOE pointed out that “because the nuclear weapons production infrastructure has not been adequately maintained, current and future goals of the Stockpile Stewardship Program are at risk”. Among other drawbacks, the report pointed out that DOE “has not re-established the capability to produce a certified plutonium pit” and urged an investment of \$8 billion over the next decade to fulfil SSP requirements.⁹⁴

⁹³ Daryl G. Kimball, ‘The Status of CTBT Entry into Force: The United States’, *Arms Control Today*, September 22, 2005, at http://www.armscontrol.org/events/20050921_VERTIC (accessed August 16, 2011).

⁹⁴ DOE, ‘Management of the Nuclear Weapons Production Infrastructure’, September 2000, at <http://energy.gov/sites/prod/files/igprod/documents/CalendarYear2000/ig-0484.pdf> (accessed February 18, 2012).

Linton Brooks, head of the NNSA told the Senate Armed Services Committee in April 2005 that “it is becoming more difficult and costly to certify warhead remanufacture. ... We can count on increasing uncertainty in the long-term certification of warheads in the stockpile”.⁹⁵ In order to address such concerns, the Reliable Replacement Warhead (RRW) programme was therefore started in May 2005 to design new warheads. As pointed out in previous sections, the programme could not produce any new warhead and was terminated in 2010.

Among the successes of the SSP include the successful completion of the first-ever LEP of the W87 ICBM warhead in 2004, and extending its ‘life’ by 30 years. The LEP of the B-61 gravity bomb used by the B-52H and B-2A bombers was completed a year ahead of schedule and entered into service in January 2009. The LEP of the W78 Minuteman III ICBM warhead began in 2011. The NNSA succeeded in modelling a thermo-nuclear explosion in three dimensions for the first time only in July 2009.⁹⁶ This was after a 100 trillion-operations-per-second (OPS) supercomputer was delivered to LLNL in 2005. A 20,000 trillion OPS (20 petaflop) supercomputer is scheduled to become operational in 2012. Advanced computer simulations have also been cited as playing a critical part in detecting ‘problems’ with the B-83 thermo-nuclear bomb – the first time that computers were used for finding flaws in a big nuclear weapon.⁹⁷

Apart from these successes achieved through LEP and advanced computer simulations, the NNSA continued to be plagued by

⁹⁵ Cited in Medalia, ‘The Reliable Replacement Warhead Program’, p. 5.

⁹⁶ Philip Bleek, ‘DOE Simulates Nuclear Explosion; GAO Faults Ignition Facility’, *Arms Control Today*, September 2009, at http://www.armscontrol.org/act/2000_09/doesep00 (accessed February 4, 2012).

⁹⁷ David E. Hoffman, ‘Supercomputers Offer Tools for Nuclear Testing – and Solving Nuclear Mysteries’, November 2, 2011, at http://www.washingtonpost.com/national/national-security/supercomputers-offer-tools-for-nuclear-testing—and-solving-nuclear-mysteries/2011/10/03/gIQAjnnngdM_story.html?wpisrc=nl_cuzheads (accessed November 2, 2011).

organisational and systemic problems which were pointed out by the Government Accountability Office (GAO) in various reports throughout the decade. The GAO in December 2000 for instance listed the ‘difficult set of challenges and constraints’ faced by the SSP to include ‘old’ nuclear weapons infrastructure which is ‘expensive to maintain’ coupled with limited funds (\$4.5 billion), and imbalances in the federal and contracted workforce, among others.⁹⁸ In a February 2012 report, the GAO faulted the NNSA for poor management, cost increases (\$300 million for one warhead in one instance), schedule delays in key facilities like the Uranium Processing Facility at the Y-12 National Security Complex at Tennessee (which also witnessed a seven-fold cost increase from 2004 to 2011).⁹⁹ It also expressed its concern that crucial facilities like the National Ignition Facility (NIF) which was scheduled to be ready by 2006 will not be complete till 2012.

The Director of the Lawrence Livermore National Laboratory (LLNL) George H. Miller in a testimony before the Committee on Foreign Relations of the US Senate on July 15, 2010 highlighted the budgetary problems associated with SSP:

Budget constraints to date have resulted in deferral of life-extension programs (LEPs) and slower warhead surveillance rates than is technically desired. These constraints have also delayed production schedules; postponed important deliverables in science, technology, and engineering; delayed resolution of identified stockpile issues; and hindered efforts to develop modern and efficient

⁹⁸ See GAO, ‘Improved Management Needed to Implement Stockpile Stewardship Program Effectively’, The Subcommittee on Energy and Water Development, Committee on Appropriations, House of Representatives, December 2000, at <http://www.gao.gov/assets/160/156996.pdf> (accessed February 18, 2012).

⁹⁹ GAO, ‘Observations on NNSA’s Management and Oversight of the Nuclear Security Enterprise’, Statement of Gene Aloise, Director, Natural Resources and Environment, NNSA, Testimony Before the Subcommittee on Strategic Forces, Committee on Armed Services, House of Representatives, February 16, 2012, at http://armedservices.house.gov/index.cfm/files/serve?File_id=42137ec8-62b5-42b5-8695-9430f75d4e73 (accessed February 17, 2012).

manufacturing processes. In addition, there are fewer highly skilled stockpile stewards supporting the program than were present as recently as five years ago. Our Laboratory now has 2,608 scientists and engineers—609 fewer than in May 2005. Concurrently, stewardship is becoming technically more challenging as weapons continue to age beyond their intended lifetimes.

The extent of the organisational problems was evident in the words of Miller in his testimony before the Armed Services Committee of the US House of Representatives on February 16, 2012 when he warned:

If the government continues down the path of treating the NNSA laboratories as contractors rather than trusted partners, engaging in excessive oversight, and treating the workforce as replaceable employees rather than exceptional people dedicated to public service, I wonder how much longer the national security laboratories will be able to sustain their greatness.¹⁰⁰

In the light of the technical, organisational, systemic and budgetary difficulties detailed above, the head of the NNSA Thomas D’Agostino in February 2008 admitted that “currently, if we found a major system-wide problem in the stockpile ... we have insufficient capacity for a timely response”.¹⁰¹ However, D’Agostino told *Arms Control Today* in April 2011 that “in my opinion, we have a safe and secure and reliable stockpile. There’s no need to conduct underground [nuclear] testing”.¹⁰²

¹⁰⁰ The text of the testimony available at http://armedservices.house.gov/index.cfm/files/serve?File_id=619ff080-e877-43f6-918f-66be678ef721 (accessed February 17, 2012).

¹⁰¹ Cited in ‘Facing a Long-Ignored Problem: Reviving America’s Nuclear Deterrence’, Remarks of the Honourable Jon Kyl at the George C. Marshall Annual Awards Dinner, September 15, 2008, at <http://www.marshall.org/pdf/materials/611.pdf> (accessed February 18, 2012).

¹⁰² ‘The Stockpile’s Steward: An Interview with NNSA Administrator Thomas D’Agostino’, Interviewed by Tom Z. Collina and Daniel Horner, at http://www.armscontrol.org/act/2011_04/DAgostino (accessed November 29, 2011).

The state of affairs as regards the modernisation of the US nuclear arsenal in the absence of nuclear testing was a major point of concern for opponents of CTBT, especially in the light of the continuing modernisation of the nuclear arsenal of other countries – specifically China and Russia. Republican Senator Jon Kyl – a firm critic of the CTBT – in September 2008, insisted that “as a result of decades of neglect, the nuclear weapons complex consists of buildings and equipment that ... are over-used, obsolete, and, in many cases, are simply falling down from age”.¹⁰³ In the aftermath of UNSCR 1887, which was passed with President Obama chairing the historic session in September 2009, Kyl termed Obama’s support for CTBT ratification as a ‘profound mistake’. Kyl pointed out that the “flawed, irrelevant test ban treaty” does not define exactly what kinds of nuclear tests are banned, and added that “reliability of US nuclear weapons still cannot be guaranteed without testing them”.¹⁰⁴

The May 2009 report of the Congressional Commission on the Strategic Posture of the United States despite noting that the SSP has been a ‘remarkable success’ points out that “it has generated no comparable improvements in the production complex ... [which] suffered a significant period of neglect in basic maintenance”.¹⁰⁵ The Commission urges that in the event of the US ratifying the treaty, it “must be ready to withdraw from the CTBT and resume testing if the national interest requires”.¹⁰⁶ Former key Bush administration officials continue to contend that “US ratification [of CTBT] could hinder our capability to modernize our nuclear weapons as necessary for deterrence purposes”.¹⁰⁷

¹⁰³ See n. 101.

¹⁰⁴ Jon Kyl, ‘Why We Need to Test Nuclear Weapons’, October 20, 2009, at <http://online.wsj.com/article/SB10001424052748704500604574483224117732120.html> (accessed March 7, 2010).

¹⁰⁵ See n. 56, p. 48.

¹⁰⁶ See n. 56, p. 85.

¹⁰⁷ R. James Woolsey and Keith B. Payne, ‘Reconsidering the Comprehensive Test Ban Treaty’, September 8, 2011, at <http://www.nationalreview.com/articles/276530/reconsidering-comprehensive-test-ban-treaty-r-james-woolsey?page=2> (accessed February 2, 2012).

Supporters of the treaty on their part believe that “although the CTBT severely constrains the qualitative development of nuclear weapons ...” it serves the ‘national security interests’ of the US.¹⁰⁸ Gary Samore, the White House coordinator for arms control and WMD terrorism told *Arms Control Today* in May 2011: “I think the best argument we can make for the CTBT is that it serves US national security interests by giving us one tool to help constrain the nuclear build-up in Asia”.¹⁰⁹ Prominent figures like Henry Kissinger, George Schultz, William Perry and Sam Nunn in January 2008 urged the US to “adopt a process for bringing the Comprehensive Test Ban Treaty (CTBT) into effect, which would strengthen the NPT and aid international monitoring of nuclear activities”.¹¹⁰ The four former senior US officials in an article in January 2010 however while acknowledging the problems in US nuclear arsenal as pointed out by the May 2009 Strategic Posture Commission and a JASON Study urge ‘adequate and stable funding’ and insisted that ‘maintaining high confidence in our nuclear arsenal is critical as the number of these weapons goes down’.¹¹¹

Obama on his part in the April 2009 Prague speech promised to ‘immediately and aggressively pursue US ratification of the

¹⁰⁸ See Kaegan McGrath, ‘Verifiability, Reliability, and National Security: The Case for US Ratification of the CTBT’, *Nonproliferation Review*, 16(3), November 2009, pp. 407-433, at <http://www.tandfonline.com/doi/pdf/10.1080/10736700903255102> (accessed February 16, 2012).

¹⁰⁹ Peter Crail, Daniel Horner, and Daryl G. Kimball, ‘Pursuing the Prague Agenda: An Interview with White House Coordinator Gary Samore’, *Arms Control Today*, May 2011, at http://www.armscontrol.org/act/2011_05/Samore (accessed November 22, 2011).

¹¹⁰ George P. Shultz, William J. Perry, Henry A. Kissinger and Sam Nunn, ‘Toward a Nuclear-Free World’, January 15, 2008, at http://online.wsj.com/article/SB120036422673589947.html?mod=opinion_main_commentaries (accessed July 27, 2009).

¹¹¹ Idem, ‘How to Protect our Nuclear Deterrent’, January 19, 2010, at <http://online.wsj.com/article/SB10001424052748704152804574628344282735008.html> (accessed March 17, 2012)

CTBT'.¹¹² UNSCR 1887 “calls upon all States to refrain from conducting a nuclear test explosion and to sign and ratify the Comprehensive Nuclear-Test-Ban Treaty (CTBT), thereby bringing the treaty into force at an early date”.¹¹³ The 2010 NPR affirms that “pursuing ratification and early entry into force of the Comprehensive Nuclear Test Ban Treaty (CTBT)” is one of the major goals of US policy.

After the New START ratification and its subsequent entry into force, hopes have been generated that progress could be made on CTBT ratification as well. Vice president Joseph Biden in a speech at the National Defence University in February 2010 stated: “We are confident that all reasonable concerns raised about the treaty back then – concerns about verification and the reliability of our own arsenal - have now been addressed. The test ban treaty is as important as ever”.¹¹⁴ While programmes to maintain and improve US nuclear arsenal are continuing, along with increased funding for arsenal modernisation, it remains to be seen what turn the politics will take.

FMCT

US concerns regarding the FMCT were primarily related to verifiability of the treaty. US insistence on this measure and the Bush administration’s rejection of the possibility of a verifiable FMCT hurt the treaty’s prospects. It should be noted that the Bush

¹¹² See ‘Remarks by President Barack Obama, Hradcany Square, Prague, Czech Republic’, April 5, 2009, at http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered/ (Accessed August 11, 2011).

¹¹³ See ‘Historic Summit of Security Council Pledges Support for Progress on Stalled Efforts to End Nuclear Weapons Proliferation’, September 24, 2009, at <http://www.un.org/News/Press/docs/2009/sc9746.doc.htm> (Accessed October 7, 2009).

¹¹⁴ The White House, Remarks of Vice President Biden at National Defense University, ‘The Path to Nuclear Security: Implementing the President’s Prague Agenda’, February 18, 2010, at <http://www.whitehouse.gov/the-press-office/remarks-vice-president-biden-national-defense-university> (accessed August 10, 2011).

administration in its initial years was in favour of a FMCT. The 2002 National Strategy to Combat WMD in one of its policy measures advocated “negotiating a fissile material cut-off treaty (FMCT) that advances US security interests”. The recommendation was part of the second among the three pillars that the document enunciated which included, among other measures, the strengthening of the NPT, the Nuclear Suppliers Group (NSG), the Zangger Committee, and the Missile Technology Control Regime (MTCR).

The Bush administration in July 2004 however rejected the notion of a ‘verifiable’ FMCT as ‘not achievable’. A statement by the administration noted that “effective verification of an FMCT would require an inspection regime so extensive that it could compromise key signatories’ core national security interests; and so costly, that many countries will be hesitant to accept it”.¹¹⁵

An effectively verifiable FMCT along with entry into force of the CTBT were also among ‘13 Practical Steps’ that NPT member states agreed to work for as part of their Article VI obligations to achieve nuclear disarmament at the NPT Review Conference of 2000. By the 2005 NPT RevCon however, the US expressed its inability to reaffirm its commitment to the 13 Steps, a stand that was taken by other NWS like France and Russia as well.¹¹⁶

The Obama administration meanwhile has made negotiating a ‘verifiable’ FMCT one of the cornerstones of its policy activism. In his April 2009 Prague speech, Obama stated that “the United States will seek a new treaty that *verifiably* ends the production of fissile materials intended for use in state nuclear weapons”.¹¹⁷ UN

¹¹⁵ Wade Boese, ‘Bush Shifts Fissile Material Ban Policy’, *Arms Control Today*, September 2004, at http://www.armscontrol.org/act/2004_09/FMCT (accessed August 9, 2011).

¹¹⁶ See Sharon Squassoni, ‘Grading progress on 13 steps towards disarmament’, *CEIP Policy Outlook*, April 5, 2009, at http://www.carnegieendowment.org/files/13_steps.pdf (accessed August 9, 2011).

¹¹⁷ See n. 113.

Security Council Resolution (UNSCR) 1887 of September 24, 2009 – passed under Obama’s chairmanship, called on the Conference on Disarmament (CD) urged the negotiation of FMCT ‘as soon as possible’.¹¹⁸ In the 2010 NPR, the administration stated that it would seek ‘commencement of negotiations on a *verifiable* Fissile Material Cutoff Treaty (FMCT) to halt the production of fissile material for use in nuclear weapons’.¹¹⁹

Progress on the FMCT negotiations at the CD have however been blocked for over a decade, most recently due to objections from Pakistan over India getting the Nuclear Suppliers Group (NSG) waiver in September 2008. Pakistan also took exception to US support for India’s admission to the NSG in November 2010, which it termed as an ‘irresponsible undertaking’ that “shall further destabilize security in South Asia”.¹²⁰

Pakistan’s Ambassador to the CD Zamir Akram in an interview to *Arms Control Today* in October 2011 insisted that in the aftermath of the India-US nuclear deal and India’s civilian nuclear cooperation agreements with many countries, India “will be receiving an unknown but obviously high quantity of fissile material ... its indigenous stocks, can be quite easily converted to weapons use. ... So it will give India a free hand to enhance its weapons capabilities”.¹²¹ India on its part during the bilateral nuclear confidence-building talks with Pakistan in December 2011 at

¹¹⁸ See n. 114.

¹¹⁹ ‘Nuclear Posture Review Report’, April 2010, p. 13.

¹²⁰ Cited in Peter Crail, ‘Pakistan’s Nuclear Buildup Vexes FMCT Talks’, *Arms Control Today*, March 2011, at http://www.armscontrol.org/act/2011_03/Pakistan (accessed August 16, 2011).

¹²¹ See ‘The South Asian Nuclear Balance: An Interview with Pakistani Ambassador to the CD Zamir Akram’, *Arms Control Today*, December 2011, at http://www.armscontrol.org/act/2011_12/Interview_With_Pakistani_Ambassador_to_the_CD_Zamir_Akram (accessed March 19, 2012).

Islamabad, urged it to join the FMCT negotiations. For India, lack of transparency in Pakistani nuclear policies including the absence of a public statement of its nuclear doctrine is among the areas of concern.¹²²

Meanwhile, efforts to start negotiations at an alternate forum got underway in June 2011 with US, France, Russia, and the UK leading the efforts.¹²³ Earlier in February 2011, Australia and Japan co-hosted an expert-level meeting on the issue. Pakistan and China have been opposed to these efforts and have charged that such efforts could undermine the role of the CD as the sole negotiating body. The P5 meanwhile issued a statement in Geneva in August 2011 seemingly incorporating these concerns supporting the negotiation of an FMCT 'at the earliest possible date *in the CD*'.¹²⁴

¹²² Sandeep Dikshit, 'India asks Pakistan to join FMCT talks', December 30, 2011, *The Hindu*, at <http://www.thehindu.com/news/national/article2758807.ece> (accessed March 19, 2012).

¹²³ Viola Gienger, 'Nuclear Bomb Material Cut-off Plan Pits US against Pakistan', August 3, 2011, at <http://www.bloomberg.com/news/2011-08-03/nuclear-bomb-material-cut-off-plan-pits-u-s-against-pakistan.html> (accessed August 9, 2011).

¹²⁴ Tom Z. Collina, 'P5 Struggles to Unblock FMCT Talks', *Arms Control Today*, October 2011, at http://www.armscontrol.org/act/2011_10/P5_Struggles_to_Unblock_FMCT_Talks (accessed March 19, 2012).

V - Post 2010 NPR Environment

The 2010 NPR was the first comprehensive review of US nuclear policy in the aftermath of Prague designed to take forward Obama's nuclear vision. Among the five key objectives of US nuclear weapons policy as laid out by the document 'preventing nuclear proliferation and nuclear terrorism' and 'reducing the role of US nuclear weapons in US national security strategy' occupy the top two slots. The other three objectives include 'maintaining strategic deterrence and stability at reduced nuclear force levels; strengthening regional deterrence and reassuring US allies and partners; and sustaining a safe, secure, and effective nuclear arsenal'.¹²⁵

Pointing out that the Cold War era nuclear arsenal was 'poorly suited to address the challenges posed by suicidal terrorists and unfriendly regimes seeking nuclear weapons', the 2010 NPR asserts that 'it is essential that we better align our nuclear policies and posture to our most urgent priorities – preventing nuclear terrorism and nuclear proliferation'. It goes on to note that the 'growth of unrivalled US conventional military capabilities, major improvements in missile defences, and the easing of Cold War rivalries' enable the US to protect its strategic interests at 'significantly lower nuclear force levels and with reduced reliance on nuclear weapons'.¹²⁶

Complementing the 2010 NPR, the Pentagon's Defence Strategic Guidance 'Sustaining US Global Leadership: Priorities for 21st Century Defence' was released in January 2012. The Guidance reiterates that 'it is possible that our deterrence goals can be achieved with a smaller nuclear force, which would reduce the

¹²⁵ 'Nuclear Posture Review Report', April 2010, p. iii.

¹²⁶ Ibid., p. 5.

number of nuclear weapons in our inventory as well as their role in US national security strategy'.¹²⁷

Measures to fulfil the goals of the above noted policy directives have been put in motion in the backdrop of budgetary pressures on the US economy on account of debts and deficits. The Budget Control Act passed in August 2011 for instance mandates a reduction in defence budget of \$259 billion over the next five years and \$487 billion over the next decade. Towards this end, Defence Secretary Leon Panetta while presenting the Pentagon's budget for Fiscal Year (FY) 2013 included provisions that would save \$75 billion due to cancelled or restructured programmes. Included among these measures was \$15 billion in savings till 2017 by delaying the purchase of the Joint Strike Fighter (JSF) and \$4 billion in delaying the development of the next generation of ballistic missile submarines (SSBN's) by two years 'for affordability and management reasons'.¹²⁸

Despite these cost-cutting measures, Panetta and Pentagon officials pointed out that effort to improve the potency of US strategic forces are being continued. The US Chief of Naval Operations Adm. Jonathan Greenert for instance while admitting that the two-year SSBN delay would result in a force of 10 submarines during the 2030's which "will require a high state of readiness to meet the nation's strategic deterrence needs" argued that FY2013 budget requests for SSBN maintenance and support "help maximize their operational availability".¹²⁹

¹²⁷ The text of the document is available at http://www.defense.gov/news/Defense_Strategic_Guidance.pdf (accessed February 3, 2012).

¹²⁸ See 'Secretary of Defence Leon E. Panetta Defence Budget Request, Written Submitted Statement, House Armed Services Committee', February 15, 2012, at <http://armed-services.senate.gov/statemnt/2012/02%20February/Panetta%2002-14-12.pdf> (accessed February 17, 2012).

¹²⁹ See 'Statement of Admiral Jonathan Greenert, Chief of Naval Operations, before the House Armed Services Committee on FY 2013 Department of Navy Posture', February 16, 2012, at http://armedservices.house.gov/index.cfm/files/serve?File_id=8a306a5d-ec85-47ec-b794-15a2263df64b (accessed February 17, 2012).

Among other measures, \$300 million was provided for the next generation ‘long-range, nuclear-capable, optionally manned penetrating bomber’. Over \$6 billion are slated to be spent on this project over the next five years.¹³⁰ Funds were also provided to improve the ‘defensive management system’ of the B-2 bombers, as also for ‘fuels modernization and solid-rocket motors common to both ICBMs and SLBMs and also to ‘ensure the life of the Minuteman III ICBM weapons system through 2030’, among other.¹³¹ About \$12 million have also been provided for the Analysis of Alternatives (AOA) as regards the next generation of ICBM.

Concurrently, a review of US nuclear weapons employment guidance is also underway that could set the stage for further reductions in US nuclear arsenal. Samore told *Arms Control Today* in May 2011 that the US has “reached a level in our forces where further reductions will raise questions about whether we retain the triad or whether we go to a system that only is a dyad”.¹³² Similar views were expressed by the outgoing US military chief Adm. Mike Mullen in August 2011 when he stated: “At some point in time, that triad becomes very, very expensive ... I think a decision will have to be made in terms of whether we keep the triad or drop it down to a dyad”.¹³³ The various options being reviewed include a nuclear targeting war plan (six adversaries in the current plan of which only three are nuclear weapon countries – Russia, China,

¹³⁰ See ‘Secretary of Defence Leon E. Panetta Defense Budget Request, Written Submitted Statement, House Armed Services Committee’, p. 4; See also ‘DOD News Briefing by Maj. Gen. Bolton and Marilyn Thomas from the Pentagon on the Fiscal 2013 Budget Proposal’, February 13, 2012, at <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4978> (accessed March 19, 2012).

¹³¹ See ‘Secretary of Defence Leon E. Panetta Defense Budget Request, Written Submitted Statement, House Armed Services Committee’

¹³² See n. 110.

¹³³ Cited in Hans M. Kristensen and Robert S. Norris, ‘Reviewing Nuclear Guidance: Putting Obama’s Words Into Action’, *Arms Control Today*, at http://www.armcontrol.org/act/2011_11/Reviewing_Nuclear_Guidance_Putting_Obama_Words_Into_Action (accessed November 29, 2011)

North Korea), reducing the US nuclear mission to fulfil the ‘sole-purpose’ intention of 2010 NPR (nuclear weapons to be used only to deter other nuclear weapons), and reductions in alert levels, among other issues.¹³⁴

¹³⁴ Ibid.; See also ‘Briefing on the Future of the US Nuclear Arsenal: Issues and Policy Options’, *Arms Control Today*, January 20, 2012, at <http://www.armscontrol.org/events/The-Future-of-the-US-Nuclear-Arsenal-Issues-and-Policy-Options> (accessed February 3, 2012).

VI - An Assessment

The paper has reviewed the relevant aspects of US nuclear weapons policy during the decade in the backdrop of terrorism and rogue state proliferation symbolised by events like 9/11. There has been a significant quantitative reduction in the numbers of US nuclear warheads and delivery systems, along with the pursuit of non-nuclear options like PGS to tackle contemporary threats and reductions in certain US nuclear missions (tactical nuclear weapons in Europe).

However, given that the first of the 14 Ohio-class submarines are to phased out only in 2027, the service life of the Minuteman III ICBM has been extended till 2030, a study to determine the building of alternatives to current ICBMs in US fleet has commenced, new programmes for building the next generation SSBNs and a long-range strategic bomber have been initiated, huge funds for modernisation of the existing arsenal and the nuclear weapons production complex among a plethora of other programmes have been sanctioned. US efforts for reinforcing the potency of its nuclear arsenal appear far more pertinent than the substantial quantitative reductions in the size of its arsenal.

While the policy directions contained in US national strategy and nuclear policy documents reinforced the value of nuclear deterrence, the alternatives they suggested for reducing the US reliance on its nuclear arsenal did not fructify as intended. As seen in the section on prompt global strike, the pursuit of such non-nuclear roles for SDVs did have its own unique sets of challenges, with the US abandoning the use of ICBMs/SLBMs to carry out the mission. Instead, efforts to develop technological alternatives like ‘boost-glide’ systems have faced rough weather. Such systems will also not be ready for deployment till 2020.

The US development of ballistic missile defences – intended as part of the effort to reduce reliance on its nuclear arsenal,

complicated bilateral arms control negotiations with Russia. One of the greatest follies of a muscular counter-proliferation policy as advocated by policy documents like 2002 NPR was the invasion of Iraq on the WMD pretext (which turned out to be false) at great human, societal and economic costs to both the US and Iraq.

While the primary role of deterrence against Russia and China continues in the post 9/11 strategic environment, the role of US nuclear forces in safeguarding US security interests against 'rogue' states with WMD capabilities as well as against terrorist use of WMDs still persists. Pertinent in this regard is the increase in the potential target set of US nuclear targeting plan, with the sixth adversary purportedly being a 9/11-type scenario. The Bush administration's efforts to develop nuclear 'bunker-busters' and new warheads though did not succeed. The fate of the RNEP and RRW bring to light the complications encountered in contemporising nuclear assets.

The aim of US nuclear policy remains to deter not just nuclear but chemical and biological threats also. The 2010 NPR though contains a commitment to work towards a 'sole purpose' role of nuclear weapons exclusively against nuclear threats. The numbers though will continue their current downward trend in the aftermath of New START, budgetary imperatives, and policy activism of the Obama administration as exemplified by the ongoing nuclear review.

The contours of the comprehensive review of US nuclear weapons policy currently underway would determine to what extent Obama's 'vision' and policy directives as contained in 2010 NPR and 2012 Defence Strategic Guidance to reduce the salience of US nuclear arsenal will be realised. While the sum total of these efforts if taken to policy fruition could continue to result in substantive *quantitative* reductions – including the possibility of the nuclear 'triad' becoming a 'dyad', pertinent facts as indicated in the paper suggest that the continued *qualitative* potency of US arsenal will not be diminished.

In order to better face the twin challenges of catastrophic terrorism and nuclear proliferation and take into account the diminished Russian threat, US policy makers in the decade after 9/11 been reducing the role and the numbers of nuclear weapons in US security strategy and making changes in the existing US arsenal. The paper assesses the efforts that have been made to fulfil the above objectives. It takes the view that efforts to improve and sustain the potency of US nuclear arsenal are far more pertinent than efforts to reduce the salience of its nuclear arsenal. The paper then goes on to show that the US nuclear weapon modernisation programmes and the uncertainties associated with it led to a largely negative US role in crucial multi-lateral arms control and disarmament initiatives like FMCT and CTBT. At the bilateral level, the robust pursuit of technologies like ballistic missile defences (BMD) through the Bush and the Obama administrations have created complications in arms control efforts ranging from the ABM Treaty to New START. The paper concludes by examining the comprehensive review of US nuclear weapons currently underway in the light of budgetary constraints and Obama administration policy positions in the post-2010 NPR environment.



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