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RETREAT FROM DISARMAMENT: THE ROLE OF NUCLEAR WEAPONS IN U.S. PLANS FOR GLOBAL MILITARY DOMINANCE

In the fall of 2001, discussions between Russia and the United States on nuclear weapons reductions and ballistic missile defense raised hopes that after more than half a century of nuclear confrontation, we may finally move away from the brink. The Bush administration has tried to convince the American people that this is this case, selling its ambitious ballistic missile defense scheme as a way to escape the Cold War deadlock of mutual assured destruction.

The January 2002 Nuclear Posture Review (NPR), however, revealed that the United States intends to keep thousands of nuclear weapons for the foreseeable future. While unilateral cuts in *deployed* U.S. strategic arms are anticipated over the next 10 years, the ability to rapidly reconstitute the arsenal size is emphasized. The capability to modify existing nuclear weapons or develop new weapon types will be retained, along with an upgraded capacity to resume full scale underground nuclear tests.

One of the main goals of the policies and programs endorsed by the NPR is to make U.S. threats of force, including nuclear threats, more credible. U.S. military planners have decided to solve the problem by approaching it from both ends: more powerful conventional forces for use where nuclear weapons would be untenable, and more useable nuclear weapons where nothing else has sufficient power to intimidate or destroy. Nuclear weapons would not be segregated either operationally or doctrinally from conventional weapons; "nuclear forces will be integrated with, rather than treated in isolation from, other military capabilities."[1] These will include both missile defenses and new military systems ranging from more sophisticated long range, accurate conventional missiles to weapons designed to disrupt or destroy electronic command, control, and air defense systems. The NPR also envisions modernization of the research and production facilities needed to design and build new nuclear warheads and other strategic weapons.

Taken together, this "New Triad" would entail a massive, broad high-tech weapons build-up by the United States. Such a program is likely to erode what remains of the fragile and limited arms control accomplishments of the last three decades. Faced with overwhelming U.S. conventional forces, a constantly modernized nuclear arsenal, and an emerging array of next generation high-tech systems of which missile defenses are only one part, nuclear weapons states are likely to hold on to their existing arsenals or build more.

At the same time, the NPR repudiated most of the existing and pending treaties whose purpose is to prevent further nuclear arms competition. The NPR reiterated Administration plans to oppose ratification of the Comprehensive Test Ban Treaty and to proceed with development of missile defenses not permitted by the Anti-Ballistic Missile (ABM) Treaty. It also indicated that any nuclear arms reductions would be achieved via unspecified mechanisms without the "requirement for Cold War-style treaties."[2] And with the leading nuclear power continuing to ignore its Nuclear Non-Proliferation Treaty obligation to end arms racing and move towards nuclear disarmament, that treaty too will be severely undermined, pushing the world closer to a new, unrestrained, and unpredictable arms race.

At best, it could be argued that the NPR "cuts" – to 1700 to 2200 deployed strategic warheads - will reduce the operational status of a significant number of nuclear weapons. But instead of being destroyed, many of the warheads withdrawn from deployment will be retained as part of a "responsive force" of nuclear armaments, enabling the U.S. to re-deploy an expanded nuclear arsenal far into the future. Also uncounted in the U.S. arms reductions are nuclear weapons that were designated as "tactical" for Cold War arms control purposes. An authoritative independent source estimates that the U.S. nuclear arsenal *after* the proposed "reductions" may total nearly 15,000 nuclear warheads, including "deployed,

strategic" warheads, "nonstrategic" bombs and warheads, strategic and non-strategic "responsive" forces, "spare" warheads, an "inactive reserve" stockpile, and some 5,000 stored plutonium and/or uranium "primary" and "secondary"components that could be reassembled into weapons.[3]

The NPR is not just an abstract expression of policy. In its $5.9 billion request to Congress for nuclear weapons activities (not including delivery systems) in Fiscal Year (FY) 2003, the National Nuclear Security Administration (NNSA) relied on the NPR as a primary justification.

> "...the flexibility to sustain our enduring nuclear weapons stockpile, to adapt current weapons to new missions, or to field new weapons, if required, depends on a healthy program for stockpile stewardship... as well as a robust infrastructure for nuclear weapons production.... *Most importantly, this review reemphasizes the importance of nuclear weapons to deter the threats of weapons of mass destruction, to assure allies of U.S. security commitments, to hold at risk an adversary's assets and capabilities that cannot be countered through non-nuclear means and to dissuade potential adversaries from developing large-scale nuclear or conventional threats."*[4]

The NPR also calls for the modernization of the U.S. nuclear weapons complex. Work is already underway at the weapons labs to build facilities to produce current and new design plutonium pits without underground testing. Plans are on the drawing board for a larger pit factory to be built in the future. The U.S. also is building an array of new nuclear weapons research facilities of unprecedented sophistication. These facilities will allow the U.S. to continue testing many aspects of nuclear weapons function in the laboratory, even setting off small thermonuclear explosions in containment vessels. Together with the world's most powerful super-computers, these devices will allow the U.S. to train a new generation of nuclear weapons designers and to explore new weapons concepts despite the moratorium on full scale underground nuclear testing.[5]

Blurring the Threshold: The Search for More Missions and More Useable Nuclear Weapons

"Desired capabilities for nuclear weapons systems in flexible, adaptable strike plans include options for variable and reduced yields, high accuracy, and timely employment. These capabilities would help deter enemy use of WMD [weapons of mass destruction] *or limit collateral damage, should the United States have to defeat enemy WMD capabilities."* The Nuclear Posture Review.[6]

The widespread surprise at the latest NPR revelations mainly manifests how effective the nuclear weapons establishment has been in recent years at keeping its programs, policies, and plans out of the spotlight. The NPR push for new nuclear weapons capabilities did not come out of nowhere. Rather, it added impetus and resources to an idea that long has been advocated by some weapons designers and nuclear strategists: that in order to make nuclear threats more "credible," the United States should make nuclear weapons more useable.

Use of nuclear weapons to threaten nations suspected of possessing weapons of mass destruction (nuclear, biological, or chemical weapons) already is part of U.S. nuclear weapons policy. U.S. nuclear weapons doctrine contemplates the use of nuclear weapons to destroy the weapons of mass destruction of an adversary, even before they can be used. According to the U.S. Air Force 1998 Nuclear Operations doctrine,

> While there will certainly be long-term effects from the use of a nuclear device against any target, counterforce strategy focuses on the more immediate operational effect. *Nuclear weapons might be used to destroy enemy WMD before they can be used,* or they may be used against enemy conventional forces if other means to stop them have proven ineffective. This can reduce the threat to the United States and its forces and could, through the destruction of enemy forces, bring an end to the conflict.[7]

U.S. doctrine also explicitly provides for nuclear weapons use against "non-state actors"-- commonly called "terrorists" by government officials when speaking to the public:

> Enemy combat forces and facilities that may be likely targets for nuclear strikes include WMD and their delivery systems, ground combat units, air defense facilities, naval installations, combat

vessels, *nonstate actors*, and underground facilities.[8]

It is important to note that the initiatives proposed in the NPR will not have to start from scratch. Over the last decade, research has continued on both warhead concepts and targeting techniques to make nuclear weapons more useable, particularly against deeply buried targets and against chemical and biological weapons facilities.[9] At the same time, the experimental facilities and computing capabilities used to design nuclear weapons also have been upgraded, culminating recently in the first "full-system three-dimensional simulations of a nuclear weapon explosion."[10]

Research continued throughout the 1990's on new capabilities for nuclear weapons and on targeting techniques to make nuclear weapons more useful, particularly against deeply buried targets and against chemical and biological weapons facilities. One such weapon, the B61-11 earth penetrator bomb, was developed in the mid-90's by modifying an existing design without a nuclear explosive test, using the existing warhead component testing and simulation capabilities of the U.S. weapons labs. And the military already is working to improve "understanding of weapons outputs and target interactions without underground testing," and to "apply this understanding to update effects calculational capabilities and develop innovative targeting techniques to defeat increasingly clever enemies—both national and terrorist."[11]

The NPR supports intensified research on nuclear weapons with new military capabilities. It recommends re-establishment of "advanced warhead concepts teams" at the nuclear weapons laboratories to study various new nuclear weapons ideas.[12] And the National Nuclear Security Agency is requesting funding in FY 2003 to begin study of a new or modified "Robust Nuclear Earth Penetrator"[13]–yet more evidence that contrary to Bush Administration "spin," the NPR is not a mere "contingency plan," but rather a program for action.

The New Strategic Triad: Making the Unthinkable Possible

The NPR calls for a "New Triad" to replace the Cold War triad of nuclear-armed land-based missiles, ballistic missile submarines, and long-range bombers. None of these Cold War forces would be taken out of service, however– they would instead be augmented by missile defenses, a robust array of weapons testing and production facilities, and a variety of non-nuclear offensive weapons, ranging from highly accurate conventional missiles to exotic new devices that will impair or destroy electronic equipment. Missile defenses have received a good deal of attention in nuclear strategy and arms control debates, although it has focused almost exclusively on the national missile defense interceptors currently undergoing initial flight tests-- only one of many missile defense technologies being researched. The burgeoning assortment of stealthy, precise conventional weapons under development by the United States, however, is likely to have an effect on the strategic calculations of existing and potential nuclear weapons states at least as great as missile defenses.

Despite the already enormous U.S. advantage in high-tech weapons, it is continuing with plans to deploy next-generation aircraft, including the stealthy, supersonic (and super expensive) F-22 and the Joint Strike Fighter. An assortment of additional highly accurate and destructive conventional weapons that can be delivered by ship, submarine, or airplane are either being actively developed or are on the drawing boards, ranging from improved earth penetrator bombs to supersonic cruise missiles.[14]

The U.S. also is planning conventional systems that can strike on the other side of the globe, delivering a variety of weapons through or from space. There will, for example, be funding in the Bush Administration budget request for "the modification of a strategic ballistic missile system to enable the deployment of a non-nuclear payload."[15] One option of this kind already being explored is a "common aero vehicle," a maneuverable re-entry vehicle that can travel through space aboard a variety of delivery systems. According to the *Air Force Space Command Strategic Master Plan for FY02 and Beyond,*

> CAV will provide warfighting forces with a Conventional Strike capability with near-global range, prompt response time from launch to target, penetration of hostile natural or man-made terrestrial and atmospheric environments and enemy defense avoidance. The CAV system will be capable of dispensing a variety of munitions against ground targets to include WMD storage sites, C2 [command and control] facilities,

maritime forces and massed ground forces.[16]

In addition to these new ways to deliver conventional weapons accurately with global reach, the U.S. military is developing new weapons and methods to deceive, impair or destroy electronic equipment, communications, command systems, air defenses, and other military systems. The purposes of such systems range from interference with the operation of computers via (largely classified) "information warfare" techniques to destruction of electronics by high-power microwave devices.[17]

And over the long term, a variety of more speculative weapons programs could lead to an intensified arms race, both on earth and in space. These programs range from research on hypersonic flight, which could lead to military applications ranging from supersonic standoff missiles to air/space vehicles with global range that can strike with a variety of weapons from near space, to laser weapons research. Directed energy weapons of various kinds are in the long range plans of U.S. military space strategists, who see systems like the Space-Based Laser and as offering potential both for missile defense and for an offensive capability with global reach against space and airborne targets.[18] According to the U.S. Space Command *Long Range Plan*,

> Many of the systems and concepts for Missile Defense may have applicability to Force Application. This concept envisions holding a finite number of targets at risk anywhere, anytime with nearly instantaneous attack from space-based assets.[19]

Some of these programs have been proceeding for a number of years, although often as relatively low-level concept development and feasibility studies. But with the Bush Administration's enthusiasm for military space programs, huge increases in the defense budget, and no visible Congressional opposition, a number of these programs are likely to accelerate.

Missile Defenses: One Weapon Among Many

It is in this broader context of an intensive hi-tech weapons build-up, given new impetus by the Bush Administration's enormous military spending increases, that we must consider the impacts of the last element of the NPR's "New Triad," ballistic missile defense. By the time most of the anticipated missile defense systems are deployed, a decade or more from now, they will be accompanied by a variety new U.S. offensive capabilities.

Missile defense isn't about defending the United States against a "bolt from the blue" attack, either from our Cold War adversaries or from some other state that may someday develop missiles of sufficient range. In the Nuclear Posture Review, as in numerous think-tank studies and planning documents, the main purpose of missile defense travels under the euphemism of "freedom of action:"

> Advances in defensive technologies will allow U.S. non-nuclear and nuclear capabilities to be coupled with active and passive defenses to help provide deterrence and protection against attack, preserve U.S. freedom of action, and strengthen the credibility of U.S. alliance, commitments.[20]

What this means is that the United States wants to be able to send its forces anywhere on earth without risking casualties that would make a military operation overseas unsustainable at home. Missile defenses, working together with overwhelming U.S. air power, global surveillance and communications networks, and long-range precision conventional weapons, are designed in large part to make military action abroad more politically feasible. In the words of the NPR, *"Defense of the U.S. homeland and protection of forward bases increase the ability of the United States to counteract WMD-backed coercive threats and to use its power projection forces in the defense of allies and friends."*[21] The aim is to eliminate the limits to U.S. use of force that a regional adversary might be able to impose if it has chemical, biological, or nuclear weapons, and is willing to run risks for interests it sees as vital, while seeing the U.S. as "an over-the-horizon power that often makes the choice to disengage when costs begin to outweigh interests."[22] The fear is not that there will be a surprise attack on the U.S. but rather that when either threatened or under attack by U.S. forces, an adversary might be able to prevent an attack or force a U.S. withdrawal by using weapons of mass destruction against U.S. or allied troops, or against U.S. or allied civilian populations.

Most worrisome to military planners in their efforts to defend their ability to attack are short and medium range missiles, already in the arsenals of many

countries that the United States sees as potential adversaries. As the Naval Studies Board of the National Research Council noted,

> Ballistic missiles with ranges from 200 to over 1,000 miles are proliferating among large and small nations around the world. Even if they do not deliver the weapons of mass destruction that they are capable of delivering, their use with conventional warheads--and often even their presence alone--can have a profound political as well as military impact on regional conflict..... The theater missile defense (TMD) systems will ultimately cover the gamut of defense possibilities, from finding and destroying command centers and launchers, through destruction of missiles in boost and ascent phase to prevent dispersal of chemical and bacteriological submunitions and to prevent damage by nuclear warheads either detonating within damage range or following purely ballistic trajectories to their targets after intercept, to terminal defense against weapons that leak through. The imperative of preventing effective attacks by ballistic missiles that may carry warheads of mass destruction leads to the concept of placing a 'cap' over an aggressor state to prevent such attacks from reaching beyond the aggressor's borders, with terminal defense as final 'insurance.' In this sense, TMD enhances overall offensive capability.[23]

This enhanced "overall offensive capability" that theater missile defense implies threatens not only regional powers seeking some way to counter overwhelming U.S. conventional forces, but Russia and China as well. The extensive array of new space-based sensing systems being developed to support global missile defense systems also is likely to have additional applications that further increase U.S. advantages in targeting and coordinating precision offensive weapons, both conventional and nuclear.[24] At the same time, U.S. nuclear warheads, delivery systems, and supporting infrastructure continue to be modernized.

China, with its small number of nuclear missiles capable of reaching the United States, may see the combination of missile defense and the broader U.S. high-tech weapons build up as capable of nullifying its nuclear deterrent. China may see the U.S. to be aiming for the ability to destroy all or most of its command structure and nuclear arsenal, and a multi-tiered missile defense system needing to be only effective enough to deal with the possibility that a few missiles may make it off the ground. All of this is occurring in a context where the NPR lists China as a country that could be involved in an "immediate or potential contingency," in particular a conflict over Taiwan.[25]

Ballistic missile defenses and other advanced weapons systems do not have to "work" as advertised to trigger a new arms race. Further, when tens of billions are spent on weapons research, new kinds of weapons will be developed, even if not of the precise kind originally envisioned. With the U.S. retaining and modernizing thousands of nuclear weapons, building missile defenses, and drastically expanding its spending for a wide variety of other high-tech armaments, while issuing military threats against a number of countries almost on a daily basis, any state that sees the possibility of conflict with the U.S. likely will maintain or expand its weapons spending. The military establishments of other states will argue that the course of technological development is unpredictable, and that it takes many years to develop complex modern weapons. Hence they may say, for example, that they need to start developing new systems now to assure that they will be able to overwhelm or evade U.S. missile defenses.

The Nuclear Posture Review, the Non-Proliferation Treaty, and the Future of Nuclear Weapons

The Nuclear Non Proliferation Treaty, (NPT), which entered into force in 1970, aimed to stop the spread of nuclear weapons by brokering a deal between the Nuclear Weapons States (NWS) and the Non Nuclear Weapon States (NNWS). The NWS pledged to end the arms race and negotiate disarmament, while the NNWS pledged not to acquire nuclear weapons.

In May 2000, at the conclusion of the first NPT Review Conference since the Treaty's indefinite extension in 1995, the U.S. agreed to 13 practical steps for the systematic implementation of Article VI, which requires the NWS to negotiate in good faith the cessation of the nuclear arms race and nuclear disarmament. These steps include: *ratification of the Comprehensive Test Ban Treaty (CTBT)*; the principle of *irreversibility* as applied to nuclear disarmament and related arms control and reduction measures; an

unequivocal undertaking to accomplish the *total elimination* of its nuclear arsenal; *full implementation of START II and conclusion of START III* as soon as possible while *preserving and strengthening the Anti-Ballistic Missile (ABM) Treaty; increased transparency* regarding nuclear weapons capabilities; concrete measures to *reduce the operational status* of nuclear weapons; and a diminishing role for nuclear weapons in security policies.

The NPR amounts to an unequivocal rejection by the U.S. of most of these steps. The entire thrust of the NPR is not to make weapons reductions "irreversible," but rather to assure for many decades to come that an enormous force of nuclear warheads and delivery systems can be reconstituted, and that new and improved nuclear weapons can be produced.

If the programs and policies advocated in the NPR go forward, they will doom hopes for real progress on arms control and disarmament for the foreseeable future, and will add to the increasingly unstable global security environment. Russia will retain an arsenal large enough to destroy the U.S., and China is likely to modernize and expand its own relatively small nuclear forces. Moreover, the viability of the NPT, which has limited the spread of nuclear weapons, will be endangered. If, more than 10 years after the end of the Cold War, the world's most powerful nation continues to assert that it needs nuclear weapons to ensure its national security, why shouldn't we expect other countries to follow suit? As responsible global citizens, we must insist on a more sustainable concept of human security.

In the interests of *real* national and global security, the United States should reaffirm and make good on its NPT commitments without delay. The U.S. should:

- Immediately halt all efforts aimed at "improving" the military capabilities of its nuclear arsenal, including research and development for "mini" nukes and the "robust nuclear earth penetrator"
- Halt plans for upgrades to existing weapons research and production facilities and forgo building new facilities, including those for plutonium pit manufacturing and tritium
- Ratify the Comprehensive Test Ban Treaty and close the Nevada Test Site
- Initiate sweeping, verifiable, *real* reductions in both strategic and tactical nuclear weapons and their delivery systems
- Together with Russia take *all* nuclear weapons off hair-trigger alert
- Initiate multilateral negotiations to eliminate nuclear weapons worldwide
- Halt development of ballistic missile defenses including theater missile defenses
- Initiate multilateral negotiations to eliminate ballistic missiles, with a flight test ban as a first step

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Notes

1. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense for Policy Senate Armed Services Hearing on the Nuclear Posture Review February 14, 2002, p.5

2. U.S. Department of Defense Briefing Slides, "Findings of the Nuclear Posture Review," January 9, 2002, http://www.defenselink.mil/news/Jan2002/g020109-D-6570C.html

3. *Faking Nuclear Restraint: The Bush Administration's Secret Plan for Strengthening U.S. Nuclear Forces,* Natural Resources Defense Council, February 2002

4. U.S. Department of Energy FY2003 Congressional Budget Request, National Nuclear Security Administration, Weapons Activities, Executive Summary p.5 (pdf file pagination, emphasis added)

5. For an in-depth analysis of the Stockpile Stewardship program, see *Faustian Bargain 2000: Why 'Stockpile Stewardship' is Fundamentally Incompatible with the Process of Nuclear Disarmament,* Western States Legal Foundation, available at http://www.wslfweb.org/docs/fb2000.pdf

6. NPR p.48, provided in "Nuclear Posture Review Excerpts," Globalsecurity.org, at http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm

7. *Nuclear Operations,* Air Force Doctrine Document 2-1.5, 15 (July 1998), pp. 8-9 (Emphasis added)

8. United States Joint Chiefs of Staff, *Doctrine for Joint Theater Nuclear Operations*, Joint Pub 3-12.1 (February 1996), p.I-3 (emphasis added). p. viii (emphasis added).

9. For an in-depth account of recent efforts to make nuclear weapons more useable, see *Looking for New Ways to Use Nuclear Weapons: U.S. Counterproliferation Programs, Weapons Effects Research, and "Mini-Nuke" Development,* WSLF Information Bulletin, Winter 2000, available at http://www.wslfweb.org/docs/mininuke.pdf

10. "NNSA Laboratories Each Complete First 3D Simulations of a Complete Nuclear Weapon Explosion," National Nuclear Security Administration News Release, March 7, 2002.

11. U.S. Department of Defense, Deputy Under Secretary of Defense (Science and Technology), *Defense Technology Objectives for Defense Technology Area Plan*, (2000), "Nuclear Phenomenology," p. II-372, obtained by Western States Legal Foundation under the Freedom of Information Act . The full document can be found on the WSLF web site at http://www.wslfweb.org/docs/dstp2000/dtopdf/24-NT.pdf

12. Nuclear Posture Review pp.34-35, provided in "Nuclear Posture Review Excerpts," Globalsecurity.org, at http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm

13. U.S. Department of Energy FY2003 Congressional Budget Request, National Nuclear Security Administration, Weapons Activities, Executive Summary p.10 (pdf file pagination)

14. A recent report to the U.S. Congress on "Defeat of Hard and Deeply Buried Targets" summarized these and other of weapons programs intended to increase U.S. conventional precision strike capabilities. See *Report to Congress on the Defeat of Hard and Deeply Buried Targets,* Submitted by the Secretary of Defense in Conjunction with the Secretary of Energy in response to Section 1044 of the Floyd D. Spence National Defense Authorization Act for the Year 2001, PL 106-398, July 2001, pp.16-18 (Hereafter *HDBT Report)*. The unclassified content of the report can be found at http://www.nukewatch.org/nwd/HiRes_Report_to_Congress_on_the_Defeat.pdf

15. Statement of the Honorable Douglas J. Feith, Undersecretary of Defense for Policy Senate Armed Services Hearing on the Nuclear Posture Review February 14, 2002, p.10.

16. *Air Force Space Command Strategic Master Plan for FY02 and Beyond,* February 9, 2000, section 6.2.2, http://www.spacecom.af.mil/hqafspc/library/AFSPCPAOffice/2000smp.html

17. See, for example on High Power Microwave (HPM appllications U.S. Department of Defense, *In-House RDT&E Activities FY2000 Management Analysis Report,* Air Force Research Laboratory, Directed Energy Directorate, pp.4-49-4-50. For an overview of electronic and information warfare techniques being explored by the U.S. military, and their emerging role in strategic operations in combination with nuclear weapons and long-range precision conventional weapons, see Andrew. F.Krepinovich and Robert C. Martinage, *The Transformation of Strategic Strike Operations,* (Washington: Center for Strategic and Budgetary Assessments, 2001), pp. 24 et seq.

18. See Air Force Space Command, *Strategic Master Plan for FY02 and Beyond,* February 9, 2000, section 6.2.3, http://www.spacecom.af.mil/hqafspc/library/AFSPCPAOffice/2000smp.html For an overview of U.S. military laser programs, see Office of the Under Secretary of Defense For Acquisition, Technology, and Logistics,*Defense Science Board Task Force on High Energy Laser Weapon Systems Applications Report* June 2001, http://www.acq.osd.mil/dsb/rephel.pdf; and for a look at hypersonic weapons concepts currently being explored, ranging from hypersonic missiles to global strike space craft, see United States Air Force Scientific Advisory Board, *Report on Why and Whither Hypersonics Research in the US Air Force,* December 2000, http://www.sab.hq.af.mil/archives/reports/2000/Hypersonics-Report.PDF

19. U.S. Space Command, *Long Range Plan: Implementing USSPACECOM Vision for 2020* (1998). p.6-65.

20. Nuclear Posture Review, p. 7, provided in "Nuclear Posture Review Excerpts," Globalsecurity.org, at http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm

21. Nuclear Posture Review, p.13, provided in "Nuclear Posture Review Excerpts," Globalsecurity.org, at http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm

22. Brad Roberts, *Asymmetric Conflict 2010* Institute for Defense Analyses/Defense Threat Reduction Agency, 2000, p.4.

23. National Research Council, Naval Studies Board, Commission on Physical Sciences, Mathematics, and Applications, Post Cold War Conflict Deterrence, Chapter 3 (Washington, D.C.: National Academy Press, 1997) http://www.nap.edu/html/pcw/Dt-3.htm

24. See on this point John Steinbruner, "National Missile Defense: Collision in Progress," Arms Control Today, Vol. 29 No. 7, November 1999, p. 4, 5.

25. William M. Arkin, "Secret Plan Outlines the Unthinkable," *The Los Angeles Times,* March 10, 2002 (web edition), quoting passages from the Nuclear Posture Review.

WEB RESOURCES

U.S. Nuclear Weapons Policies

For a collection of government documents, links, and commentary on the Nuclear Posture Review, see http://www.wslfweb.org/nukes/npr.htm

For more information on U.S. low-yield nuclear weapons research, see ***Looking for New Ways to Use Nuclear Weapons: U.S. Counterproliferation Programs, Weapons Effects Research, and "Mini-Nuke" Development,*** WSLF Information Bulletin, Winter 2000, available at http://www.wslfweb.org/docs/mininuke.pdf

For links to a wide range of government and non-government resources on nuclear weapons, see the **Western States Legal Foundation web resource guide** at http://www.wslfweb.org/links.htm

Worldwide Nuclear Arsenals: Basic Information

Center for Defense Information, Current World Nuclear Arsenals
http://www.cdi.org/issues/nukef&f/database/nukestab.html

Stockholm International Peace Research Institute, Nuclear Forces and Arms Control (SIPRI)
http://projects.sipri.se/nuclear/index.html

Missile Defenses, Efforts to Control Ballistic Missiles, and the Militarization of Space

"Moving Beyond Missile Defense," an initiative which brings together experts and activists from across the globe to consider alternatives to missile defenses, including measures to control ballistic missiles. http://mbmd.org

The Global Network Against Weapons and Nuclear Power in Space provides both information and comprehensive organizing resources at http://www.globenet.free-online.co.uk/

For more information on U.S. programs to further militarize space, see the **Western States Legal Foundation** page on ballistic missile defense and space at http://www.wslfweb.org/space.htm, and our library of U.S. government planning documents and links at http://www.wslfweb.org/space/spacedocs.htm

Organizing for the Abolition of Nuclear Weapons

Abolition 2000 Global Network for the Elimination of Nuclear Weapons, a network of over 2000 groups in more than 90 countries http://www.abolition2000.org/

Reaching Critical Will, a project of the Women's International League for Peace and Freedom, coordinates NGO activities at United Nations disarmament events. Web site has extensive disarmament resources and links, from both from the UN and from a variety of NGO's http://www.reachingcriticalwill.org