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**STATEMENT OF  
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BEFORE THE  
HOUSE COMMITTEE ON THE BUDGET  
HEARING ON  
THE COST OF CURRENT DEFENSE PLANS:  
AN ANALYSIS OF BUDGET ISSUES  
OCTOBER 14, 2009**

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Chairman Spratt, Ranking Member Ryan, distinguished Members of the Committee, thank you for your invitation to discuss the cost of current defense plans and budget issues facing the Department of Defense. I am Stephen Daggett, Specialist in Defense Policy and Budgets with the Congressional Research Service. When I testified before this Committee last February, I discussed factors that have driven up the cost of defense substantially over the past several years. In April, DOD announced some significant changes in its current plans and additional changes may result from the Quadrennial Defense Review that is now underway. This statement will address the potential impact of the recent defense changes, additional budget trade-offs that may be necessary in the remainder of the coming decade, and some of the more long-term defense budget and policy issues that may be addressed in the current QDR.

Specifically, the discussion addresses three very broad questions:

- How have the program decisions that Secretary Gates announced last April affected trends in the cost of defense?
- What additional trade-offs might the Defense Department face in the future in view of projections of substantial federal budget deficits through the next decade?, and,
- In view of experience with earlier defense reviews in 1990 and 1993 and with prior QDRs in 1997, 2001, and 2006, is the Defense Department keeping up with rapid changes in the international security environment, and what more far-reaching changes in force posture and budgets might it be in order for the QDR to consider?

## Factors Driving up the Cost of Defense

My testimony before the Committee last February began by noting that recent defense budgets, even without including large supplemental appropriations for war costs, appear by historical standards to be quite robust. Nonetheless, leaders of each of the military services were warning about substantial budget shortfalls. To explain the discrepancy, I cited six factors that have driven up the cost of defense substantially in recent years, including

- Dramatic growth in the cost of military personnel, especially since the end of the 1990s (45% growth above inflation between FY1999 and FY2009);
- Continuing growth of operation and maintenance costs, relative to the size of the force, at a pace of two-and-a-half to three percent per year above inflation every year since the end of the Korean War;
- Apparently accelerating growth in the cost of new weapons programs compared to costs of earlier generations of systems for similar missions;
- Inaccurate and apparently worsening estimates of weapons costs at the inception of major development programs and subsequent cost overruns and schedule delays;
- New requirements for the ability to rotate large numbers of ground forces into long-lasting stability operations, leading to significant increases in ground force end-strength and substantially higher investments in new ground force equipment for force protection, communications, transportation, and other purposes; and
- Demands for capabilities to cope with an expanded array of security challenges ranging from conventional conflict, to irregular warfare, to efforts by future foes to disrupt U.S. military power by exploiting vulnerabilities, and to threats of catastrophic attacks on the U.S. homeland.

In recent years, my testimony concluded, these trends have driven up the cost of defense too rapidly even for substantially growing defense budgets to keep up and, unless they were reined in, it would be increasingly difficult for the Defense Department to carry on its plans within budgets that most analysts thought likely because of constraints imposed by projected federal deficits.

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## The Impact of Recent Changes in Defense Plans

Since that Committee hearing in February, the Defense Department has made significant changes in long-term defense plans that Secretary Gates announced in April. Some changes called for higher spending, particularly for health care and social services for personnel returning from combat and for their families. The Secretary also reaffirmed plans to increase ground force end-strength, with costs being absorbed in the base defense budget rather than in supplemental appropriations. Many of the changes announced in April, however, particularly the termination of several major weapons programs, might very well limit future costs, especially to the extent they mark changes in policies that will affect designs of future weapon systems. In addition, in May, Congress passed a major defense acquisition reform measure, the Weapon Systems Acquisition Reform Act of 2009, P.L. 111-23, which, if implemented effectively, might also limit weapons cost growth.

The changes in major weapons programs that Secretary Gates announced might be particularly significant to the extent they provide an impetus to pursue more efficient production practices for systems that were not eliminated. For tactical fighter aircraft, the Defense Department has narrowed production to two platforms – various versions of the F/A-18 Navy-Marine fighter and of the multi-service F-35 Joint Strike Fighter. In shipbuilding, while there are some uncertainties, the effect of recent decisions may be to allow fairly long and relatively large production runs of DDG-51 destroyers, perhaps with some variants; of the Littoral Combat Ship (LCS); of new ships based on LPD-17 amphibious ship; and of Virginia-class submarines. Even in satellites, the termination of the Transformational Communications Satellite (TSAT) program will entail reliance on improved designs of existing, more proven technologies. To the extent the changes result in regular, predictable, and robust annual production runs of technologically mature systems with stable designs, both acquisition officials in the government and production teams in industry might focus on efficiency measures. Weapon costs might be driven down considerably by such measures as productivity improving investments and production practices; cost saving financial mechanisms including multiyear contracting; and expanded use of competitive sourcing in subcontracting.

Similarly, in the weapons development process, the termination of programs that had experienced significant cost growth and schedule delays – including TSAT, the presidential helicopter, and the Combat Search and Rescue (CSAR) helicopter – may reflect a determination to ensure that development efforts rely on proven technologies before committing to large development and production investments. The Weapons Acquisition Reform Act provides further statutory support for DOD acquisition policies that require achievement of appropriate levels of technological maturity in key elements of development programs before milestone approval for progressively more costly stages of a project. The Act also creates an independent cost analysis directorate. While some of the program terminations remain matters of debate, there appears to be a growing consensus on the general principle that development should proceed on the basis of sufficient knowledge about the availability and cost of key technologies throughout the development process in order to avoid excessive technical risk that has contributed to delays and cost increases in the past.

## Trade-Offs in Future Defense Budgets

While progress in these areas may, if pursued consistently in the future, help ameliorate some of the factors that have been driving the cost of defense so high, budget trade-offs remain an issue for the Defense Department, particularly in the years following the current Future Years Defense Plan (FYDP), which runs through FY2015. A key issue for the QDR may be how to balance potential trade-offs between the size of the force, the pace of weapons modernization, and the size of future defense appropriations, particularly in view of currently projected long-term federal budget deficits.

To date, DOD officials have not said much about how the QDR will address intermediate- and longer-term budget issues. Officials have said that, at least for initial planning purposes, the QDR assumes that the base defense budget, not including war-related funding, will be essentially flat for the next five years,

with growth sufficient only to cover inflation – i.e., “zero real growth.”<sup>1</sup> And they have acknowledged that this will require at least modest trade-offs between programs. At the end of July, David Ochmanek, a leader of the Pentagon’s QDR integration group, told defense reporters that the QDR had already led to a decision to move about \$60 billion over the FYDP into programs supporting current operations – “the wars we are in” as Secretary Gates has put it – and that the military services were developing lists of cuts in other programs to act as bill payers.

A shift of \$60 billion within the DOD FYDP is by no means unusual. On the contrary, it is well within the range of adjustments that the Defense Department makes in every annual budget cycle. But trade-offs in the years beyond the current FYDP will have to be much more substantial unless spending turns up at least modestly within the next few years. To illustrate that point, a very simple exercise may be useful. Consider, not as a prediction, but only for the sake of analysis, what would happen to the allocation of funds within major categories of the defense budget between FY2010 and FY2020 if (1) the overall level of spending is frozen at the FY2010 level for the next ten years, (2) military personnel funding grows at the historical rate of the Employment Cost Index (ECI), which increased by 0.7% per year above base inflation between FY1981 and FY2005, and (3) DOD operation and maintenance accounts are assumed to grow at the historical rate of 2.7% per year above inflation.<sup>2</sup>

*Figure 1* shows the allocation of funds between (1) military personnel, (2) operation and maintenance, (3) acquisition (the sum of procurement plus R&D funding), and (4) other programs in the Department of Defense base budget, not including war-related supplemental funding, in FY2010 compared to FY2020, on those assumptions. The result, as one would expect, is a dramatic reduction in funding for weapons acquisition, which declines, in constant FY2010 prices, from \$186 billion and 35% of the budget in FY2010 to \$127 billion and 24% of the budget in FY2020.<sup>3</sup> In relative terms, that is a cut of 32% in funding to replace equipment and modernize the force between FY2010 and FY2020 in the base defense budget.

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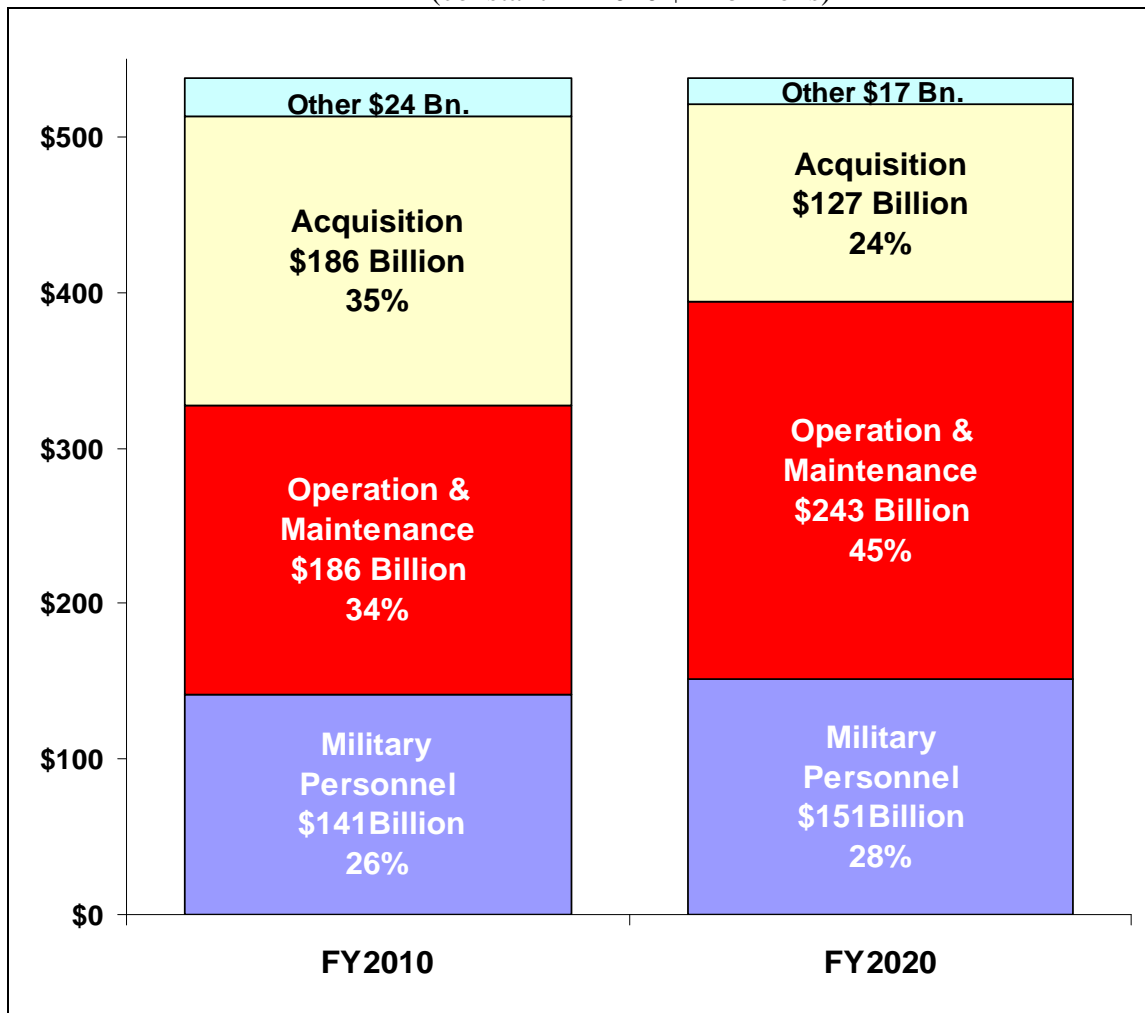
<sup>1</sup> In questions and answers following a presentation at the Center for Strategic and International Studies (CSIS) on April 29, 2009, Under Secretary of Defense Michèle Flournoy said that QDR budget planning was focused strictly on the FYDP – audio and video recordings are available on line at CSIS, though not a transcript. Also see David Ochmanek, Deputy Assistant Secretary of Defense for Force Planning, Interview with the Defense Writers Group, July 28, 2009, of which a transcript is available on line from Air Force Magazine.

<sup>2</sup> The Employment Cost Index is a Bureau of Labor Statistics measure of the average change of pay and benefits in the overall economy. The annual real growth in DOD O&M accounts is a CRS calculation that measures the change per active duty service member in O&M funding excluding funding of overseas contingency operations.

<sup>3</sup> This analysis is based on a discussion with Hugh Brady of the Raytheon Corporation of a forthcoming defense industry 10 year budget projection under the auspices of TechAmerica.

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Figure 1. DOD Base Budget with No Real Growth:  
 FY2010-FY2020  
 (constant FY2010 \$ in billions)



Source: CRS based on the FY2010 Department of Defense budget request, with growth of 0.7% per year in Military Personnel accounts and 2.7% per year in Operation and Maintenance accounts through FY2020.

While, again, this is not intended as a prediction of likely budget trends, it may suggest a need for the Defense Department to discuss intermediate-term budget trade-offs in the QDR. CBO and other budget projections over the next ten years show potential budget deficits as a percentage of GDP that have, in the past, been followed by long-term limits on defense spending.<sup>4</sup> The alternatives to a steep reduction in acquisition accounts are (1) a resumption of at least modest real growth in the overall defense budget, (2) cuts in the size of the force, or (3) measures to reduce operating costs. Each 2% increase in the defense budget above inflation would add about \$10 billion in funds available for acquisition accounts. A cut of 100,000 active duty troops would save \$12-15 billion per year in military personnel and in directly related

<sup>4</sup> Congress passed the original Gramm-Rudman-Hollings deficit control act in November 1985 after the federal budget deficit exceeded 6% of GDP in FY1983. Defense spending subsequently declined in real terms every year until FY1999, when the federal budget ran a surplus.

operation and maintenance costs. A smaller force would entail limits on U.S. military capabilities – one choice might be to reduce requirements for ground forces for long-term stability operations.

The need for difficult budget trade-offs could, of course, be ameliorated to some extent by further limiting defense costs. The QDR will certainly address that issue. Business process reform is one of five focus areas in the original QDR guidance that Secretary Gates issued in April, and one of five QDR issue teams is responsible for addressing defense costs. Earlier QDRs also led to efforts to reduce costs by reducing infrastructure, outsource activities, and improving contracting procedures.

How much DOD can save – and how much it should count on saving – is a matter that deserves careful consideration. In the past, the Defense Department has perennially projected that operation and maintenance (O&M) budgets, which, as I noted, have grown historically at 2.5 to 3 percent per year above inflation per active duty service member, would level off, freeing up funds for weapons investments. Throughout the 1990s, however, projected savings in O&M did not materialize, in spite of concerted efforts at management reform, and procurement accounts ended up being cut from year to year to finance must-pay-bills in the operating accounts.

In the FY2010-FY2020 budget exercise shown in *Figure 1*, the assumption was that O&M would continue to grow at the historic rate of 2.7% per year above inflation. Given past experience, DOD will have strong incentives in the QDR to assume that reforms will slow that rate of growth. But experience also shows that reforms generally serve to keep O&M cost growth down to historical levels rather than to achieve additional savings. In addition, the FY2010-FY2020 analysis shown above assumes much more limited increases in military pay and benefits than Congress approved in the years between FY1999 and FY2009. The premise is that service members have already won most of the increases in pay and benefits that support groups were seeking, so growth may be more modest in the future. That assumption may not be correct, however, and the analysis may well underestimate personnel costs. Long-term budget trade-offs might be more difficult to the extent personnel costs grow faster.

## Have QDRs Been Radical Enough?

As well as discussing budget trade-offs over the next decade or so, the current QDR may be an occasion for considering more far-reaching, longer-term changes in policy with potentially very substantial effects on budget planning. Perhaps the central issue in debate over earlier QDRs has concerned whether the Defense Department has kept up with the pace of global change and has adjusted defense plans accordingly. That issue appears likely to remain a matter of debate over the current QDR.

The current QDR, on which the Defense Department is required to provide a report early next year, is the fourth such review mandated by a provision that Congress originally included in the FY1997 National Defense Authorization Act and later made permanent. QDRs in 1997, 2001, and 2006 were preceded by two earlier, similarly broad reviews – the “Base Force” analysis that the Joint Chiefs carried out under then Chairman Colin Powell in 1990, and the “Bottom-Up Review” conducted at the beginning of the Clinton Administration under Secretary of Defense Les Aspin in 1993.

The Base Force analysis and the Bottom-Up Review (BUR) were intended first of all to establish a rationale for maintaining strong military capabilities as the Cold War came to an end. The BUR, following the Persian Gulf War of 1991, established as a basic planning principle a requirement that U.S. military forces should be able to prevail in two nearly simultaneous regional conflicts – now termed “Major Theater Wars” (MTWs) – comparable to the war with Iraq. Planners did not neglect post-Cold War requirements for capabilities to manage other kinds of operations. Rather, the BUR argued that forces able to prevail in two major wars would also be able to meet less demanding requirements.

By the time Congress enacted the original QDR requirement, however, that premise was being very widely questioned. Ongoing, long-term U.S. military missions in Bosnia and later in Kosovo, plus enforcement of no-fly zones in Iraq, were straining the Army and Air Force, neither of which was

organized to sustain long-term rotational deployments abroad. The Army, in particular, was still organized in a way that required the mobilization of large numbers of reserves and the reassignment of substantial numbers of active duty troops in order to fill out units selected for deployment. The effect was to disrupt Army personnel management across the whole force and to degrade the readiness of many non-deployed units in order to support even a modest rotational deployment of 5,000 troops to the Balkans.

The 1997 QDR reflected efforts to assess and later ameliorate some of these strains. Among other things, it identified so-called low density-high demand units; mandated additions to some of the more highly stressed forces, including military police and civil affairs teams; made offsetting reductions in other units; and undertook systematic studies of the burdens of recent and ongoing contingency operations on military personnel. It also included a substantially new statement of the missions of U.S. military forces that stressed military engagement and other measures to make use of military forces in non-conflict situations to improve ties with foreign nations and prevent regional conflicts.

As one means of encouraging a more far-reaching policy reassessment, Congress required as part of the 1997 process the appointment of an independent group, called the National Defense Panel, to provide input to the QDR and then to prepare an alternative assessment. The NDP's final report emphasized the prospect that future foes would not challenge U.S. conventional military power directly, but would instead use asymmetric means to exploit U.S. weaknesses. The panel warned that critical U.S. capabilities, particularly the ability to project power far around the globe from bases in distant regions and naval forces offshore, would be increasingly at risk because of the diffusion of advanced technologies. The NDP recommended new programs, including converting ballistic missile submarines to launch cruise missiles against targets ashore, and substantial annual investments in experimental technologies to cope with rapidly evolving challenges.

The NDP report is in many ways representative of the discussion, in Congress and elsewhere, about the apparent limitations of successive QDRs. Even though the 1997 QDR, by most accounts, reflected considerable progress in addressing new challenges, the NDP report was quite critical of the Defense Department for not adjusting rapidly enough to accelerating changes in the international security environment. Critical as it was, the NDP also received a respectful hearing from senior leaders – the authors of the QDR – inside the Pentagon.

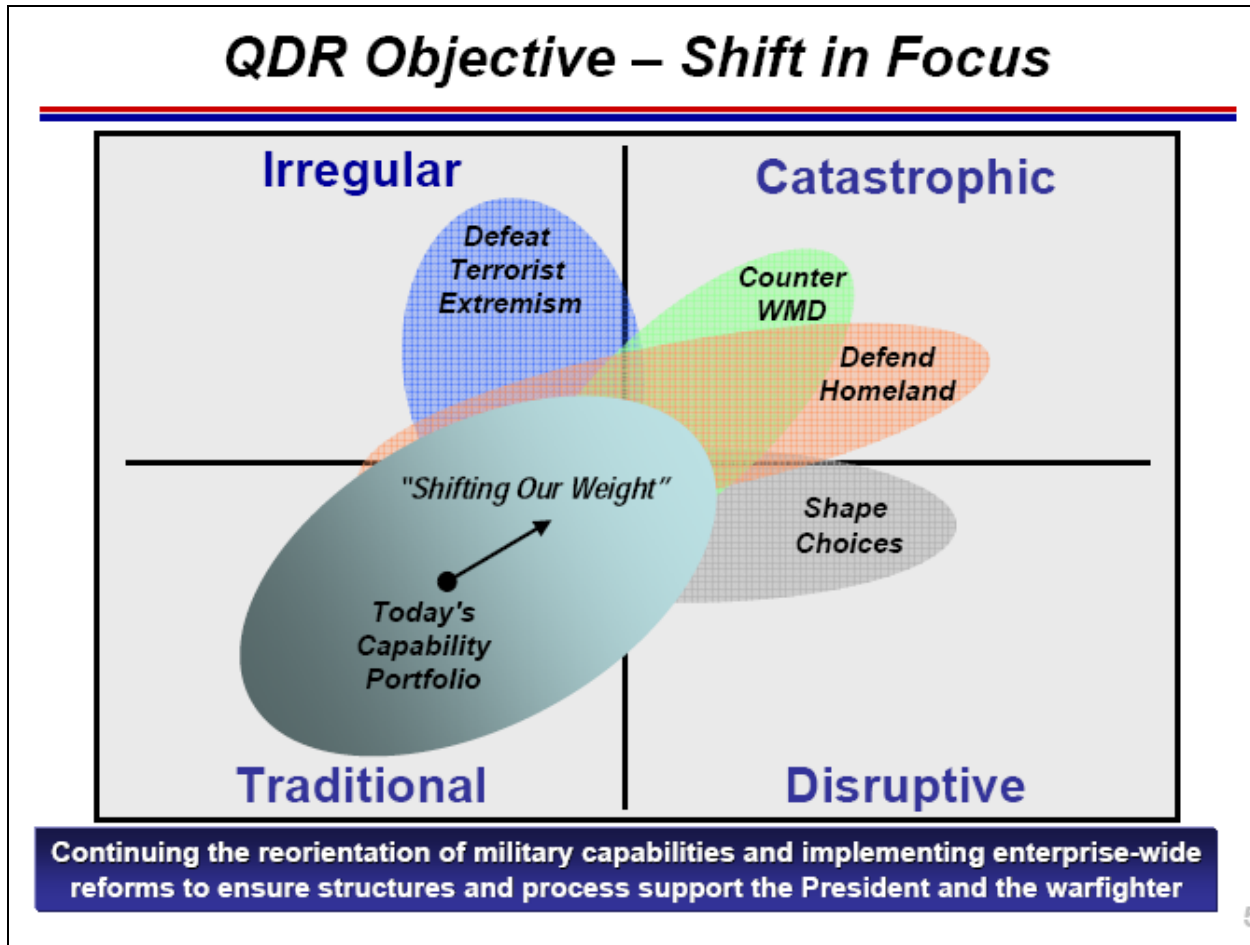
In general, successive QDRs can be seen as progressive steps away from force planning that remained wed to weapons and organizations inherited from the Cold War and toward a much fuller appreciation of the extraordinarily broad array of challenges facing the United States in first half of the 21<sup>st</sup> Century. The 1997 QDR was succeeded by the 2001 QDR, which emphasized the need to build a full range of capabilities to cope with often unpredictable dangers. It added to the two-war requirement a mandate to protect the homeland from potentially catastrophic attacks and to maintain an effective deterrent presence in four critical regions of the globe.<sup>5</sup>

The 2006 QDR, the first composed after the attacks of September 11, 2001, included the “new challenges” framework that has since shaped much of the discussion of defense planning. *Figure 2*, taken directly from the a DOD briefing on the 2006 QDR, illustrates the premise – which Secretary Gates has pursued since then more assiduously – that investments should be shifted from means of engaging in traditional, conventional force-on-force conflicts, in which the United States still appears to have a significant margin of superiority, and toward irregular, disruptive (i.e., asymmetric attacks on U.S. vulnerabilities), and catastrophic (WMD attacks on the homeland) challenges.

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<sup>5</sup> The 2001 QDR articulated what it called the 1-4-2-1 force planning construct, which called for forces to (1) protect the homeland, (4) deter aggression in Europe, Northeast Asia, the East Asian littoral, and Southwest Asia and the Middle East, (2) simultaneously halt attacks in two regions, and (1) win decisively in one major conflict.

**Figure 2. 2006 QDR Four Challenges Framework for Setting Priorities**



**Source:** Department of Defense, Briefing Slides on the 2006 Quadrennial Review, February 3, 2006.

Based on briefings by senior DOD officials, the current QDR appears likely to push the discussion of the international security environment, with implications for force planning, somewhat further. Secretary Gates and other officials have, for example, stressed that distinctions between traditional, irregular, and disruptive challenges are eroding. Groups like Hezbollah and Hamas have employed quite sophisticated short-range missiles, including anti-ship missiles, supplied by sponsoring nations. Insurgents in Iraq and Afghanistan have used modern shaped-charge munitions in IEDs to attack armored vehicles. Analysts describe the result as “hybrid warfare,” in which non-state groups, considered to operate at the lower end of the conflict spectrum, employ quite advanced technology, a merger of irregular warfare with advanced means of warfare.

Officials also emphasize that even relatively sophisticated future enemies, including peer- or near-peer competitors, will almost certainly employ whatever means they believe will be effective in a conflict with the United States and its allies, including irregular and disruptive asymmetric attacks and even assaults on the U.S. homeland. A focus of the current QDR appears to be on what officials term “high end asymmetric” threats, meaning challenges that a technologically sophisticated and relatively wealthy opponent might pose in an effort to prevail without having to defeat the U.S. on its own terms. High-end



asymmetric warfare was another focus of the April QDR guidance, and it is the subject of one of the QDR's issue teams.

In focusing on high-end asymmetric challenges, part of what defense officials are thinking may be reflected in recent discussions by Under Secretary of Defense for Policy Michèle Flournoy, who has stressed the need to safeguard what she and others call “the global commons,” meaning air, sea, space, and cyberspace means of transport, intelligence, and communications.<sup>6</sup> Threats to the global commons could involve the use of some new technologies, including anti-satellite devices (not just weapons but jammers) and cyber-attacks. They could also involve aggressive, wide-scale use by possible future foes of new versions of older technologies. In attacking sea lanes, for example, enemies could use high-speed small boats packed with high explosives (perhaps with suicide pilots); advanced, very quiet diesel-electric submarines with highly capable munitions; smart sea mines that can be deployed in large numbers, hidden, maneuvered, and activated when needed; short- to intermediate-range ballistic missiles with highly accurate and perhaps even maneuverable warheads to attack ships as well as fixed sites; and long-range, stealthy anti-ship cruise missiles. Some of these technologies, particularly ballistic and cruise missiles, could also be used to attack U.S. forward bases in regions of conflict.

Taken as a whole, discussions of security challenges in successive QDRs appear to represent considerable progress over time. The issue, however, is whether the progress has been rapid enough, and, more importantly, whether it has led to sufficiently rapid changes in policy. One goal Congress had in requiring quadrennial defense reviews was to push the discussion of post-Cold War force requirements further. QDRs may have helped to some degree in doing so, simply by requiring senior DOD leaders to think systematically about long-term issues. At the same time, it would be hard to say that QDRs have fully anticipated the evolving nature of future threats. On the contrary, they seem in many cases to have lagged behind emerging threats.

Moreover, changes in military force posture appear to have been even slower to mature. It took the Army until 2001, just on the verge of subsequent conflicts in Afghanistan and Iraq, to begin implementing a new force posture based on more deployable, modular brigades that were sufficiently manned in peacetime to be deployed without disrupting personnel movements over the whole of the force. In general, earlier QDRs appear to constitute snapshots of progress in ongoing discussions of strategy rather than radical departures from earlier views – an evolutionary process driven by the pressing need to adjust to unexpected events, rather than anything revolutionary.

This raises what may be the key issue for Congress in assessing the current QDR. Will this QDR be another in a line of modest adjustments to global changes, or will it more fully anticipate the impact on U.S. security of fast-moving global trends? A goal of DOD's current leadership appears to be, not merely to identify the range of challenges facing the nation, but also to establish priorities in addressing them. But will this include not only identifying areas that may warrant greater investment, but also capabilities that may be becoming obsolete?

One common criticism of the “capabilities based” analysis of the 2001 and 2006 QDRs, even as they helped to broaden awareness of the range of threats, is that the analytical framework did not help much in allocating resources away from some areas and into others. Leaving aside whether such criticism is fair, the current Administration has emphasized the need to analyze specific threats in order to establish priorities. The question that follows is, how boldly will the current QDR address the potential need for major changes in forces in view of its assessment of new challenges?

To give one example of the kinds of more radical changes in force posture that the QDR might address, consider the long-standing debate over anti-access/area denial strategies. The issue has been debated at least since the National Defense Panel discussed it in 1997. A “Red Team” established as part of the 2006

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<sup>6</sup> Michèle Flournoy and Shawn Brimley, “The Contested Commons,” *Proceedings of the U.S. Naval Institute*, Vol 135, No. 7, July 2009.

QDR, and headed by Andrew Marshall, director of the Office of Net Assessment, also discussed it and recommended some far-reaching changes in force structure, including a cut of up to one-third in the number of short-range tactical fighter aircraft and an increase in funding for longer-range strike systems. Now a similar “Red Team” has been established for the current QDR, also co-chaired by Marshall, and it includes prominent advocates of changes in forces to cope with anti-access/area denial strategies. They include Andrew Krepinevich, who served on earlier panels as well, and who has long highlighted the issue, and retired Marine Lieutenant General Paul Van Riper, who, in a major war game, called “Millennium Challenge 2002,” directed a “Red Force” group that exploited with great effect creative means of disrupting U.S. forces in a Persian Gulf-type scenario.

It is important to note that the Defense Department has not ducked the issue. The National Defense Panel and later internal Red Teams were not suppressed or dismissed – on the contrary, the Defense Department has appeared to welcome the involvement of some forceful critics of some of its policies. After he read Krepinevich’s recent book, *7 Deadly Scenarios*, Secretary Gates reportedly directed the QDR team to incorporate Krepinevich’s examples into its set of planning exercises.<sup>7</sup>

That said, there appears to be a considerable gulf between the urgency that Krepinevich and others attach to the issue and views of senior DOD officials. In a recent article in *Foreign Affairs*, Krepinevich characterized current U.S. means of projecting and sustaining power around the globe – a capability now unique to the United States and also extremely expensive to maintain – as a “wasting asset.” “Several events in recent years have demonstrated that traditional means and methods of projecting power and accessing the global commons are growing increasingly obsolete,” he wrote. Citing General Van Riper’s success in Millennium Challenge, which, he says, led to the early loss of half the U.S. ships deployed in a model conflict with Iran in the Persian Gulf, Krepinevich concluded:

Van Riper's success should have served as a warning: projecting power into an area of vital interest to the United States using traditional forces and operational concepts will become increasingly difficult. Indeed, these means and methods are at great risk of experiencing significant, perhaps even precipitous, declines in value....

In the real world, Iran and other states can buy high-speed, sea-skimming ASCMS [anti-ship cruise missiles] in quantity. In confined waters near shore, U.S. warships would have little warning time to defend against these weapons. The same can be said of high-speed suicide boats packed with explosives, which can hide among commercial vessels. Widely available modern sea mines are far more difficult to detect than were those plaguing the U.S. fleet during the 1991 Gulf War. Quiet diesel submarines operating in noisy waters, such as the Strait of Hormuz, are very difficult to detect. Iran's possession of all of these weapons and vessels suggests that the Persian Gulf – the jugular of the world's oil supply – could become a no-go zone for the U.S. Navy.<sup>8</sup>

China, too, he says, is concentrating on anti-access/area denial capabilities as well as the ability to disrupt U.S. freedom of action in space and cyberspace.

In contrast, Under Secretary Flournoy and co-author Shawn Brimley, acknowledge similar challenges, but come to a starkly different conclusion about the immediacy of the threat:

... barriers to entry for both state and non-state actors to develop and field capabilities that can pose challenges to U.S. and allied freedom of action will lower substantially over time. The proliferation of knowledge and technology will allow an increasing number of state and non-state actors to deploy anti-access capabilities and high-end asymmetric technologies that can put allied infrastructure at risk and hamper U.S. power projection.

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<sup>7</sup> Andrew F. Krepinevich, *7 Deadly Scenarios* (New York: Bantam Books, 2009). Christopher J. Castelli, “QDR Shakes Up Planning Scenarios for Future Military Missions,” *Inside the Pentagon*, May 28, 2009.

<sup>8</sup> Andrew F. Krepinevich, “The Pentagon's Wasting Assets,” *Foreign Affairs*, July/August, 2009, Vol. 88, Issue 4.

While these trends are already apparent today, their enumeration should not be interpreted to mean that U.S. dominance in, for example, space-based capabilities or in blue-water naval power projection is being eroded at a precipitous pace. Far from it – America's military will remain without peer for some time in the ability to project and sustain substantial military power from the air and sea over large distances.

These trends are, however, harbingers of a future strategic environment in which America's role as an arbiter or guarantor of stability within the global commons will become increasingly complicated and contested.

What evidence the Defense Department has to support the conclusion that power projection capabilities are not “being eroded at a precipitous pace,” is a matter of critical importance. This judgment appears to be at odds, to some degree at least, with the conclusions of the 2006 QDR Red Team, as well as with the views of Krepinevich and other well-regarded independent analysts. A measure of the value of the QDR may be how directly and effectively it addresses this and similar issues that raise questions about the pace at which the Defense Department is adjusting to changes in the international security environment.

The amount of new investment that may be needed to cope with asymmetric threats may very well be substantial. If area denial strategies are effective in forcing shorter-range U.S. forces away from regions of conflict, for example, investments in longer-range air- or even space-based strike systems might be needed, particularly for use in the early stages of a conflict. The task of striking against mobile ballistic and cruise missile launchers remains challenging, and much larger investments in intelligence, surveillance, and reconnaissance systems for the mission, as well as in long-range and loitering strike systems, might be required. One alternative may be a substantial increase in submarines and submarine launched weapons. Defenses against ballistic and cruise missiles might also be required in very large numbers. Cost exchange ratios may not favor existing sea- or land-based missile defense systems, and new investments in air-launched anti-missile systems may be needed.<sup>9</sup>

Other asymmetric threats could also require expensive measures in response. Defense against anti-satellite systems might require not only measures to protect current generations of large satellites, but, as many have proposed, the development of smaller satellites for key missions that could be launched in substantial numbers in the run up to a conflict. This might also require large investments in launch systems.

The Cold War was punctuated by occasional, unexpected international crises, but, in retrospect defense planning was characterized by a remarkable degree of stability. The post-Cold War era, in contrast, appears to be defined both by a succession of unpredictable challenges and by the accelerating pace of global change. Experience with earlier QDRs suggests that the Defense Department may sometimes be slow to adjust to new challenges, and that institutional inertia may make senior leaders reluctant to pursue far-reaching changes in policy. The central issue for this and future QDRs may be how effective they are in turning investments that will determine U.S. military capabilities twenty years and more in the future, in the right direction.

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<sup>9</sup> There has been some discussion of using upgrades of Sparrow or AMRAAM air-to-air missiles for missile defense.