



**Time to Take Stock:
The U.S. Cluster Munition Inventory and the FY 2006
Department of Defense Budget**

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Summary.....	2
Recommendations	3
The Cohen Policy	4
The Current U.S. Cluster Munition Stockpile.....	4
Department of Defense Procurement Requests	7
Army Procurement Requests	7
Rocket and Missile Systems	7
Submunition Retrofitting.....	10
Helicopter-Launched Hydra	11
Marine Corps Procurement Requests	11
Missile and Rocket Systems	11
Air Force Procurement Requests	12
Sensor Fuzed Weapons	12
CBU-87	13
Wind Corrected Munitions Dispenser	13
Navy Procurement Requests.....	14
Joint Standoff Weapons.....	14
Conclusion.....	15
Table 1: Inventory of Legacy Cluster Munitions, by Service	17
Table 2: Projected Number of “Dud” Submunitions Produced by Legacy Cluster Munitions, by Service.....	19

Summary

No weapons used by U.S.-led coalition forces in Iraq in 2003 caused more civilian casualties than cluster munitions, large weapons that contain dozens or hundreds of smaller submunitions.¹ Cluster munitions also caused significant civilian deaths and injuries both during and after the conflicts in Afghanistan in 2001, Yugoslavia in 1999, and Iraq in 1991. They pose an immediate danger to civilians during attacks, especially in populated areas, because they are inaccurate and have a wide dispersal pattern. They also endanger civilians long after the conflict due to the high number of submunition “duds” that do not explode on impact and become *de facto* landmines.

This briefing paper critically examines the status and quality of current U.S. cluster munition stockpiles and assesses in detail the Department of Defense’s (DoD) fiscal year 2006 (FY 2006) budget requests related to such weapons.² It concludes that, despite recent positive developments in its cluster munition policy and procurement practice, the United States retains—and still is willing to use—at least 728 million old, unreliable, and inaccurate cluster submunitions. These submunitions pose grave dangers to civilian populations and should never be used. They should be destroyed, or modified to improve their accuracy and ensure an initial failure, or dud, rate below 1 percent. Technical improvements should be accompanied by changes in U.S. targeting doctrine, most notably a prohibition on use in or near populated areas.

The FY 2005 Defense Appropriations Act directed the Department of Defense to produce a report on existing and future submunitions (hereinafter DoD Report to Congress).³ The detailed report attempts to build the case for continued use of the hundreds of millions of existing, or “legacy,” submunitions. But the report also reflects important changes in the U.S. approach to cluster munitions. It states that DoD “is keenly aware of and interested in reducing our cluster munitions dud rates and improving the accuracy of the delivery methods. . . . Additionally, the DoD acknowledges the potential danger to non-combatants posed by UXO [unexploded

¹ For information on the use of cluster munitions in Iraq, see Human Rights Watch, *Off Target: The Conduct of the War and Civilian Casualties in Iraq* (New York: Human Rights Watch, 2003).

² This paper updates one Human Rights Watch published last year about the FY 2005 budget: Human Rights Watch, “Cluster Munitions Too Costly: Department of Defense FY 2005 Budget Requests Related to Cluster Munitions,” A Human Rights Watch Briefing Paper, June 2004. See Links to Budget Materials at <http://www.defenselink.mil/comptroller/defbudget/fy2006/index.html>.

³ Office of the Under Secretary of Defense (Acquisition, Technology and Logistics), “Report to Congress: Cluster Munitions,” October 2004 (hereinafter “DoD Report to Congress”).

ordnance] and has developed strict rules of engagement and targeting methodologies, intended to minimize risks to civilians in or near the zone of conflict.”⁴

The DoD FY 2006 budget, which covers October 2005 to September 2006, is the first to implement fully an important new U.S. policy toward procuring cluster munitions: the DoD may no longer acquire cluster submunitions with a dud rate of 1 percent or more. This policy was first declared in January 2001 and is only now taking full effect; it applies to new purchases and does not affect the existing stockpile. The Army, Marine Corps, and Air Force all seek funding for additional cluster weapons this year. While these spending requests appear to conform to the new policy, the budget raises a number of questions and concerns, as detailed below.

Recommendations

To minimize the danger of U.S. cluster munition stockpiles, Human Rights Watch recommends that the United States:

- prohibit the use in or near populated areas of all non-precision-guided submunitions, including those with self-destruct devices (such devices do not affect the “area effect” of the submunitions and thus do not reduce the immediate danger to civilians during attacks).
- prohibit the use of submunitions with a dud rate higher than 1 percent, and either destroy or retrofit with self-destruct devices all of the approximately 728 million old, unreliable submunitions that do not meet that standard.
- accelerate efforts to develop and employ better guidance systems to increase the accuracy of cluster munitions and their submunitions.

In addition, Human Rights Watch recommends that Congress, in adopting the FY 2006 budget, place conditions on certain cluster munition procurements (i.e., use only with unitary warheads or submunitions with less than a 1 percent dud rate), and that the Department of Defense provide fuller information about the numbers and types of cluster munitions and submunitions it is requesting, and their dud rates, so that Congress can make informed decisions.

⁴ *Ibid.*, p. ii.

The Cohen Policy

In 2001, then-Secretary of Defense William Cohen issued a policy memorandum stating that all submunitions reaching a Milestone 3 production decision in FY 2005 and beyond would have a dud rate of less than 1 percent (hereinafter the Cohen policy).⁵ In other words, submunitions that reach “full rate production,” i.e. production for use in combat, during the first quarter of FY 2005 must meet the new standard.⁶ According to the DoD Report to Congress, submunitions procured in past years are exempt from the policy, but “[f]uture submunitions must comply with the desired goal of 99% or higher submunition functioning rate or must receive a waiver.”⁷ The implementation of this policy is discussed in the DoD Report to Congress and reflected in the FY 2006 Budget.

The Current U.S. Cluster Munition Stockpile

Congress, as part of the FY 2005 DoD appropriations process, mandated a report on the U.S. cluster munition inventory (the above-mentioned DoD Report to Congress). The amendment requesting the report, initiated by Congresswoman Betty McCollum and submitted by the House Appropriations Subcommittee on Defense, “directs the Secretary of Defense ‘to provide a report that addresses how the Department of Defense (DoD) is improving the dud rate of cluster munitions to meet existing DoD policies.’”⁸

The report, dated October 2004, addresses three areas:

- the types and quantities of cluster munitions in existing stockpiles,
- “efforts to ensure the development of cluster munitions that meet the 1% dud rate policy,” and
- a description of the cluster munition inventory until the inventory meets the policy.⁹

⁵ Secretary of Defense William Cohen, “Memorandum for the Secretaries of the Military Departments, Subject: DoD Policy on Submunition Reliability (U),” January 10, 2001.

⁶ Ibid. See also Anthony J. Melita, “A Viewpoint from OSD,” briefing at National Defense Industrial Association, 45th Annual Fuze Conference, April 2001, p. 9.

⁷ “DoD Report to Congress,” p. ii.

⁸ Public Law No. 108-287 (2004), sec. 8134.

⁹ “DoD Report to Congress,” p. ii.

While the report recognizes the need for more reliable submunitions as required by the Cohen policy, it also stresses the United States's continued commitment to old cluster submunitions with high failure rates.

The report details a stockpile of 5.5 million cluster munitions containing about 728.5 million submunitions.¹⁰ This figure, however, does not appear to be a full accounting of cluster munitions available to U.S. forces. In particular, the tally does not include cluster munitions that are part of the War Reserve Stocks for Allies (WRSA).¹¹ Human Rights Watch has previously reported that the U.S. inventory, including WRSA, totaled about one billion submunitions.¹²

Cluster munitions are particularly ubiquitous in the stores of U.S. ground forces. According to the DoD report, the Army has about 638.3 million cluster submunitions (88 percent of the total inventory) and the Marine Corps has about 53.3 million (7 percent). The report states, "Cannon and rocket artillery cluster munitions comprise over 80% of Army fire support capability,"¹³ and they "comprise the bulk of the Marine Corps artillery munitions."¹⁴ The Air Force stockpiles about 22.2 million air-delivered cluster bombs (3 percent of the cluster inventory) and the Navy about 14.7 million (2 percent).

Of the 728 million submunitions, only 30,990 have self-destruct devices (.00004 percent).¹⁵ The DoD report cites failure rates of 2 percent to 6 percent for most of the submunitions, based on lot acceptance testing and stockpile reliability testing. Previous DoD documents have indicated much higher failure rates for the most common

¹⁰ The report lists 626,824,422 submunitions in the "Active Inventory" and 728,477,489 in the "Total Inventory." Active inventory denotes serviceable ammunition items that can be safely used in training or combat. Total inventory may include damaged, suspended, or unserviceable ammunition that is awaiting disposal or repair.

¹¹ Under this program, munitions are stored in foreign countries (notably in Europe, Japan, and Korea), but kept under U.S. title and control, then made available to United States and allied forces in the event of hostilities.

¹² See, e.g., Human Rights Watch, "Cluster Munitions a Foreseeable Hazard in Iraq," A Human Rights Watch Briefing Paper, March 2003. The one billion submunitions figure is mostly drawn from U.S. Army Material Systems Analysis Activity, "Unexploded Ordnance (UXO) Study," April 1996. The United States may have removed from inventory and destroyed a significant number of expired cluster munitions since that 1996 study. The new DoD report also does not include an unknown number of SADARM cluster munitions and TLAM cruise missiles with conventional submunitions, and more than 400,000 scatterable mine systems.

¹³ "DoD Report to Congress," p. 2.

¹⁴ *Ibid.*, p. 3.

¹⁵ These are CBU-97 and CBU-105 Sensor Fuzed Weapons (SFW) held by the Air Force and Navy. The Army's SADARM cluster munitions, which are similar to SFW, are not included in the DoD report.

submunitions.¹⁶ Organizations involved in UXO clearance in various countries also cite higher failure rates.

Both ground and air forces stockpile large numbers of outdated cluster munitions that have caused significant harm to civilians in recent conflicts. The Army and Marine Corps have 155mm artillery projectiles (M483/M483A1 and M864) containing about 402 million Dual Purpose Improved Conventional Munition (DPICM) submunitions. The new DoD report cites a failure rate of 3 percent, while a July 2000 Army study cited 14 percent.¹⁷ Similarly, the Army has M26 Multiple Launch Rocket Systems (MLRS) containing about 282 million submunitions; the new DoD report cites a failure rate of 5 percent, while an earlier study cited 16 to 23 percent.¹⁸ These weapons killed or wounded hundreds of civilians in Iraq in 2003.

The Air Force still has CBU-87 cluster bombs containing more than 20 million submunitions; the DoD report cites a failure rate of 4 to 6 percent, while U.N. clearance operations in Kosovo found a 7 percent failure rate. The yellow BLU-97 submunitions in these cluster bombs caused hundreds of civilian casualties during and after conflict in Kosovo, Afghanistan, and Iraq.

The Navy retains MK-20 Rockeye cluster bombs with about 14.5 million submunitions; the DoD report cites a surprisingly low 2 percent failure rate. These cluster bombs were developed in the 1950s and were used in great numbers in the Vietnam War and in the 1991 Gulf War and were reported to have high failure rates; clearance agencies in Kuwait encountered a very large number of hazardous dud Rockeye submunitions.¹⁹

Even using the report's very conservative dud rates, however, the current submunition inventory, if employed, would leave behind more than 27 million hazardous duds (see Table 2). The report says that legacy munitions "will remain in the department's inventory until used or until they reach their extended life and are demilitarized."²⁰ Thus, while the DoD will destroy some submunitions because they have expired, it has

¹⁶ See, e.g., Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, "Unexploded Ordnance Report," table 2-3, p. 5. No date, but transmitted to the U.S. Congress on February 29, 2000.

¹⁷ U.S. Army Defense Ammunition Center, Technical Center for Explosives Safety, "Study of Ammunition Dud and Low Order Detonation Rates," July 2000, p. 9.

¹⁸ Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, "Unexploded Ordnance Report."

¹⁹ For more details and sources on Rockeye, CBU-87, DPICM and MLRS, see Human Rights Watch, "Cluster Munitions a Foreseeable Hazard in Iraq."

²⁰ "DoD Report to Congress," p. 12.

no plans to destroy cluster munitions because of their high failure rates and inaccuracy. According to the report, a total of 480 million of the old, unreliable submunitions will still be in the inventory in FY 2011.²¹

The report also reflects an unwillingness to replace cluster munitions with unitary weapons. It describes the cluster munitions as “vital” and “versatile,” particularly for attacks on time-sensitive area targets. “Restricting U.S. Forces to firing only unitary munitions would severely hinder our capabilities . . . and would limit the number of available munitions options for the operational commander.”²² It specifically states that unitary models are “not intended as a replacement for” MLRS or ATACMS cluster munitions.²³ Such statements ignore the lessons of Iraq where field commanders and Judge Advocate Generals (legal advisers) called for a unitary alternative to reduce the risk to U.S. troops and Iraqi civilians. In that conflict, ground forces used long-range MLRS rockets, which only carry submunitions, largely because Iraqi artillery outranged U.S. artillery. In such cases, a unitary warhead would have served the same purpose without the civilian harm that is all but inevitable when one uses an area effect weapon that produces dozens of duds.

Department of Defense Procurement Requests

Most of the Pentagon’s requests in the FY 2006 budget, which the rest of this paper will discuss, call for the retrofitting of old technology or procurement of newer technology. While designed to increase military effectiveness, the modernization of the U.S. cluster munition arsenal has the potential to reduce the negative humanitarian impact of these weapons. The changes are far from a panacea, however. The large stockpile of unreliable and inaccurate cluster munitions remains, new technology must be tested and evaluated, and targeting changes must accompany technological improvements.

Army Procurement Requests

Rocket and Missile Systems

In the FY 2006 budget, the Army requests \$124.8 million for 1,026 rockets for the Guided Multiple Launch Rocket System (GMLRS).²⁴ FY 2006 is the fourth year of a

²¹ Ibid., pp. 12-16.

²² Ibid., p. ii.

²³ Ibid., p. 8.

²⁴ Department of the Army, Committee Staff Procurement Backup Book, Fiscal Year 2006/2007 President's Budget: Missile Procurement, Army, February 2005, Item No. 13, Guided MLRS Rocket, p. 72, <http://www.asafm.army.mil/budget/fybm/FY06-07/pforms/missiles.pdf> (retrieved March 14, 2005).

gradually increasing, ten-year program to procure 140,004 of such rockets, which are designed to replace the “aging M26A1/A2 [MLRS rocket] inventory.”²⁵ These rockets, often used for counter-battery fire, are launched from MLRS or High Mobility Artillery Rocket System (HIMARS) launchers. The new rockets are precision guided, with inertial and global positioning system (GPS) guidance systems. As a result, they are more likely to hit their target and troops will need to use fewer of them.

DoD says the GMLRS guidance system, “in combination with the improved fuzing, reduces the total hazardous duds by 95 percent or more from standard M26 MLRS missions” and its “impact area is 85 percent smaller.”²⁶ Its M101 submunition, product of a cooperative program undertaken with France, Germany, Italy, and the United Kingdom, however, only reduces the dud rate to 2.5 percent unless it has a self-destruct device.²⁷ According to the budget documents, some, although DoD does not reveal how many, of the rockets will carry a unitary warhead instead of submunitions, thus reducing Army reliance on cluster munitions.

Such technological developments are significant because the hundreds of older MLRS rockets used in Iraq were major killers of civilians. The Army relied heavily on the MLRS because Iraqi artillery had a longer range than the regular U.S. artillery. The only available warhead for the MLRS, however, contained submunitions. In order to take out a single artillery piece in a civilian neighborhood, U.S. ground troops would launch a standard volley of six rockets containing about 4,000 DPICMs with a 16 percent dud rate that spread over an area with a 0.6-mile radius. The humanitarian impact was devastating, and duds endangered both soldiers and civilians. Military officers ranging from field commanders to senior CENTCOM officials called for a unitary alternative.

The GMLRS, especially in its 200-pound unitary form, addresses some of those concerns. The Budget Justification Sheet, however, does not specify how many of each type of warhead (unitary or submunition) will be procured, important information that should be made public. Because of its area effect, the version with submunitions will still excessively endanger civilians, especially if used in populated areas. The Budget Justification Sheet also does not say which type of submunition will be used. The DoD Report to Congress says that it will be a M101 DPICM with an improved M239 submunition fuze, but it does not specify if it will have a self-destruct mechanism.²⁸ At a

²⁵ Ibid.

²⁶ “DoD Report to Congress,” p. 8.

²⁷ Ibid., p. 7.

²⁸ “DoD Report to Congress,” p. 7.

minimum, the 404 DPICMs in each GMLRS rocket should be replaced or retrofitted to reduce the dud rate.

In another budget line, the Army has asked for \$58.5 million for 45 Army Tactical Missile Systems (ATACMS) missiles.²⁹ These missiles are launched from an MLRS or HIMARS and usually carry 300 or 950 spherical submunitions. U.S. ground forces used at least 330 of these in Iraq in 2003, and they caused a number of civilian casualties. As with last year's request, however, this request is for the Block 1A Quick Reaction Unitary (QRU) model, a unitary alternative to the submunition model. It also includes a GPS guidance system to increase accuracy.

In addition to the GMLRS rockets and ATACMS missiles, the Army seeks money for different launcher systems. It requests \$20.8 million for production support and fielding of the relatively new M270A1 MLRS launcher and \$19.8 million for modification to the same.³⁰ The Army states this launcher will allow for "faster target engagement on time-sensitive" targets.³¹ The Army wants \$183.3 million to procure thirty-five HIMARS and \$8 million to make modifications to existing units.³² The HIMARS is a lightweight version of the MLRS that launches six instead of twelve rockets or one instead of two missiles. These line items, all part of multiyear programs, do not require procurement of cluster munitions but are worth noting because they are often used to launch them. The Army has also requested \$114.3 million in Research, Development, Testing, and Evaluation (RDT&E) for GMLRS rockets and HIMARS launchers.³³

- The Department of Defense should specify how many of each type of GMLRS rocket it wants to procure and what kind of submunitions they will contain.
- Congress should condition approval for rocket and missile launchers on their being used only with unitary warheads and submunitions with less than a 1 percent dud rate.

²⁹ Department of the Army, Committee Staff Procurement Backup Book, Fiscal Year 2006/2007 President's Budget: Missile Procurement, Army, February 2005, Item No. 16, Army Tactical Missile System, p. 104, <http://www.asafm.army.mil/budget/fybm/FY06-07/pforms/missiles.pdf> (retrieved March 13, 2005).

³⁰ *Ibid.*, Item No. 15, MLRS Launcher Systems, p. 91; *ibid.*, Item No. 22, MLRS Modifications, p. 128.

³¹ *Ibid.*, Item No. 15, MLRS Launcher Systems, p. 91.

³² *Ibid.*, Item No. 16, High Mobility Artillery Rocket System, p. 96; *ibid.*, Item No. 23, HIMARS Modifications, p. 145.

³³ Department of Defense Budget for Fiscal Year 2006, Program Acquisition Costs by Weapon System, February 2005, p. 22, http://www.defenselink.mil/comptroller/defbudget/fy2006/fy2006_weabook.pdf (retrieved March 13, 2005).

Submunition Retrofitting

The Army has requested \$5 million, plus \$5.1 million in FY 2007, to retrofit with self-destruct devices 375,000 submunitions in 5,000 155mm projectiles.³⁴ The 155mm “Recap” program is designed to reduce the dud rate. It applies to M864 Basebled Extended Range-DPICM (ER-DPICM) artillery projectiles, each of which contains a combination of seventy-two M42 and M46 submunitions. According to Army figures from 2000, these submunitions have a dud rate of 14 percent before retrofitting;³⁵ the DoD Report to Congress says the rate is 3 percent. The reasons for the lower estimate are not known, but in any event, 3 percent is too high.³⁶ The Army’s Budget Justification Sheet does not specify an expected dud rate after retrofitting although the DoD Report to Congress says it will be less than 1 percent.³⁷ The requested \$5 million is significantly lower than last year’s request for \$42.2 million to retrofit 820,800 submunitions in 11,400 155mm artillery projectiles.³⁸ This year’s Budget Justification Sheet also reveals that only \$17.9 million was ultimately approved for FY 2005.

During major hostilities in Iraq in 2003, submunitions killed or injured hundreds of civilians, and DPICMs were by far the worst offenders. The Budget Justification Sheet states that the 155mm Recap program will “greatly reduce hazardous duds on the battlefield as evidenced with the use of DPICM during Operation Desert Storm and Operation Iraqi Freedom.”³⁹

While this retrofitting program should help reduce the danger of duds in future conflicts, it will not address the other major concerns regarding cluster munitions: the wide footprint and the lack of accuracy. Thus, it will not reduce the immediate danger of these weapons during strikes, especially in populated areas. A self-destruct mechanism does not change the area effect characteristic which leads to civilian deaths during

³⁴ Department of the Army, Committee Staff Procurement Backup Book Fiscal Year 2006/2007 Budget Submission: Procurement of Ammunition, Army, February 2005, Item No. 16, Projectile 155mm DP Basebled M864, p. 350, <http://www.asafm.army.mil/budget/fybm/FY06-07/pforms/ammo.pdf> (retrieved March 13, 2005).

³⁵ U.S. Army Defense Ammunition Center, Technical Center for Explosives Safety, “Study of Ammunition Dud and Low Order Detonation Rates,” July 2000, p. 9.

³⁶ “DoD Report to Congress,” p. 2.

³⁷ *Ibid.*, p. 7.

³⁸ Department of the Army, Committee Staff Procurement Backup Book, FY 2005 Budget Estimates: Procurement of Ammunition, Army, February 2004, Item No. 16, Projectile 155mm DP Basebled M864, p. 336, <http://www.asafm.army.mil/budget/fybm/FY05/pforms/ammo.pdf> (retrieved April 7, 2004).

³⁹ *Ibid.*

attacks. Moreover, the retrofitting program does not account for all of the DPICMs in the U.S. arsenal.⁴⁰ The Army, for example, did not request FY 2006 money to retrofit 105mm M915 artillery shells with DPICMs,⁴¹ although it awarded a contract in February 2003 for the manufacture of 500,000 self-destruct fuzes for these projectiles.⁴²

- The Department of Defense should destroy or retrofit all DPICMs that are not modified under this program.
- These retrofits and other non-precision-guided submunitions should never be used in populated areas.
- The Department of Defense should make public the estimated dud rate for the retrofitted submunitions.

Helicopter-Launched Hydra

This year, the Army has asked for no money for helicopter-launched cluster munitions. Last year, for FY 2005, the Army requested \$3.8 million to procure 2,000 Hydra 70 MPSM HE M261 rockets.⁴³ These rockets carry nine M73 submunitions each. The submunitions, which do not have self-destruct mechanisms, have a 6 percent dud rate according to the DoD Report to Congress⁴⁴ and under the Cohen policy can no longer be procured.⁴⁵

Marine Corps Procurement Requests

Missile and Rocket Systems

The Marine Corps seeks funds for GMLRS rockets, but, like last year, the details of this request are unclear. The Marine Corps Budget Justification Sheet calls for \$1.3 million for GMLRS rockets and MLRS practice rockets, but it does not specify how the money

⁴⁰ The DPICM is used in several models of cluster munitions. The Army has not reported what percentage of the DPICMs it used in Iraq came in M864 projectiles.

⁴¹ Department of the Army, Committee Staff Procurement Backup Book, FY 2006/2007 Budget Submission: Procurement of Ammunition, Army, February 2005, Item No. 15, CTG, Artillery, 105mm: All Types, p. 320.

⁴² U.S. Army Armaments Research and Development Engineering Center, Contract Award Notice DAAE30-03-R-0800, "M234 Self-Destruct Fuze Low Rate Initial Production—Sole Source," February 6, 2003.

⁴³ Department of the Army, Committee Staff Backup Book, Fiscal Year 2005 Budget Amendment for Army Aviation Transformation: Procurement Ammunition, Army, March 2004, Rocket Hydra 70 MPSM HE M261, p. 7, <http://www.asafm.army.mil/budget/fybm/fy05/amended/pform-ammo.pdf> (retrieved April 7, 2004).

⁴⁴ "DoD Report to Congress," p. 2.

⁴⁵ Anthony J. Melita, "A Viewpoint from OSD." This presentation lists the Hydra as one of the weapons affected by the Cohen policy, subject to a waiver or modification.

will be divided.⁴⁶ According to Army budget justification documents, the Marines want 648 GMLRS rockets as part of a program that would obtain 3,900 by FY 2011.⁴⁷ For FY 2006 the Marine Corps also requested \$176.8 million for fifteen HIMARS.⁴⁸ The analysis of these requests is the same as that for the Army's GMLRS and HIMARS.

- The Marine Corps should clarify its procurement request, breaking it down by type of rocket and specifying what type of submunitions the GMLRS would carry.
- Congress should condition approval for the HIMARS launcher on its being used only with unitary warheads or submunitions with less than a 1 percent dud rate.

Air Force Procurement Requests

Sensor Fuzed Weapons

The Air Force budget includes one major cluster munition procurement request—the Sensor Fuzed Weapon (SFW). It has asked for \$120,379 million for 332 SFWs, also called CBU-97s, which incorporate cutting-edge cluster munition technology.⁴⁹ The SFW has the same canister as the more common CBU-87 or CBU-103, but it contains ten BLU-108 submunitions instead of 202 BLU-97s. The SFW's submunitions each contain four hockey-puck-sized, explosive "skeets" with infrared sensors that guide them to armored targets and self-destruct mechanisms to reduce the number of duds. The Air Force plans to add Wind Corrected Munitions Dispensers (WCMDs) to these CBU-97s to create the guided version of the SFW, the CBU-105. The procurement request is slightly larger than it was the past two years and will gradually increase to 398 in FY 2011.

The United States used the SFW for the first time in Iraq. The Air Force dropped eighty-eight of them. They have the potential to reduce the civilian cost of cluster munitions because both their canisters and skeets are guided and because their dud rate

⁴⁶ Department of the Navy, FY 2006/2007 Budget Estimates: Procurement, Marine Corps, February 2005, Item No. 21, HIMARS Rockets, <https://164.224.25.30/FY06.nsf/PMC?OPENframeset> (retrieved March 13, 2005).

⁴⁷ Department of the Army, Committee Staff Procurement Backup Book, Fiscal Year 2006/2007 President's Budget: Missile Procurement, Army, February 2005, Item No. 13, Guided MLRS Rocket, p. 75, <http://www.asafm.army.mil/budget/fybm/FY06-07/pforms/missiles.pdf> (retrieved March 14, 2005).

⁴⁸ Department of the Navy, FY 2006/2007 Budget Estimates: Procurement, Marine Corps, February 2005, Item No. 12, <https://164.224.25.30/FY06.nsf/PMC?OPENframeset> (retrieved March 13, 2005).

⁴⁹ Department of the Air Force, Fiscal Year 2006/2007 Budget Estimates: Procurement of Ammunition, February 2005, Item No. 6, Sensor Fuzed Weapon, p. 81, http://www.saffm.hq.af.mil/FMB/pb/2006/afprocurement/Ammunition_Procurement_FY06_PB.pdf (retrieved March 13, 2005).

should be lower due to the self-destruct mechanisms. They also target vehicles, which should help avoid an indiscriminate antipersonnel effect. Initial Air Force reports gave the weapon a positive review.⁵⁰ The Army introduced a similar artillery-launched weapon in Iraq called the Sense and Destroy Armor Munitions (SADARM), but it did not request additional money to procure SADARMs this year or last.

CBU-87

The Air Force has also requested \$291,000 for 15 CBU-87 cluster bomb dispensers.⁵¹ The Budget Justification Sheet provides no information about this request except that the dispensers will be inert, i.e. without their submunitions. By themselves, these cluster casings pose no danger. If they are filled with BLU-97s, which have a dud rate of 4 to 6 percent,⁵² however, they represent a significant humanitarian risk. The CBU-87, and its successor the CBU-103, killed dozens of civilians in Iraq, Afghanistan, and Kosovo. The casing, which can be used with a number of different weapon systems, also endangers civilians if it is used to carry scatterable mines.

- The Department of Defense should provide Congress with more information about this request, and Congress should reject any procurement requests for CBU-87 dispensers to be used for the CBU-87 or CBU-103 cluster bombs or for the CBU-89 or CBU-104 scatterable landmine systems.

Wind Corrected Munitions Dispenser

In a surprise change of direction, the Air Force budget does not include money to procure the Wind Corrected Munition Dispenser. The WCMD is a guidance system that attaches at the rear of four munitions—the CBU-103 (Combined Effects Munition), CBU-104 (Gator antipersonnel and antivehicle mines), CBU-105 (Sensor Fuzed Weapon), and CBU-107 (Passive Attack Weapon). It does not make these cluster bombs precision-guided munitions but increases their accuracy by compensating for wind encountered during the canisters' fall. The WCMD was used first in Afghanistan in 2001 and used extensively in Iraq in 2003.

⁵⁰ Ryan Hansen, "Sensor Fuzed Weapon Combat Debut Forces Troops to Surrender," AFMC Public Affairs Link, August 18, 2003, <http://www.afmc-pub.wpafb.af.mil/HQ-AFMC/PA/news/archive/2003/Aug/0829-03.htm> (retrieved May 6, 2005).

⁵¹ Department of the Air Force, Fiscal Year 2006/2007 Budget Estimates: Procurement of Ammunition, February 2005, Item No. 5, p. 79. http://www.saffm.hq.af.mil/FMB/pb/2006/afprocurement/Ammunition_Procurement_FY06_PB.pdf (retrieved March 13, 2005).

⁵² "DoD Report to Congress," p. 4.

Last year, the Air Force asked for \$58.67 million to procure 2,507 Wind Corrected Munition Dispensers, and it planned to request money for 500 more this year.⁵³ The FY 2005 request also included, for the first time, production of some units of the extended range WCMD (WCMD-ER) variety, which adds a wing kit that increases the cluster munitions' standoff range—the distance at which they are fired. An early sign of a move away from this technology was when the Secretary of Defense slashed funding for the WCMD-ER in December 2004 articulating no reason but showing that it will save \$403 million through FY 2011.⁵⁴ Although it has not made a procurement request this year, the Air Force has asked for \$21.7 million to complete development of the WCMD-ER.⁵⁵

The WCMD may make it less likely civilians will be hit by a cluster bomb that goes astray (a significant problem in Afghanistan where the older CBU-87 was used widely), but it does not turn cluster bombs into precision munitions that are safe to use in populated areas, nor does it eliminate the duds that endanger civilians after strikes. The dud rate of the BLU-97 submunition, 202 of which are carried in the CBU-87 and CBU-103, is 4 to 6 percent, according to the DoD Report to Congress; it was demonstrated to be much higher in Kosovo and elsewhere.⁵⁶ On the one hand, the lack of a procurement request for WCMD this year is a positive step because it ensures that it will not be used with the CBU-103 carrying unreliable BLU-97s, or the CBU-104 carrying unlawful Gator antipersonnel mines. On the other hand, it suggests that WCMDs may not be available to increase the accuracy of the Sensor Fuzed Weapon and ensure its precision-guided submunitions land in the intended area.

Navy Procurement Requests

Joint Standoff Weapons

Responding to concerns about clusters, the Navy has temporarily ceased procurement of the Joint Standoff Weapon AGM-154A.⁵⁷ This model, one of three variants of the

⁵³ Department of the Air Force, Fiscal Year 2005 Budget Estimates: Procurement of Ammunition, February 2004, Item No. 7, Wind Corrected Munitions Dispenser, p. 98, available at <http://www.saffm.hq.af.mil/FMB/pb/2005/proc.html> (retrieved April 7, 2004).

⁵⁴ Department of Defense, Program Budget Decision, December 23, 2004, p. 8. See also Elizabeth Rees, "Pentagon Terminates Air Force's Extended-Range WCMD Program," *Inside the Air Force*, January 7, 2005.

⁵⁵ Department of Defense Budget for Fiscal Year 2006, Program Acquisition Costs by Weapon System, February 2005, p. 30, http://www.defenselink.mil/comptroller/defbudget/fy2006/fy2006_weabook.pdf (retrieved March 13, 2005).

⁵⁶ "DoD Report to Congress," p. 4. International Campaign to Ban Landmines, *Landmine Monitor Report 2001* (New York: Human Rights Watch, 2001), p. 952.

⁵⁷ Department of the Navy, FY 2006/2007 Budget Estimates: Weapons Procurement, Navy, February 2005, Item No. 07, Joint Standoff Weapon (JSOW), <https://164.224.25.30/FY06.nsf/WPN?openframeset> (retrieved March 13, 2005).

precision-guided, air-to-ground JSOW, carries 145 BLU-97 submunitions. The Navy's FY 2006 Budget Justification says, "JSOW-A production is temporarily deferred for two reasons: Raytheon[s] ongoing development of an Unexploded Ordnance (UXO) solution to the BLU-97 and the departmental direction to accept risk in weapon quantity below total inventory requirements for area attack munitions."⁵⁸ In other words, the Navy awaits a model with a lower dud rate and is willing to risk having low stocks of the weapon while it waits. Raytheon plans to replace the older, unreliable BLU-97 with a unitary warhead, the BLU-111, that combines blast and fragmentation without the danger of numerous submunition duds.

Last year the Navy spent \$1.43 million for 405 JSOWs, including 216 that would carry more than 31,000 submunitions.⁵⁹ The Air Force also has procured this weapon in the past but ceased in FY 2005, apparently because it believed the WCMD-ER "better met service needs."⁶⁰

Conclusion

The October 2004 DoD Report to Congress and the FY 2006 budget show that the United States recognizes that there are problems with cluster munitions, in particular their high dud rates. The former says so directly and the latter implies it by requesting only new technologies or retrofits for old technologies. Nevertheless, the DoD Report to Congress reveals an intention to hold onto, and possibly use, an existing stockpile of outdated models which pose unacceptably high risks for civilians.

While Human Rights Watch commends the DoD for implementing the Cohen policy, any future improvements will be undermined by continued insistence on stockpiling and using old, inaccurate and unreliable submunitions. In keeping with the spirit of the Cohen policy which recognizes the dangers these submunitions pose to both civilians and military personnel, the United States should prohibit the use of any submunitions that have a failure rate of greater than 1 percent, and should destroy or retrofit existing

⁵⁸ Ibid.

⁵⁹ Department of the Navy, FY 2005 President's Budget: Weapons Procurement, Navy, February 2004, Item No. 08, Joint Standoff Weapon (JSOW), <https://notes3.secnav.navy.mil/fy05.nsf/WPN?OpenForm&ExpandView> (retrieved April 7, 2004).

⁶⁰ U.S. Air Force, Committee Staff Procurement Backup Book, FY 2005 Budget Estimates: Missile Procurement, Air Force, February 2004, Item No. 4, Joint Stand-Off Weapon, p. 2-9, <http://www.saffm.hq.af.mil/FMB/pb/2005/proc.html> (retrieved April 7, 2004); Elizabeth Rees, "Pentagon Terminates Air Force's Extended-Range WCMD Program," *Inside the Air Force*, January 7, 2005.

stocks that do not meet that standard. The United States should also prohibit the use in or near populated areas of all non-precision-guided submunitions, including those with self-destruct devices, and should accelerate efforts to increase the accuracy of cluster munitions and their submunitions.

Table 1: Inventory of Legacy Cluster Munitions, by Service⁶¹

	# of Submunitions per Munition	Active Inventory ⁶²	Submunition Total -- Active Inventory	Total Inventory	Submunition Total -- Total Inventory
<i>Army</i>					
ATACMS Block 1	950	1,091	1,036,450	1,304	1,238,800
ATACMS Block 1A	300	405	121,500	502	150,600
M26 MLRS	644	368,928	237,589,632	438,546	282,423,624
M26A1/A2 ER-MLRS	518	4,128	2,138,304	4,128	2,138,304
M449 APICM	60	27	1,620	40	2,400
M449A1 APICM	60	24	1,440	49	2,940
M483/M483A1 DPICM	88	2,881,693	253,588,984	3,489,279	307,056,552
M864 ER-DPICM	72	575,623	41,444,856	585,459	42,153,048
M444 APICM	18	30,148	542,664	134,344	2,418,192
M261 MPSM	9	74,591	671,319	83,589	752,301
Service Total		3,936,658	537,136,769	4,737,240	638,336,761
<i>Marine Corps</i>					
M26 MLRS	644	648	417,312	648	417,312
M483/M483A1 DPICM	88	455,173	40,055,224	458,494	40,347,472

⁶¹ The figures that appear in this table for the number of submunitions per munition, the number of munitions contained in the active inventory, and the number of munitions contained in the total inventory are drawn from "DoD Report to Congress," pp. 2-6.

⁶² Active inventory denotes serviceable ammunition items that can be safely used in training or combat. Total inventory may include damaged, suspended, or unserviceable ammunition that is awaiting disposal or repair.

M864 ER-DPICM	72	172,386	12,411,792	174,282	12,548,304
Service Total		628,207	52,884,328	633,424	53,313,088
<i>Air Force</i>					
CBU-87 CEM	202	99,282	20,054,964	99,282	20,054,964
CBU-97 SFW	10	214	2140	214	2140
CBU-103 CEM WCMD	202	10,226	2,065,652	10,226	2,065,652
CBU-105 SFW WCMD	10	1,986	19,860	1,986	19,860
CBU-105 SFW P31 WCMD	10	899	8,990	899	8,990
AGM-154-A (JSOW-A)	145	151	21,895	151	21,895
Service Total		112,758	22,173,501	112,758	22,173,501
<i>Navy</i>					
MK-20 Rockeye	247	58,762	14,514,214	58,762	14,514,214
AGM-154A (JSOW-A)	145	518	75,110	965	139,925
Service Total		59,280	14,589,324	59,727	14,654,139
Legacy Inventory Totals		4,736,903	626,824,422	5,543,149	728,477,489

Table 2: Projected Number of “Dud” Submunitions Produced by Legacy Cluster Munitions, by Service⁶³

	# of Submunitions per Munition	Failure Rate	Estimated # of Duds -- 1 Munition	Estimated # of Duds -- Active Inventory	Estimated # of Duds -- Total Inventory
<i>Army</i>					
ATACMS Block 1	950	2%	19	20,729	24,776
ATACMS Block 1A	300	2%	6	2,430	3,012
M26 MLRS	644	5%	32.2	11,879,481.6	14,121,181.2
M26A1/A2 ER-MLRS	518	3%	15.54	64,149.12	64,149.12
M449 APICM	60	N/A ⁶⁴	N/A	N/A	N/A
M449A1 APICM	60	N/A	N/A	N/A	N/A
M483/M483A1 DPICM	88	3%	2.64	7,607,669.52	9,211,696.56
M864 ER-DPICM	72	3%	2.16	1,243,345.6	1,264,591.4
M444 APICM	18	N/A	N/A	N/A	N/A
M261 MPISM	9	6%	.54	40,279.14	45,138.06
Service Total				20,858,083.98	24,734,544.34
<i>Marine Corps</i>					
M26 MLRS	644	5%	32.2	20,865.6	20,865.6
M483/M483A1 DPICM	88	3%	2.64	1,201,656.72	1,210,424

⁶³ The figures that appear in this table for the number of submunitions per munition and the submunition failure rates are drawn from “DoD Report to Congress,” pp. 2-6. As noted elsewhere in this briefing paper, for many of these cluster munitions, the DoD and other sources have cited higher failure rates in the past.

⁶⁴ DoD states that reliable failure rate information is not available.

M864 ER-DPICM	72	3%	2.16	372,353	376,449.12
Service Total				1,594,875.32	1,607,729.72
<i>Air Force</i>					
CBU-87 CEM	202	4%-6%	8.08 (4%) 10.1 (5%) 12.12 (6%)	802,198.56 (4%) 1,002,748.2 (5%) 1,203,297 (6%)	802,198.56 (4%) 1,002,748.2 (5%) 1,203,297 (6%)
CBU-97 SFW	10	2.7%	.27	57.78	57.78
CBU-103 CEM WCMD	202	4%-6%	8.08 (4%) 10.1 (5%) 12.12 (6%)	82,626.08 (4%) 103,282.6 (5%) 123,939.12 (6%)	82,626.08 (4%) 103,282.6 (5%) 123,939.12 (6%)
CBU-105 SFW WCMD	10	2.7%	.27	536.22	536.22
CBU-105 SFW P31 WCMD	10	.8%	.08	71.92	71.92
AGM-154-A (JSOW-A)	145	4%-6%	5.8 (4%) 7.25 (5%) 8.7 (6%)	875.8 (4%) 1,094.75 (5%) 1,313.7 (6%)	875.8 (4%) 1,094.75 (5%) 1,313.7 (6%)
Service Total⁶⁵				1,107,791	1,107,791
<i>Navy</i>					
MK-20 Rockeye	247	2%	4.94	290,284.28	290,284.28
AGM-154A (JSOW-A)	145	4%-6%	5.8 (4%) 7.25 (5%) 8.7 (6%)	3,004.4 (4%) 3,755.5 (5%) 4,506.6 (6%)	5,597 (4%) 6,996.25 (5%) 8,395.5 (6%)
Service Total⁶⁶				294,039.78	297,280.53
Legacy Inventory Totals				23,854,790	27,747,345.59

⁶⁵ Service totals assume 5% dud rate for the CBU-87 CEM, CBU-103 CEM WCMD, and AGM-154-A (JSOW-A).

⁶⁶ Service totals assume 5% dud rate for the AGM-154A (JSOW-A).