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May 2004

NONPROLIFERATION

Further Improvements Needed in U.S. Efforts to Counter Threats from Man-Portable Air Defense Systems

GAO-04-519

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GAO Highlights

Highlights of GAO-04-519, a report to congressional committees

Why GAO Did This Study

The proliferation of man-portable air defense systems (MANPADS) has been of growing concern to the United States and other governments. The United States is pursuing a wide variety of activities internationally and domestically to address this threat. GAO was asked to assess efforts by (1) the State Department to control global proliferation of MANPADS, (2) the Department of Defense (DOD) to monitor end-use of U.S.-exported Stingers, and (3) the Department of Homeland Security (DHS) to develop technical countermeasures to minimize the threat of a MANPADS attack.

What GAO Recommends

The Secretary of State should develop a strategy to work within multilateral forums to establish mechanisms for assessing foreign governments' implementation of their commitments to reduce MANPADS proliferation.

The Secretary of Defense should (1) establish standardized requirements for keeping Stinger missile records; (2) create an electronic database to consolidate all DOD records for Stinger missile systems sold overseas and track the worldwide Stinger inventory; and (3) direct that standardized procedures for conducting Stinger inspections be issued.

State and DOD concurred with our recommendations. DHS provided only technical comments.

www.gao.gov/cgi-bin/getrpt?GAO-04-519.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Joseph Christoff at (202) 512-8979 or christoffj@gao.gov.

What GAO Found

In 2003, the State Department made important progress in its efforts to control the global proliferation of MANPADS. Thirty-two foreign governments made multilateral commitments to better control MANPADS and prevent their acquisition by terrorists. However, the State Department's ability to assess further progress in MANPADS nonproliferation is limited because the multilateral forums have no mechanisms to monitor members' implementation of commitments. In addition, the State Department obtained foreign government commitments to destroy or better secure MANPADS.

DOD is required annually to inventory every Stinger missile system sold overseas. However, DOD's inventory inspection process has flaws. First, DOD records on the number and destination of Stingers sold overseas are incomplete, unreliable, and largely in hard-copy form. Because DOD has not required DOD agencies responsible for end-use monitoring to retain these records, it does not know how many Stingers have been sold overseas. Second, DOD officials overseas use inconsistent practices when inspecting Stinger inventories because DOD lacks procedures for conducting these inspections.

U.S. Stinger Missile System

Source: U.S. Army.

To develop technical countermeasures to minimize the MANPADS threat to aircraft, the DHS initiated a 2-year program to adapt military aircraft defense systems to commercial aircraft. However, DHS faces significant challenges such as establishing system requirements and setting reliable cost estimates. The department adopted GAO's January 2004 recommendations to implement a knowledge-based approach to this development program. For example, DHS plans to use GAO-recommended criteria that ensure product knowledge is attained at key points in system development.

Contents

Abbreviations

AECA	Arms Export Control Act
DHS	Department of Homeland Security
DOD	Department of Defense
DSCA	Defense Security Cooperation Agency
DTRA	Defense Threat Reduction Agency
LOA	letter of offer and acceptance
MANPADS	man-portable air defense systems
OSCE	Organization for Security and Cooperation in Europe
SAMM	Security Assistance Management Manual
SAO	security assistance organization

GAO
Accountability * Integrity * Reliability

United States General Accounting Office
Washington, D.C. 20548

May 13, 2004

The Honorable Duncan Hunter
Chairman
The Honorable Ike Skelton
Ranking Minority Member
Committee on Armed Services
House of Representatives

The Honorable John L. Mica
Chairman
The Honorable Peter A. DeFazio
Ranking Minority Member
Subcommittee on Aviation
Committee on Transportation and Infrastructure
House of Representatives

As we reported in May 2003,[1] the threat of terrorist attacks against U.S. personnel, facilities, and interests overseas was great because of the number and types of terrorist organizations, the lethality of terrorists' tactics, and the ability of terrorists to operate worldwide. Among these threats, the proliferation of man-portable air defense systems (MANPADS) has been of growing concern to the United States and other governments. MANPADS are shoulder-launched surface-to-air missile systems designed for military use by ground forces to defend against air attacks. However, terrorists have acquired and used these MANPADS to attack and bring down both military and commercial aircraft in areas of conflict.

You asked us to assess (1) the nature and extent of the MANPADS threat, (2) the State Department's efforts to control the international proliferation of MANPADS, (3) the Department of Defense's (DOD) end-use monitoring[2] of Stinger missiles, and (4) the Department of Homeland Security's (DHS)

[1]U.S. General Accounting Office, *Combating Terrorism: Interagency Framework and Agency Programs to Address the Overseas Threat*, GAO-03-165 (Washington, D.C.: May 23, 2003).

[2]End-use monitoring refers to the procedures used to verify that foreign governments are using and controlling U.S. defense articles and services in accordance with U.S. terms and conditions of the transfer. Verification measures range from contacting the appropriate foreign government representative for information to physical inspection by DOD personnel of U.S. security assistance organizations. Physical inspections by DOD personnel are required for Stinger missiles sold to foreign governments.

efforts to develop technical countermeasures to minimize the threat of a MANPADS attack. We did not review other options for addressing the MANPADS threat, such as law enforcement efforts, airport security, or emergency flight training.

To address our objectives, we obtained documents and met with officials at the Departments of Defense, State, and Homeland Security, and the intelligence agencies. We interviewed foreign government officials and met with representatives of the Secretariats of the Wassenaar Arrangement[3] and of the Organization for Security and Cooperation in Europe[4] (OSCE) in Vienna. We toured Stinger missile storage facilities in Germany and the United Kingdom, observed Stinger missile inventory inspections in Turkey, and interviewed U.S. DOD security assistance officials in those countries. We also requested meetings with officials of the National Security Council to discuss the prioritization of terrorist threats, but they refused to meet with us or respond to our questions. We performed our work from April 2003 to March 2004 in accordance with generally accepted government auditing standards. For additional information on our scope and methodology, see appendix I.

Results in Brief

MANPADS pose a threat to commercial aircraft for several reasons. First, MANPADS are widely available. Since the 1950s, 20 countries have developed or produced at least 30 different types of MANPADS, with between 500,000 and 750,000 weapons believed to be in the worldwide inventory today. The U.S. government estimates that a few thousand MANPADS are outside government controls. It estimates that thousands more under government controls may be vulnerable to theft and possible transfer to terrorist groups because they are not subject to stringent national export standards nor do they have adequate physical security or inventory controls. Second, the characteristics of MANPADS—their lethality, portability, ease of use and concealment, and relatively low cost (from less than $1,000 to $100,000 each)—make them attractive to terrorists for acquisition and use against commercial aircraft. Third,

[3]The Wassenaar Arrangement is a multilateral export control regime that aims to contribute to international security and stability by promoting greater responsibility and transparency in arms and sensitive dual-use (having both civilian and military uses) goods and technology transfers.

[4]The OSCE is the largest regional security organization in the world and is active in early warning, conflict prevention, crisis management, and post-conflict rehabilitation.

MANPADS have been successfully used to attack and bring down aircraft. The State Department estimated in 2003 that more than 40 aircraft have been struck by MANPADS since the 1970s, causing at least 24 crashes and more than 600 deaths worldwide. To date, only one attack occurred outside a conflict area, and none has occurred within the United States.

In 2003, the U.S. government obtained commitments from foreign governments in multilateral forums to better control MANPADS and prevent their acquisition by terrorists, but the forums lack mechanisms to monitor members' implementation. The State Department led the U.S. efforts that obtained commitments in 2003 from the member countries of the Group of Eight,[5] the Asian Pacific Economic Cooperation summit, and the Wassenaar Arrangement to strengthen their export controls and security of MANPADS. However, multilateral forum members' compliance with their commitments is voluntary, and the forums lack mechanisms to verify that members implement their political commitments or to analyze participants' reported data on arms transfers. The State Department has worked with foreign governments to destroy more than 8,155 excess MANPADS and improve the security of MANPADS stockpiles. The State Department has procedures in place to confirm destruction of MANPADS through its bilateral programs.

The disposition of Stinger missiles sold overseas is unknown because DOD's Stinger inventory inspection process is flawed. To prevent the proliferation of U.S. Stinger missile systems, U.S. law,[6] sales agreements, and departmental directives have required DOD to conduct annual inventory inspections of 100 percent of Stinger missiles sold to foreign governments for all but 5 years since it began selling the missile systems in 1982. However, DOD has no requirements for DOD organizations responsible for end-use monitoring to keep records on the number and destinations of these Stingers. As a result, its records are neither complete nor reliable. In addition, DOD's Stinger records are largely in hard-copy form, and no single office has complete copies of these records. We also found discrepancies at DOD offices that maintain such records. For

[5]The heads of state of the Group of Eight nations (Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, and the United States) meet at an annual summit to discuss the major international economic and political issues of the day.

[6]Section 150 of P.L. 104-164 (22 U.S.C. 2785).

example, DOD officials in one country[7] identified approximately 30 percent more Stinger missiles from their 2003 inventory inspection than the number on record with the responsible DOD office in the United States. Also, DOD officials overseas use inconsistent practices to perform Stinger inspections because DOD lacks procedures for conducting the inspections. For example, DOD officials count Stingers differently. DOD officials in one country we visited reported opening the Stinger container cases to count the missiles. DOD officials in another country we visited reported counting only the Stinger container cases. DOD officials planned to issue procedures for conducting inspections to all overseas officials with inspection responsibility in December 2003 but, as of April 2004, no such guidance had been released.

During 2003, DHS initiated a 2-year system development and demonstration program for a counter-MANPADS system.[8] We reviewed their efforts and have previously reported[9] that DHS faces significant challenges in adapting a military counter-MANPADS system to commercial aircraft, such as establishing system requirements, developing technology and design to sufficient maturity, and setting reliable cost estimates. Our work on the best practices of product developers in government and industry has found that such challenges can be successfully overcome by using a knowledge-based approach. We recommended that the Secretary of Homeland Security implement a knowledge-based approach in its counter-MANPADS development program; the Secretary concurred, and DHS plans to use GAO-recommended exit criteria that ensures product knowledge is attained at key points in system development.

We are recommending that the Secretary of State develop a strategy to work within the multilateral forums to establish mechanisms to monitor and report on (1) countries' implementation of their commitments to reduce MANPADS proliferation and (2) the impact such implementation of commitments has on the flow of MANPADS to illicit arms markets.

[7]The name of the country and the exact number of Stingers reported is classified information.

[8]A "counter-MANPADS system" refers to a technical system installed on civilian aircraft to defend against attack by MANPADS.

[9]U.S. General Accounting Office, *The Department of Homeland Security Needs to Fully Adopt a Knowledge-based Approach to Its Counter-MANPADS Development Program*, GAO-04-341R (Washington, D.C.: Jan. 30, 2004).

Establishing such mechanisms would enable the forums to assess the impact of these efforts toward reducing MANPADS proliferation.

In addition, we are recommending that the Secretary of Defense (1) establish standardized recordkeeping requirements for maintaining Stinger records, (2) establish a centralized electronic database to consolidate DOD's Stinger records and to track the worldwide Stinger inventory, and (3) issue standardized procedures for conducting Stinger inspections.

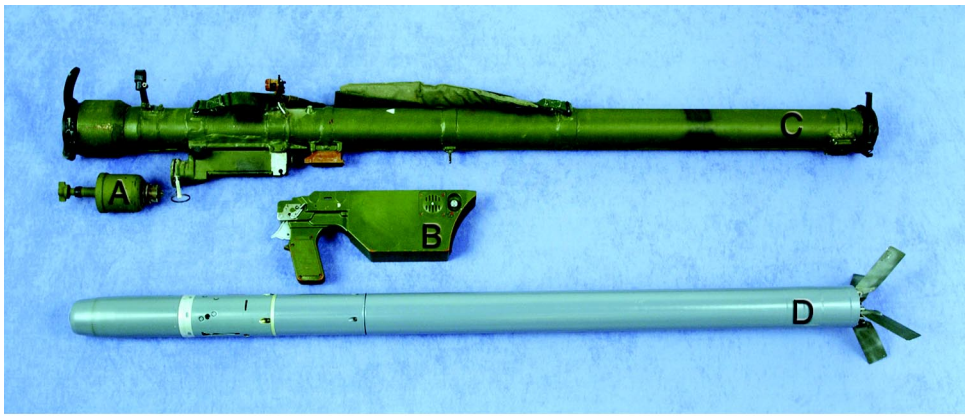
State and DOD concurred with the recommendations in this report, while DHS did not comment on them. State and DHS provided technical comments that we incorporated as appropriate.

DOD stated that it would amend its security assistance manual to specifically identify recordkeeping standards for end-use monitoring. It further said that it is developing a database that would consolidate the information noted in our recommendation by October 2004. DOD also stated that it is developing checklists and procedures that would provide guidance to overseas officials conducting Stinger inventory inspections.

Background

MANPADS are portable short-range surface-to-air missile systems designed for use by one or two soldiers to attack fixed-wing aircraft and helicopters during wartime. Basic components include the launch tube and missile, gripstock (launcher or firing mechanism), and thermal battery. See figure 1 for an illustration of MANPADS components.

Figure 1: Components of a Man-Portable Air Defense System



Source: DOD.

From left to right: (A) battery, (B) gripstock, (C) launch tube, and (D) missile.

Due to growing concern in the late 1990s over the worldwide proliferation of MANPADS to non-state actors, the United States led an effort to promote improved export control policies for MANPADS, primarily in the Wassenaar Arrangement. In December 2000, the 33 Wassenaar Arrangement participating states[10] adopted U.S.-proposed guidelines for establishing a set of MANPADS export controls.[11] While multilateral export control regimes are a key policy instrument in the overall U.S. strategy to combat the proliferation of weapons of mass destruction and conventional weapons, they have limitations. The multilateral export control regimes are voluntary, nonbinding arrangements among like-minded supplier countries. While countries make no legally binding commitments in joining them, participating countries undertake a political commitment to abide by the goals and principles of the regime. The regimes operate on the basis of consensus of all members and decisions on how to implement and interpret regime decisions are left to the national discretion of each member. None

[10]States participating in the Wassenaar Arrangement include Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, and the United States.

[11]"Elements for Export Controls of Man-Portable Air Defense Systems (MANPADS)" was adopted at the December 2000 Wassenaar Arrangement Plenary.

of the regimes identify specific countries as targets. Collectively the regimes strive to stop, slow, or increase the cost and risk of detection efforts by countries' of concern to acquire sensitive technologies and capabilities, including MANPADS.

The United States began selling its current MANPADS, the Stinger missile system, to U.S. allies and U.S.-approved nations in 1982. Because the Stinger missile system is among the most advanced of all MANPADS, the United States has placed enhanced controls and requirements on its sale and use. (See fig. 2 for a picture of the U.S. Stinger missile system.) Under security assistance procedures, DOD provides defense articles, services, and training to foreign governments and international organizations that have been approved by the State Department and determined by the President as supporting U.S. national security and foreign policy objectives, according to DOD. In comments on a draft of this report, DOD said that each proposed transfer of Stinger missiles is thoroughly vetted by many different organizations and offices, thus providing DOD a high level of confidence that the missiles under security assistance programs do not pose a terrorist threat.

Figure 2: U.S. Stinger Missile System

Source: U.S. Army.

The Stinger missile system is one of only a few weapons systems[12] that are subject to "enhanced end-use monitoring" by DOD. If a Stinger missile system sale is approved through the Foreign Military Sales process, State and DOD sign and extend a letter of offer and acceptance (LOA) to the customer nation. The LOA serves as a contract agreement between the United States and the customer nation and requires the customer nation to allow DOD to conduct annual inspections to ensure the Stinger systems are being used and stored as required under the terms of the sale. Countries that purchase Stinger missile systems from the United States are legally bound to cooperate with these inspections or risk damaging future military sales and cooperative relations with the United States.[13]

Notwithstanding U.S. controls over its Stinger missile systems, the concern over a potential MANPADS attack against commercial aircraft has grown in recent years. According to the U.S. government, terrorists are aware of the severe economic consequences that a MANPADS attack could wreak on the U.S. economy. In November 2002, terrorists used a MANPADS to attack, but miss, a commercial airliner in Mombasa, Kenya—the first such attack outside an area of conflict. Following this attack, according to DOD officials, the National Security Council created an interagency task force to pursue several options to reduce the risk of MANPADS attack, including the feasibility of transferring counter-MANPADS technology from U.S. military aircraft to U.S. commercial aircraft. In response to the conference report accompanying the Emergency Wartime Supplemental Appropriations Act, 2003,[14] DHS began to review a variety of technical options for counter-MANPADS systems with a goal of selecting a system within 2 years for use on the U.S. commercial aircraft fleet. DHS is now working with private contractors to develop a counter-MANPADS system.

[12]Other systems include AIM-9X missiles, AMRAAM (AIM-120) missiles, Javelin missiles, TOW II-B missiles, night vision devices, and communication security articles. In addition, DOD provides enhanced end-use monitoring of some military assistance and financing programs, pursuant to Section 505 of the Foreign Assistance Act.

[13]In addition, Germany, Greece, the Netherlands, and Turkey created a consortium called the European Stinger Project Group, which has a licensed agreement with the United States to coproduce Stinger missiles for its members' use. The memorandum of understanding that supports this agreement prescribes the same end-use monitoring requirements for consortium-produced Stingers as for those sold directly by the United States. Switzerland also had a similar coproduction arrangement with the United States, which expired in 2000 and prescribed the same end-use monitoring requirements.

[14]P.L. 108-11.

MANPADS Pose a Threat to Commercial Aircraft

MANPADS pose a threat to commercial aircraft for several reasons. First, MANPADS are widely available. The U.S. government estimates that thousands of MANPADS worldwide are outside government controls. Thousands more under government controls may be vulnerable to theft and possible transfer to terrorist groups through illicit arms markets because they are not subject to stringent national export standards nor do they have adequate physical security. Second, MANPADS characteristics make them attractive to terrorists. Finally, MANPADS have been successfully used to attack and bring down aircraft.

MANPADS Are Widely Available Worldwide

Since the 1950s, 20 countries have developed or produced at least 30 different types of MANPADS, with a total production of more than a million missiles. The majority of MANPADS are either located within military arsenals; have been expended in live-fire exercises, wars, insurgencies, or other conflicts; or have been destroyed, according to State Department officials. Estimates of the global inventory of MANPADS range from 500,000 to 750,000 weapons, with approximately 1 percent outside the control of national governments, according to intelligence sources. In addition, according to the State Department, the numbers of MANPADS in the global inventory are difficult to estimate because destruction of MANPADS systems is not always publicized and the systems' effective lifetimes depend on how they are stored and maintained. Table 1 shows the 20 countries that have developed or produced MANPADS since the 1950s.

Table 1: Countries That Developed or Produced MANPADS Since the 1950s

Country		
Bulgaria	Greece[a]	Sweden
China	North Korea	Switzerland[a]
Czech Republic	Netherlands[a]	Turkey[a]
Egypt	Pakistan	Ukraine
France	Poland	United Kingdom
Former Yugoslavia	Romania	United States
Germany[a]	Russia	

Source: DOD.

[a]Under the terms of the European Stinger Project Group, Germany, Greece, the Netherlands, and Turkey coproduce Stinger missiles solely for the national defense of the party to the agreement and exports to third parties are not permitted. Switzerland's coproduction arrangement with the United States also had a similar restriction.

During the cold war, the United States, the Soviet Union, and their allies provided MANPADS to several client states in surrogate cold war conflicts. For example, the U.S. government transferred hundreds of Stinger missiles in the mid-1980s to Afghan rebels that were fighting Soviet forces in Afghanistan. U.S. intelligence officials stated that a number of these weapons may have fallen into the hands of terrorist groups. The State Department estimates that at least nine nonstate groups, including al Qaeda, have obtained some type of MANPADS.[15]

Some MANPADS produced during the cold war were surplus to countries' defense needs in the 1990s. These MANPADS became widely available on the black and gray arms markets where terrorists could acquire them. The black arms market consists primarily of weapons that have been stolen from government or private holdings, seized by combatant forces, supplied by state sponsors to subnational groups, or produced illegally. Black market transfers usually involve a small number of arms that do not move through official licensing channels and are difficult to detect. Gray arms sales can be large and involve sales of advanced weapons systems. Such sales generally move through official government licensing channels and rely on false documentation or other deceptive means to disguise the buyer, supplier, type of weaponry, or another component of the transaction. There are known black markets in Afghanistan, the Balkans, Iraq, Lebanon, Somalia, Southeast Asia, and Yemen, according to the State Department. Gray arms shipments of MANPADS to Africa have been delivered mostly to countries that divert the weapons to subnational groups.

The new security challenges in Iraq have added to the global stockpile of MANPADS available on the black and gray markets. According to intelligence sources, thousands of MANPADS may have been provided to Iraqi security forces or were stolen during hostilities in Iraq immediately following the collapse of the Saddam Hussein regime in 2003. Therefore, the number of MANPADS outside national controls may have doubled.[16]

The U.S. government is also concerned that thousands of MANPADS under the control of some foreign governments may be vulnerable to theft and possible transfer to terrorist groups through the black and gray markets.

[15]U.S. Department of State. Briefing slides. Fifth International Conference on Export Controls (Budapest, Hungary: September 2003).

[16]Actual numbers of MANPADS estimated by intelligence sources to be on the black or gray markets are classified.

Some countries lack stringent national export standards, which increases the likelihood that MANPADS will fall into the hands of terrorists, according to the State Department. For example, China, Egypt, former Yugoslavia, North Korea, and Pakistan have produced MANPADS but are not Wassenaar Arrangement members. In 2000, Wassenaar Arrangement members adopted the first multilateral guidelines for controlling the export of MANPADS[17] and strengthened these guidelines in 2003.[18]

In addition, the U.S. government is concerned about the physical security and inventory controls of MANPADS within certain countries' arsenals, where MANPADS are vulnerable to theft and possible transfer to terrorist groups. For example, as of September 2003, the U.S. government had identified at least 17 countries whose security over their MANPADS stockpiles raised concerns. These countries included Bosnia and Herzegovina, Liberia, Cambodia, Nicaragua, and Serbia.[19] Total stockpiles of MANPADS in these 17 countries are believed to number in the tens of thousands, according to the State Department.

Characteristics of MANPADS Make Them Attractive to Terrorists

MANPADS are attractive to terrorists for acquisition and use against commercial aircraft because they are lethal, easy to use, transport, and conceal, and they are relatively inexpensive.

MANPADS are designed to be lethal. Frequently called heat-seeking missiles, most MANPADS models employ sensors that search for and home in on the target's infrared signature, often the engine. Newer MANPADS can recognize specific aircraft characteristics and reject simple countermeasures or distractions, according to a defense manufacturer. MANPADS are effective up to approximately 15,000 feet in altitude and 3 miles in range. Thus, while aircraft generally are safe from MANPADS when flying at cruising altitude (30,000 feet), they are most vulnerable during take off and landing.

[17]"Elements for Export Controls of Man-Portable Air Defense Systems (MANPADS)" was adopted at the December 2000 Wassenaar Arrangement Plenary.

[18]The Wassenaar Arrangement December 2003 Plenary revised the "Elements for Export Controls of Man-Portable Air Defense Systems (MANPADS)." http://www.wassenaar.org/2003Plenary/MANPADS_2003.htm

[19]Names of the other 12 countries and estimated numbers of MANPADS in their stockpiles are classified.

MANPADS systems are relatively easy to use but do require training. An individual rests the weapon on his or her shoulder, looks through a sight, and pulls a trigger. MANPADS typically have a "fire-and-forget" design that does not require the operator to remain in place to help guide the missile to its target. MANPADS' small size—about 5 feet long and a few inches in diameter and less than 35 pounds—make them easy to transport and to conceal. As a result, there have been recorded efforts to smuggle them into the United States, including two thwarted attempts. In August 2003, the Department of Justice reported that a British citizen in New Jersey tried to sell Russian-made MANPADS to Federal Bureau of Investigation agents posing as terrorists. Also, on November 6, 2002, three men with alleged links to al Qaeda tried to buy Stinger MANPADS from U.S. and Hong Kong law enforcement agents in Hong Kong, according to a 2003 State Department report.

The costs of MANPADS, while varying significantly, are relatively inexpensive. Some estimates range between $5,000 and $30,000 apiece on the black market, while others suggest that they have sold for less than $1,000 to as much as $100,000 apiece.

MANPADS Have Been Used to Attack Commercial Aircraft

In 2003, the State Department estimated that more than 40 aircraft had been struck by MANPADS since the 1970s, causing at least 24 crashes and more than 600 deaths worldwide. According to a November 2003 Congressional Research Service report, there have been 35 attempted MANPADS attacks on commercial aircraft overseas since 1978, 24 of which successfully took down the aircraft.[20] Of these 35 attacks, 6 occurred against large, multiengine jet aircraft, according to the State Department. Five of these jet aircraft survived with minor damage; one attack was catastrophic. According to State Department officials, the number of jet aircraft hit is too small for accurate statistical analysis, and it is impossible to predict the outcome of a MANPADS attack. To date, only one attack occurred outside a conflict area—in Mombasa, Kenya, in November 2002—and none has occurred within the United States.

Although there have been no MANPADS attacks within the United States, the threat posed by terrorists equipped with MANPADS is of credible concern, according to the Deputy Administrator, Transportation Security

[20]Congressional Research Service, The Library of Congress, *Homeland Security: Protecting Airliners from Terrorist Missiles* RL31741 (Washington, D.C.: Nov. 3, 2003).

Administration, Department of Homeland Security. He stated that even an unsuccessful MANPADS attack on a commercial airliner would have a devastating economic and political impact. As of late February 2004, there was no credible, specific intelligence about planned MANPADS attacks against commercial aircraft in the United States, according to DHS officials.

State Department Has Led Efforts to Control MANPADS but Has Limited Ability to Assess Extent of Progress

The State Department led the U.S. efforts to achieve agreements with foreign governments on a U.S. strategy to prevent terrorist acquisition of MANPADS through illicit arms markets. The department's efforts resulted in agreements from members of several multilateral forums on key elements of its strategy. However, the State Department's ability to assess progress toward reducing MANPADS proliferation is limited by the multilateral forums' lack of mechanisms to monitor countries' implementation of their commitments. The department also obtained—through bilateral diplomatic channels—foreign governments' commitments to destroy or secure MANPADS. The State Department has procedures in place to confirm destruction of MANPADS through its bilateral efforts.

U.S. MANPADS Strategy Moved Forward in Multilateral and Bilateral Forums

In early 2003, the United States began to implement a strategy to reduce the risk of terrorists acquiring MANPADS through illicit arms markets. The State Department is leading the U.S. efforts to implement the strategy through multilateral forums and bilateral diplomacy. The first five points of the strategy focus on export controls and security that can be undertaken in multilateral forums; the last element addresses the State Department's bilateral approach on MANPADS security and destruction. The six points urge foreign governments to

- adopt stringent, best-practice export controls on MANPADS;
- extend export controls to essential components of MANPADS;
- develop technical launch control features to prevent unauthorized use;

- enact comprehensive laws, regulations, and enforcement mechanisms on the production, transfer, and brokering[21] of MANPADS;
- exchange information on uncooperative governments and entities and ban transfers to nonstate actors; and
- enhance stockpile management of MANPADS, including the destruction of stocks in excess of national security needs.

Multilateral Agreements Strengthened Commitments on Exports and Controls

In 2003, the State Department began to obtain commitments from members of multilateral forums to (1) limit MANPADS to legitimate governments and their agents and (2) ensure that they provide MANPADS with strong and effective security and controls. In early 2003, the State Department presented its proposal to the members of the Group of Eight and the Wassenaar Arrangement.

In June 2003, the Group of Eight members responded to the U.S. proposal by adopting an action plan[22] that reflected the United States' six strategy points. The Group of Eight members committed to promote the Wassenaar Arrangement principles on MANPADS to other states, share information on their implementation of the adopted action plan, and discuss MANPADS issues at their June 2004 summit.

In December 2003, the Wassenaar Arrangement members adopted an enhanced set of principles for MANPADS exports.[23] The Wassenaar Arrangement's principles reflected the key points in the U.S. strategy. Members agreed to assess the adequacy and effectiveness of the recipient government's physical security arrangements for the transport and storage of MANPADS inventories and ensure that any infringement of export control legislation related to MANPADS would be subject to adequate

[21]The term "brokering" refers to activities of negotiating or arranging contracts, selling, trading, or arranging the transfer of arms and related military equipment from one third-party country to another third-party country.

[22]"Enhance Transport Security and Control of Man-Portable Air Defense Systems (MANPADS): A G8 Action Plan" was adopted at the June 2003 Group of Eight summit. http://www.g8.fr/evian/english/navigation/2003_g8_summit/summit_documents.html

[23]The Wassenaar Arrangement December 2003 Plenary revised the "Elements for Export Controls of Man-Portable Air Defense Systems (MANPADS)." http://www.wassenaar.org/2003Plenary/MANPADS_2003.htm

penalty provisions or criminal sanctions. The Wassenaar Arrangement members agreed to exchange information on countries that failed to meet security guidelines and on non-state entities attempting to acquire MANPADS, promote MANPADS guidelines to non-Wassenaar Arrangement members, and add MANPADS to their annual data reports on arms transfers.

The State Department promoted the six-point U.S. strategy in three additional multilateral forums in 2003, as follows:

- At the October 2003 Asian Pacific Economic Cooperation summit, the U.S. government presented the key elements of the strategy that had been adopted by the Group of Eight in June. In the final ministerial statement, participants committed to stronger domestic controls on the production, stockpiles, transfer, and brokering of MANPADS.

- The participant states of the OSCE also followed the Group of Eight's lead and issued two statements on MANPADS in 2003. Both noted the potential for OSCE to use its policy document on small arms and light weapons[24] to prompt additional steps against illicit trade in MANPADS. Furthermore, the OSCE Secretariat hosted a workshop in January 2004 to share best practices for countering the MANPADS threat; the workshop brought together international experts and senior civil aviation security and counterterrorism officials from the OSCE states.

- In 2003, U.S. experts led efforts to revise the United Nations Register of Conventional Arms,[25]creating a new MANPADS subcategory. A State Department official said that the MANPADS data reported by participating nations will provide greater transparency into the volume of trade in MANPADS and eventually might lead to greater accountability for transfers to nations and regions of concern.

[24]"OSCE Document on Small Arms and Light Weapons," adopted November 24, 2000, sets out norms, principles, and measures to address the uncontrolled spread of small arms that has contributed to armed conflicts.

[25]The U.N. Register of Conventional Arms includes data provided voluntarily by member states on international arms transfers and information on military holdings, procurement through national production, and relevant policies.

Forums Lack Mechanisms for Assessing Members' Compliance

The multilateral forums lack mechanisms and capability to assess data on arms transfers and members' compliance with their commitments to reduce MANPADS threats. As a result, each participating country may make its own assessment and consult with the forums or other member countries on a bilateral basis.

The multilateral forums have no mechanisms to allow them to monitor or measure members' implementation of their political commitments. For example, the Group of Eight is not a legal entity and has no permanent Secretariat. Although the Wassenaar Arrangement has a Secretariat, Secretariat officials stated that its infrastructure does not allow for the Secretariat to perform analyses of data reported by members. Such analyses are left to the individual members to perform and bring before the membership for discussion.

Furthermore, the voluntary and nonbinding nature of consensus-based multilateral forums means they have no explicit tools to enforce members' compliance with their commitments. These forums rely on diplomatic pressure to influence compliance or the occasional intelligence information from member states to identify activities that might be inconsistent with their commitments. Without multilateral enforcement mechanisms, the U.S. government has little assurance that commitments by member countries to improve their controls over MANPADS will have an impact on members' national policies and practices to reduce MANPADS proliferation. According to the State Department, the U.S. government must rely on other means for such assurance.

Bilateral Programs Focused on Destruction and Security of MANPADS

To address the strategy's sixth point, the United States provides bilateral assistance to foreign governments to (1) identify and destroy MANPADS stocks that are excess to their national security needs, loosely secured, or obsolete and (2) assess and improve security of storage facilities for MANPADS retained for national defense purposes.

In 2003, State Department officials approached certain countries to discuss the disposition of their excess MANPADS stockpiles. In some cases, the United States offered technical expertise or funded the destruction of MANPADS stockpiles. According to State Department officials, by March 2004, the United States had received commitments from nine countries—including Bosnia and Herzegovina, Cambodia, Liberia, Nicaragua, and

Serbia[26]—to destroy nearly 10,000 excess MANPADS stocks; as of May 2004, 8,155 of these MANPADS had been destroyed.[27] For example, State Department personnel discovered some MANPADS in insecure locations in Liberia in 2003; they were brought to the attention of U.N. military forces in Liberia, were secured, and subsequently destroyed. (Fig. 3 shows the Liberian MANPADS.)

Figure 3: MANPADS to be Destroyed in Liberia, 2003

Source: State Department.

The State Department has provided approximately $200,000 to assist in the destruction of 8,155 MANPADS. As part of this effort, U.S. officials convinced the government of Bosnia and Herzegovina to destroy its entire stockpile of nearly 6,000 MANPADS. Actual destruction was performed by the international Stabilization Force,[28] according to the State Department.

The United States is also providing countries with assessments of the security of their MANPADS arsenals. The United States is concerned that MANPADS stored in relatively insecure foreign arsenals could be vulnerable to theft or illicit transfer to countries of concern or nonstate

[26]The identities of the other four countries are classified.

[27]All known national stocks of MANPADS in Bosnia and Herzegovina, Cambodia, and Liberia have been destroyed, and Nicaragua has begun to destroy its MANPADS stocks, according to the State Department.

[28]The international Stabilization Force is a NATO-led, multinational military force working in Bosnia-Herzegovina.

entities. In fiscal year 2003, DOD's Defense Threat Reduction Agency (DTRA) conducted arsenal security assessments in six countries: Angola, Bosnia and Herzegovina, Cambodia, Ecuador, El Salvador, and Nicaragua. DTRA plans to provide assessments to six additional countries in fiscal year 2004—one country in Latin America, two in Asia, two in Africa, and one in Eastern Europe.[29] The assessments included reviews of the physical structures and practices of security officials, recommendations for infrastructure improvements, and orientations for security personnel on U.S. military practices for securing arsenals. According to DTRA and State, poorly secured arsenals include those that are filled to over capacity, are relatively close in proximity to buildings or civilian populations, are inadequately maintained, or have poor facility security.

As an outcome of these security assessments, the United States is providing financial assistance to some countries that lack fiscal resources for U.S.-recommended infrastructure improvements. For example, in fiscal year 2003, the United States provided Serbia-Montenegro with $150,000 for computers, software, training, and alarm systems to improve MANPADS inventory processes and security; and in fiscal year 2004, the United States will provide Cambodia with $233,000 for U.S.-recommended upgrades. In addition, the State Department provided nearly $400,000 for stockpile management and physical security upgrades as part of the MANPADS destruction and threat reduction effort, according to State. As part of the president's February 2004 budget proposal to Congress for fiscal year 2005, the State Department requested an additional $6 million above its previous annual $3 million program budget for small arms and light weapons destruction, in order to expand its bilateral efforts to destroy and secure MANPADS.

Disposition of U.S. Stinger Missiles Sold Overseas Is Unknown

To prevent the proliferation of the U.S. Stinger missile system, DOD monitors its end use in recipient countries. Although DOD has strengthened the requirements for monitoring Stinger missile systems after they have been sold to foreign countries, DOD has no requirement for DOD organizations responsible for end-use monitoring to keep records on the number and destinations of these Stingers. DOD's Stinger records are neither complete nor reliable. As a result, DOD cannot account for each Stinger sold abroad. In addition, because DOD has no procedures for

[29]The identities of these countries are classified.

performing Stinger inspections, security assistance organization[30] (SAO) officials use inconsistent practices in conducting Stinger inspections and some are unclear about their inspection responsibilities.

DOD Reinstated Inspection Requirement for Stingers

The Arms Export Control Act (AECA) charges the President with establishing a program that provides for the end-use verification of defense articles that are particularly vulnerable to diversion or other misuse or defense articles whose diversion or other misuse could have significant consequences.[31] In June 2003, DOD issued a directive[32] requiring SAO officials to conduct annual inventory inspections of 100 percent of Stinger missile systems sold overseas. This directive reinstated the 100 percent inventory requirement[33] that had been in place since 1982 when DOD began selling Stingers to foreign governments. In 1998, DOD had lowered the Stinger inspection requirement to 5 percent, stating that the 100 percent inventory inspections duplicated the 100 percent inspections conducted by recipient governments twice a year. In 2003, DOD said that the 5 percent inventory requirement was inadequate and reinstated the original requirement to inventory 100 percent of Stinger systems.

DOD's inventory requirement applies to Stinger systems (1) sold overseas, (2) produced by a U.S.-authorized European consortium of four nations led by Germany, and (3) produced by Switzerland under a U.S.-authorized program. DOD inventory inspections are meant to verify that every Stinger system, as identified by serial number, is still under the recipient government's possession and control. SAO officials are also required to verify the adequacy of physical security at facilities storing Stingers. This requirement is stated in the sales agreement—the LOA—signed by the recipient country. DOD inspections are also meant to complement 100 percent inventory inspections that are performed by the recipient country.

[30]A security assistance organization (SAO) is a DOD office located in a foreign country with assigned responsibilities for carrying out security assistance functions. It facilitates U.S. arms sales to and defense cooperation with foreign nations. These offices also maintain officials that monitor the end use of sensitive weapons systems that DOD has sold overseas.

[31]1996 Amendment to the AECA, Section 150 of P.L. 104-164 (22 U.S.C. 2785).

[32]DOD Directive I-03/004943; Security Assistance Management Manual (SAMM) Change E-45.

[33]SAMM paragraphs 70105.L.9.C and D.

Recipient country officials are required by the LOA to allow review by SAOs to ensure that they are performing these inventory inspections.

Several DOD agencies and offices are responsible for controls over Stinger missile systems. The U.S. Army, which owns the Stinger missile system, is responsible for the missiles until they are shipped and received overseas by the recipient nation. After that, SAOs are responsible for monitoring the end-use of Stinger systems by recipient nations until these missiles are disposed of or used. The central component of Stinger missile end-use monitoring—missile inventory inspection—is performed by SAO officials or, in some cases, by defense attachés at the U.S. embassy. DOD also created the Golden Sentry program to monitor the end-use of sensitive weapons systems such as Stinger, in response to AECA requirements. DOD's Defense Security Cooperation Agency (DSCA) manages this program. DSCA's responsibilities include: (1) performing overall management of the Golden Sentry program, (2) issuing guidance to keep the Golden Sentry program current and updating policies and procedures for end-use monitoring, and (3) conducting visits to security assistance organizations and host nations to assess compliance with enhanced end-use monitoring procedures.

The Federal Managers' Financial Integrity Act of 1982 requires GAO to issue standards for internal control in the federal government. According to these standards,[34] vulnerable assets such as inventories should be periodically counted and compared with control records, and exceptions should be examined.

DOD generates the following two primary types of records for its Stinger end-use monitoring:

- First, the Army generates shipping records, which contain serial numbers for all Stingers sold overseas. Shipping records accompany Stinger missile shipments and pass to the custody of SAOs upon the Stinger shipment's arrival in the recipient country. These records serve as a baseline of all Stingers provided to the recipient country and as Stinger control records, providing SAOs with the serial numbers to be used in Stinger inventory inspections.

[34]U.S. General Accounting Office, *Internal Control Management and Evaluation Tool*, GAO-01-1008G (Washington, D.C.: Aug. 1, 2001).

- Second, SAO officials produce annual inventory records. Inventory records are those records and materials that document the results of inventory inspections performed by SAOs. At the end of the year, each SAO is required to submit an end-of-year report on its Stinger missile inventory inspections. This type of inventory record—the end-of-year report—is used by DSCA to manage the Stinger missile end-use monitoring program.

To apply federal government internal controls standards, DOD would maintain reliable shipping records to serve as control records for conducting its Stinger inventory inspections. Consequently, DOD would establish consistent procedures for comparing these control records with Stinger inventories in annual inventory inspections.

DOD's Lack of Recordkeeping Requirements Resulted in Unreliable Stinger Control Records

DOD lacks reliable control records because there have been no DOD requirements for DOD organizations responsible for end-use monitoring to keep Stinger shipping records over the years. Without complete and accurate Stinger shipping records, SAO officials have no reliable control records against which to compare Stinger inventories.

DSCA, Army, and SAO officials said that Stinger shipping records are missing or incomplete. According to Army and SAO officials, there is no DOD requirement for DOD organizations responsible for end-use monitoring to maintain Stinger shipping records. However, without complete shipping records, DOD cannot reliably determine how many Stingers were sold overseas or their serial numbers. Furthermore, Stinger shipping records were missing for two main reasons, as follows:

- First, the Army, DSCA, and SAO officials stated that most shipping records are in hard-copy form, and some were lost or misfiled over the years.

- Second, Army and DSCA officials said that there has been great pressure in recent years, particularly in the 1990s, to reduce paperwork at U.S. missions and offices overseas. Therefore, many older Stinger records were likely destroyed during efforts to dispose of older paperwork.

In comments on a draft of this report, DOD said that it has recordkeeping requirements for implementing agencies and SAOs regarding security assistance management. However, we found that these general recordkeeping requirements apply to Foreign Military Sales case managers,

not to DSCA or SAOs, and to financial management purposes, not end-use monitoring.[35] Furthermore, Army officials said that they were unaware of any requirement to maintain Stinger shipping records. DOD said that DSCA would amend the Security Assistance Management Manual (SAMM) to specifically identify the recordkeeping standards for end-use monitoring activities to ensure that the requirements are clear.

No single DOD office has maintained copies of all the Stinger shipping records. The two main offices that maintain such records—the Army and the SAOs—have some of the Stinger shipping records. In addition, DSCA has a database containing additional data on defense articles, including Stingers, authorized and delivered under the Foreign Military Sales program. However, we found discrepancies in the numbers of Stingers that different DOD offices show were sold to foreign governments. For example, one SAO reported in its 2003 inventory inspection of all Stinger missiles in its recipient country[36] that it found approximately 30 percent more Stingers than the number that the Army stated had been provided to that country. In a second example, a different SAO in 2002 reported the total number of Stingers received by the recipient country[37] over the years as 156 missiles fewer than the number that the Army had on record.

According to data from the U.S. Army, the United States has exported 7,551 Stinger missiles to 14 countries (plus Taiwan) since 1982 through DOD's foreign military sales program (see table 2).[38] The Army reconstructed its information for us from a combination of its remaining original shipping records and limited inventory inspection records dating back to 1982. As a result of being constructed from incomplete data, some of the numbers in the table likely under-represent the number of Stingers sold. We

[35]DOD 5105.38-M, "Security Assistance Management Manual" and DOD 7000-14-R, "Financial Management Regulation," Volume 15. According to the SAMM, the case manager integrates efforts for the successful performance of a Foreign Military Sales case including logistics and financial management and closure. The implementing agency—for Stingers, the Army—assigns a case manager to each LOA or Foreign Military Sales case before the case is implemented.

[36]The name of the country and the exact number of Stingers reported is classified information.

[37]The name of this country and the exact number of these Stingers reported are also classified.

[38]According to U.S. Army data, an additional 13,135 Stingers were produced overseas for use by five countries under the terms of coproduction agreements with the United States.

determined that Army data are not a reliable single source of information on the numbers and destinations of Stingers the United States has exported overseas. Because of our concerns about the reliability of the Army data, we looked at DSCA data on the number of Stinger systems exported by the United States since 1982. According to our analysis of the DSCA data, the United States has exported 8,331 Stinger missiles to 16 countries (plus Taiwan). This data is from DSCA's 1200 Series database, which shows the quantities and dates of Stingers delivered to foreign governments. DSCA provided us with this data, which we consolidated in this table. We performed data reliability checks on the 1200 Series database and determined that it was sufficiently reliable for comparison against the information provided by the Army. As table 2 shows, there are significant discrepancies between Army and DSCA data on the number of Stinger missiles the U.S. has exported to foreign countries. For example, Army data shows the U.S. has not exported any Stinger missiles to Egypt. However, DSCA data indicates the U.S. has exported 89 Stingers to Egypt.

Table 2: Stinger Missiles Exported by United States to Foreign Countries, 1982-2004

Recipient country	Army missiles	DSCA missiles
Bahrain	69	139
Denmark	1140	1140
Egypt	0	89
France	82	81
Germany	9	19
Greece	408	500
Israel	318	318
Italy	611	885
Japan	871	1025
Netherlands	637	646
Pakistan	120	120
Portugal	33	45
Saudi Arabia	601	596
Switzerland	0	10
Taiwan	2295	2352
Turkey	217	216
United Kingdom	140	150
Total missiles delivered:	**7,551**	**8,331**

Sources: Department of the Army; GAO analysis of DSCA data.

Because some SAOs lack Stinger shipping records and cannot always get complete records from the Army, officials at DSCA and the three SAOs we visited said that SAO officials have in some cases relied on foreign government records. However, in August 2000, we reported[39] that relying on the foreign government's records might pose a risk to achieving 100 percent accounting of the missiles because the reliability of accountability systems varies from country to country. We further reported that DSCA had discovered discrepancies in foreign governments' Stinger missile inventories after completing its annual inventory in December 1999. DSCA officials stated in August 2000 that they would investigate these discrepancies. We recommended that DOD reconcile discrepancies in foreign governments' Stinger missile inventories where discrepancies existed. DSCA said that its 2000 inventory results showed no discrepancies that warranted corrections. However, the 2000 inventory required inspection of only 5 percent of Stingers and used unreliable Stinger control records. As of April 2004, our specific recommendation had not been implemented.

Some SAO officials stated that they prefer to receive Stinger serial number information from DOD. However, because DOD does not have complete original shipping records, SAO officials have sometimes had to rely on the recipient country or the European Stinger Project Group to provide records to perform the inventory inspections. For example, DSCA officials said that in 2003 the Japanese government provided the only available Stinger records in Japan. At one of the SAOs we visited, the latest SAO official arrived in 2003 to find there was no Stinger paperwork on record. At another SAO we visited, SAO officials had no record of the Stingers purchased from the United States and relied solely on the European consortium for serial number records for consortium-produced Stingers.

Stinger Inventory Inspections Are Impaired by Inconsistent Practices and Incomplete Inventory Records

DOD's inventory inspection efforts are impaired because DOD lacks procedures for conducting Stinger inspections and requirements for keeping inspection records. Without procedures for conducting Stinger inspections, DOD security assistance officials overseas use inconsistent practices to perform Stinger inventory and physical security inspections. In addition, DOD has no requirements for keeping records of inventory

[39]U.S. General Accounting Office, *Foreign Military Sales: Changes Needed to Correct Weaknesses in End-Use Monitoring Program*, GAO-00-208 (Washington, D.C.: Aug. 24, 2000).

inspections. As a result, practices for keeping inventory inspection records have been left to the discretion of DOD officials at SAOs, DSCA, and the Army, and the quality of inventory recordkeeping varied widely among the SAOs we visited.

DOD Officials Use Inconsistent Practices to Perform Stinger Inspections

Officials at the Army and SAOs said that DOD has no procedures for performing Stinger inspections. As a result, SAO officials use inconsistent practices to perform Stinger inventory and physical security inspections. In addition, even though Stinger sales agreements require physical security inspections, DSCA has not issued procedures for performing physical security inspections at facilities storing Stingers. As a result, we found that SAOs use inconsistent practices in conducting security inspections, and SAO officials said they are unclear about their responsibilities. At three SAOs that we visited, we found the following differences in inspection practices:

- At one SAO, officials said they had inventoried approximately 25 percent of the recipient country's Stingers in 2003. This inspection involved opening the Stinger system container cases to read the serial numbers on the missile systems. SAO officials stated that they were unsure whether they were required under the new inventory requirements to open all of the Stinger system container cases but that this had been their practice for a few years. SAO officials said that they looked for noticeable security deficiencies, but were unaware that they were required to inspect the physical security of the Stinger system storage facilities.

- At a second SAO, officials said they had inventoried approximately 75 percent of the country's Stingers in 2003. This inspection involved reading the serial numbers on the Stinger system container cases and opening approximately 10 percent of the container cases to read the serial numbers on the missile systems. SAO officials said they were unsure whether they were required under the new inventory requirements to open the Stinger container cases but that this had been their practice for several years. SAO officials said they performed a physical security inspection of the Stinger storage facilities, including inspecting the status of lighting, fencing, locks, keys, and guard postings. Officials stated that they inspected these security features because the primary SAO inspecting official had previous physical security experience.

- At a third SAO, officials said they inventoried 100 percent of the Stinger inventory in 2003 by reading the serial numbers on the Stinger system container cases. SAO officials said they did not open any of the container cases. In addition, SAO officials stated that they did not perform any physical security inspection of the Stinger system storage facilities because they knew of no requirement to do so.

We reported in August 2000 that DOD had similar problems in the routine monitoring of defense articles the United States sold overseas.[40] At that time, we reported that DOD had not effectively implemented the routine monitoring requirement that its field personnel observe and report on foreign governments' use of U.S. defense articles and services transferred through the Foreign Military Sales program, including Stingers. DOD had not issued guidance specifying what monitoring was required. As a result, field personnel interpreted differently the requirements and activities that they were to perform. We recommended that DOD issue additional guidance for the routine observation of U.S. defense articles sold overseas. As of April 2004, our specific recommendation had not been implemented.

The lack of inventory inspection procedures may result in Stingers not receiving the level of inspection envisioned by DOD and would impair DSCA's ability to collect consistent and useful inventory data necessary for managing the Stinger end-use monitoring program. DSCA officials said that DSCA planned to issue official procedures for performing inventory and physical security inspections at the end of 2003 but had not done so at the time of this report. Notwithstanding the absence of inspection procedures, DSCA officials stated that SAOs are required to meet the new 100 percent inspection requirements in 2004 and report on their inspection results by December 1, 2004. According to DSCA officials, in 2003 SAOs performed 100 percent inventory inspections of Stinger systems in 11 (or almost 60 percent) of the 17 countries (plus Taiwan) that have purchased Stingers.

DOD Lacks Complete and Reliable Records of Inventory Inspections

DSCA, Army, and SAO officials said that DOD lacks complete and reliable inventory inspection records. Army and SAO officials said the records deficiencies occurred because there have been no requirements for keeping records of Stinger inventory inspections over the years. In the absence of recordkeeping requirements, practices for keeping inventory

[40]Routine monitoring is the day-to-day observing and reporting, while performing other duties, by SAO officials on foreign governments' use of defense articles and services transferred through DOD's Foreign Military Sales program.

inspection records have been left to the discretion of SAO, DSCA, and Army officials.

In the absence of recordkeeping requirements, we found that the condition of Stinger inventory inspection records overseas varied widely among the three SAOs we visited. For example, one SAO had most of its Stinger inventory inspection records from the past 5 years. Another SAO had almost no Stinger paperwork in place. Still another had a few scattered records with incomplete inventory inspection information contained in them.

In addition to the SAOs, we found that DSCA has gaps in its inventory inspection records. DSCA has maintained a total of 18 annual inventory inspection reports from SAOs over the 22-year history of Stinger sales. For 2002—the most recent year for which records were available—DSCA had on record inventory inspection reports of 6 of 16 countries (plus Taiwan) that received Stingers. Moreover, DSCA has no procedures for SAOs to report the results of their Stinger inventories. As a result, DSCA said that some SAOs report their Stinger missile inventories using missile serial numbers but that others do not.

U.S. Is Determining Feasibility of Countermeasures to Protect Commercial Aircraft

In response to the conference report accompanying the Emergency Wartime Supplemental Appropriations Act, 2003,[41] DHS initiated a 2-year system development and demonstration program in 2003 for a counter-MANPADS system. As we reported in January 2004,[42] DHS faces significant challenges in adapting a military counter-MANPADS system to commercial aircraft. Such challenges include establishing system requirements, maturing technology and design, and setting reliable cost estimates. Our work on the best practices of product developers in government and industry has found that such challenges can be successfully overcome by

[41]P.L. 108-11.

[42]GAO-04-341R.

using a knowledge-based approach.[43] Using this approach, product developers employ specific practices to ensure that a high level of knowledge regarding critical facets of the product is achieved at key junctures in development. We recommended that the Secretary of Homeland Security fully implement a knowledge-based approach in its counter-MANPADS development program; the Secretary fully concurred.

Department of Homeland Security Faces Technical Challenges Adapting Military Counter-MANPADS Systems to Commercial Aircraft

Concerned that the potential for terrorists to use MANPADS against commercial airliners has grown in recent years, the U.S. government is considering the installation of technical countermeasures on commercial aircraft. Members of Congress have also expressed concerns that civilians traveling by air must be protected while mitigating the potential financial burden for the airlines industry. DHS was tasked with researching the potential of adapting countermeasures already used by the U.S. military to the commercial fleet. In January 2004, DHS awarded the initial contracts for a 2-year program to develop and demonstrate a counter-MANPADS system for commercial aircraft. DHS faces significant challenges in adapting a military counter-MANPADS system to commercial aircraft in the initial phases of its program.

First, DHS is challenged with establishing system requirements to lay out the framework and end-state goals for the program. Requirements involving new technologies, system maintenance, system integration, and system security may involve trade-offs between competing objectives, such as performance and cost. This would enable DHS to derive the most effective solution at a realistic life cycle cost.

Second, DHS is challenged with developing the technology and design to a mature level so that it can be adapted for commercial use. For example, it is challenging to reduce the high false alarm rate found in missile warning systems used by the military. It also is challenging to increase the system's reliability by 10 times from the current 300 hours expected on military systems to 3,000 hours required for commercial viability. Fitting a wide

[43]In the last several years, we have undertaken a body of work on how leading developers in industry and government use a knowledge-based approach to product development that reduces risks and increases the likelihood of successful outcomes. This best practices model enables decision makers to be reasonably certain that key questions about their products were fully answered at three critical junctures or knowledge points during development. Decision makers can thus make better-informed investment decisions about product development.

variety of commercial aircraft body types even though its design, placement, and integration will affect each type of aircraft differently and make all aircraft more costly to operate. DHS also is challenged with developing a plan to safeguard the new equipment on civilian aircraft in a variety of settings at airports both within the United States and abroad. Finally, it will be a challenge to develop a missile launch notification system that effectively passes warning information in the National Airspace System.

Third, DHS is challenged to develop reliable cost estimates regarding the procurement, integration, operation, and support of the countermeasures system on commercial aircraft. It will be challenging to provide a major capital investment to increase the contractors' capacity to quickly produce a large number of countermeasure systems. (The current military production capacity of four systems per month cannot meet the demand for any significant portion of the estimated 6,800 aircraft in the civilian U.S. fleet.)

Knowledge-Based Approach Has Been Adopted by Successful Product Developers

Challenges such as those faced by DHS's counter-MANPADS program can be significantly addressed through the use of a knowledge-based approach, as demonstrated by our past work[44] on the best practices of leading product developers in industry and government. This approach helps decision makers make informed investment decisions based on knowledge they gain at three critical junctures or knowledge points during product development, which will reduce risks and increases the likelihood of successful outcomes. These three knowledge points are as follows:

- *Knowledge Point 1—Needs and resources are matched.* This level of knowledge is attained when a match is made between a customer's needs and the developer's technical, financial, and other resources. Achieving a high level of technological maturity at the start of system development is a particularly important best practice. This means that the technologies needed to meet essential product requirements have been demonstrated to work in their intended environment.

[44]U.S. General Accounting Office, *Best Practices: Highlights of the Knowledge-Based Approach Used to Improve Weapon Acquisition*, GAO-04-392SP (Washington, D.C.: Jan. 1, 2004); *Best Practices: Using A Knowledge-Based Approach To Improve Weapon Acquisition*, GAO-04-386SP (Washington, D.C.: Jan. 1, 2004); *Best Practices: Capturing Design and Manufacturing Knowledge Early Improves Acquisition Outcomes*, GAO-02-701 (Washington, D.C.: July 15, 2002).

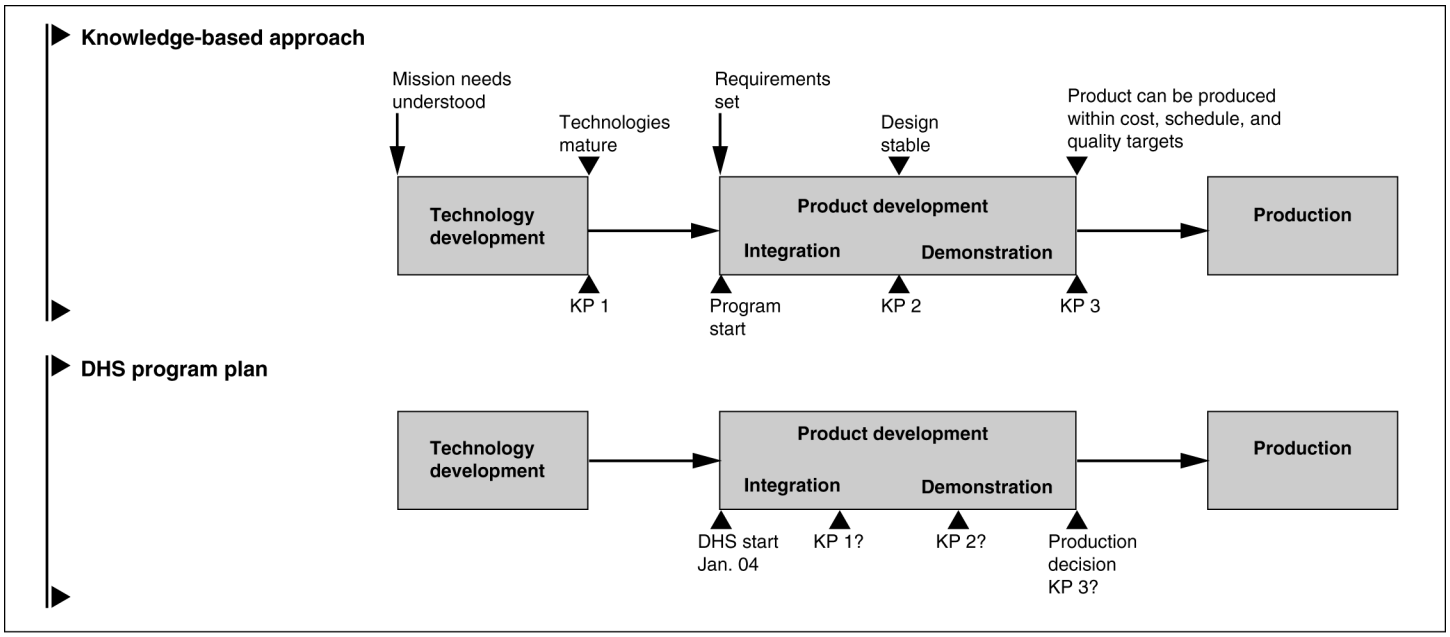
- *Knowledge Point 2—The product design is stable.* This level of knowledge is attained when the product's design is shown to meet the customer's requirements. A best practice is to achieve design stability at the system-level critical design review, usually held midway through development. Completion of engineering drawings at the system design review provides tangible evidence that the design is stable.

- *Knowledge Point 3—Production processes are mature.* This level of knowledge is attained when it is demonstrated that the product can be manufactured within cost, schedule, and quality targets. A best practice is to achieve production maturity at the start of production. This means that all key manufacturing processes produce output within statistically acceptable limits for quality.

A knowledge-based approach also involves the use of controls or exit criteria to ensure that the required knowledge has been attained at each critical juncture. Using this approach will enable managers to (1) conduct activities to capture relevant product development knowledge, (2) provide evidence that knowledge was captured, and (3) hold decision reviews to determine that appropriate knowledge was captured to allow a move to the next phase. If the knowledge attained at each juncture does not confirm the business case on which the effort was originally justified, the program does not go forward.

Use of a knowledge-based approach has enabled leading organizations to deliver high quality products on time and within budget. Efforts that have not done so frequently experience poor cost, schedule, and performance outcomes. Figure 4 shows a comparison of a knowledge based approach with the DHS counter-MANPADS plan.

Figure 4: Comparison of Knowledge-Based Approach to DHS Program Plan



Source: GAO.

DHS Has Begun to Use a Knowledge-Based Approach

DHS included some knowledge-based elements in its original solicitation released on October 3, 2003. For example, DHS plans to conduct design reviews, require periodic performance assessments from the contractor, use an integrated product team to identify and resolve issues, conduct systems engineering work in both phases, and require the development of a prototype to help identify and resolve specific design and manufacturing risks.

During our review, we asked DHS to identify its controls or exit criteria for use in determining whether needed knowledge had been attained by the end of Phases I and II of its program. In its solicitation of October 3, 2003, DHS had required the contractor to satisfy certain criteria to receive payment for each milestone, but the Phase I exit criteria were not knowledge-based. They did not require the contractor to demonstrate that key product knowledge had been obtained. Rather, the criteria were based on the contractor providing information, such as the Long Lead Items List, at key payment milestones. Also, the Phase II exit criteria were not

identified and were to be proposed by the contractor and subject to negotiation.

When GAO presented DHS officials with recommended exit criteria from our past reports, they agreed to integrate them into an updated solicitation and use them in monitoring the contractors' progress. For example, at Knowledge Point 1, exit criteria include the demonstration that critical technologies are mature and system requirements are finalized. At Knowledge Point 2, criteria include the completion of 90 percent of engineering drawings at design review and the demonstration that a prototype's design meets requirements. At Knowledge Point 3, criteria include the demonstration that manufacturing processes are under statistical control. The use of this knowledge-based approach, including the use of exit criteria should help ensure that DHS's key decisions in developing and demonstrating a counter-MANPADS system are based on sufficient information.

Conclusion

The first MANPADS attack on a commercial aircraft outside of a conflict area in 2002 highlights a growing potential for terrorists to use these easily transportable weapons against commercial aircraft worldwide. Beginning in 2003, U.S. multilateral and bilateral diplomatic efforts to reduce this threat of MANPADS increased foreign governments' commitments to reduce MANPADS proliferation. If adequately implemented, these commitments could significantly improve multilateral controls over MANPADS exports, decrease excess stockpiles of MANPADS, and enhance security over government stocks of these weapons. However, obtaining foreign governments' commitments was only the first step toward reducing this proliferation; without mechanisms to monitor forum members' compliance with their commitments, assessing progress toward reducing MANPADS proliferation is difficult. Although the United States has afforded a high priority to securing and monitoring its exports of Stinger missile systems overseas, DOD's end-use monitoring system has serious deficiencies that undercut this purpose. DOD lacks reliable information on the Stinger weapons it has sold to foreign governments over 20 years because it has established no requirements for DOD organizations responsible for end-use monitoring to generate and maintain records on the numbers of Stingers shipped and inventoried each year and no procedures for consistently carrying out these inventories. As a result, DOD lacks the ability to periodically account for Stinger missile systems, compare the results against credible control records, and examine discovered exceptions.

Recommendations for Executive Action

Since multilateral forums lack mechanisms to monitor countries' implementation of their commitments to improve export controls over MANPADS, there are few means to assess the extent to which these commitments are helping to reduce worldwide MANPADS proliferation. Therefore, we recommend that the Secretary of State develop a strategy for working within these forums to establish mechanisms to monitor and report on (1) countries' implementation of their commitments and (2) the impact such implementation of commitments has on the flow of MANPADS to black and gray markets.

Inadequate recordkeeping prevents DOD from knowing the disposition of its Stinger missile systems sold overseas. Therefore, we recommend that the Secretary of Defense establish standardized recordkeeping requirements for all U.S. organizations responsible for maintaining records on Stinger systems sold overseas.

DOD's records on its Stinger missile system sales overseas are incomplete, unreliable, and difficult to find and retrieve. In addition, its records are divided among multiple organizations worldwide, and the quality and extent of the records varied widely among three security assistance organizations we visited. Therefore, we recommend that the Secretary of Defense establish a centralized electronic database to (1) consolidate the records of the U.S. Army, DSCA, and U.S. security assistance organizations in countries with Stinger missile systems to establish a baseline of the worldwide Stinger inventory and (2) track the inventory worldwide.

Because DOD lacks Stinger inspection procedures, DOD officials overseas use inconsistent practices to perform Stinger inspections. Therefore, we recommend that the Secretary of Defense direct DSCA to issue standardized inventory and physical security inspection procedures for U.S. security assistance organization officials.

Agency Comments and Our Evaluation

We provided a draft of this report to the Secretaries of Defense, Homeland Security, and State for their review and comment. We received written responses from each that are reprinted in appendixes II, III, and IV. Homeland Security and State also provided us with technical comments, which we incorporated as appropriate.

DOD stated that it would amend its security assistance manual to specifically identify record-keeping standards for end-use monitoring. DOD

also said that it is developing a database that would consolidate the types of information noted in our recommendation. Finally, DOD stated that DSCA and the Combatant Commands[45] are developing checklists and procedures that would provide guidance to SAOs conducting Stinger inventory inspections.

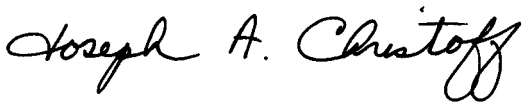
DHS, as a result of implementing our previous recommendation to adopt a knowledge-based approach, commented that its counter-MANPADS program has in place milestones with entrance and exit criteria that must be completed by the contractors before they can advance to the next stage. These milestones include the System Requirements Review, Interim Design Review, Preliminary Design Review, and the Critical Design Review. Entrance and exit criteria for the Systems Requirements Review include the completion of a Systems Concept and Concept of Operations, a System-level Requirements Analysis, and a Configuration Control Document.

The State Department concurred with our recommendations to the Secretary of State, commended the report, and agreed that addressing how participating governments implement the MANPADS policy undertakings made in December 2003 is a key next step. Consequently, the U.S. government and other Wassenaar states are examining implementation during 2004 and will continue to do so in future years, according to the department. The State Department also provided technical comments that we incorporated as appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to appropriate congressional committees and to the Secretaries of Defense, Homeland Security, and State. We also will make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

[45]A Combatant Command has operational control of U.S. combat forces from two or more military departments and is normally organized on a geographical basis.

If you or your staff has any questions concerning this report, please contact me at (202) 512-8979 or at christoffj@gao.gov. A GAO contact and staff acknowledgments are listed in appendix V.



Joseph A. Christoff
Director, International Affairs and Trade

Scope and Methodology

To assess the nature and extent of the man-portable air defense systems MANPADS threat, we met with officials at the Departments of Defense, State, and Homeland Security, and at the intelligence agencies. We also met with foreign government officials in Austria, Germany, and the United Kingdom, and exchanged correspondence with government officials in France. In addition, we met with representatives of the Secretariats of the Wassenaar Arrangement and of the Organization for Security and Cooperation in Europe in Vienna. In addition, we reviewed U.S. documents, including classified and unclassified State Department cables, reports, and briefing slides presented to multinational forums, and testimony before congressional committees. We also requested to meet with officials of the National Security Council to discuss prioritization of terrorist threats, but they declined to meet with us or respond to our questions.

To assess the U.S. government efforts to control the worldwide proliferation of MANPADS, we reviewed documents and interviewed officials in State Department's Nonproliferation Bureau Office of Export Control and Conventional Arms Nonproliferation Policy, Office of Export Control Cooperation, Office of Policy, Public Affairs and Congressional Relations; the State Department's Political and Military Affairs Bureau Office of Weapons Removal and Abatement (whose MANPADS officials formerly were in the Office of Plans, Policy and Analysis until September 2003); and the State Department's Arms Control Bureau Office of Conventional Arms Control; as well as the Department of Defense's (DOD) Defense Threat Reduction Agency On-site Inspection Directorate Interagency Liaison for Europe. To assess the reliability of the data provided by the State Department on MANPADS destroyed, committed to be destroyed, and U.S. funds expended on the destruction and infrastructure improvements to foreign arsenals, we reviewed numerous State Department cables, reviewed contractor documentation for some MANPADS destruction, and interviewed State officials regarding their data collection methods. We determined the State data was sufficiently reliable for our reporting purposes. We also obtained and reviewed documents and interviewed representatives of the Wassenaar Arrangement and the Organization of Security and Cooperation in Europe (OSCE) in Vienna, as well as State officials at the U.S. Mission to the OSCE and the U.S. Embassy in Vienna. To obtain views of other countries on the impact of these multilateral forums on MANPADS proliferation, we reviewed foreign government documents and interviewed government officials of Austria, France, Germany, and the United Kingdom.

To assess DOD's end-use monitoring of the U.S.-exported Stinger missile, we reviewed documents and interviewed officials at DOD's Defense Security Cooperation Agency (DSCA), the U.S. Army, and State. We also reviewed documents and met with officials at the U.S. European Command in Stuttgart, Germany; the Office of Defense Cooperation in Bonn, Germany; the U.S. Embassy in Berlin, Germany; the Office of Defense Cooperation in Ankara, Turkey; and the Office of Defense Cooperation in London, United Kingdom. In addition, we toured Stinger missile storage facilities in Germany and the United Kingdom and observed Stinger missile inventory inspections in Turkey. We also had telephone discussions with representatives of the Raytheon Corporation, the company that produces Stinger missiles for the U.S. Army. To assess the reliability of DOD's data on the number and destinations of Stinger missiles sold overseas, we reviewed documents and interviewed officials at the Army and DSCA. As DOD relies on data provided by the Army to track Stingers sold overseas, we assessed those data. In addition, we also compared the Army's data to data compiled by DSCA, which DOD does not use to track Stingers overseas. Based on prior GAO work, and a reasonableness check of the DSCA data, we determined that the DSCA data were sufficiently reliable for the purposes of establishing overseas Stinger sales, and could therefore serve as a check on the Army data that are used by DOD. We learned that the Army generated their data from Stinger shipping records, which include the Stinger serial numbers, and from Stinger inventory inspection records going back to 1982. During our interviews, questions arose about the completeness of the Army data; when we compared the Army data with the data compiled by DSCA, we found that Army records were indeed incomplete. As a result, we determined that the Army data were not sufficiently reliable for the purposes of tracking overseas Stinger missile sales.

To assess the Department of Homeland Security's efforts to develop technical countermeasures to minimize the threat of a MANPADS attack, we compared DHS's plan for its counter-MANPADS system development and demonstration program plan against the best practices of commercial and military acquisitions identified in our past reports. We focused on whether DHS will have sufficient information to make knowledge-based decisions at each milestone. To determine what military countermeasures are available for adaptation to commercial aircraft and what their performance capabilities, cost, and schedule ramifications might be, we met with DOD, Air Force, Army, and Navy officials, and analyzed relevant documentation, including studies and test reports. We interviewed representatives from Northrop Grumman, Boeing, BAE Systems, Raytheon

Corporation, and Sanders Design International regarding countermeasure systems currently in production or development. We also met with representatives from the airline industry, air transportation association, and RAND. We conducted our work from April 2003 through March 2004 in accordance with generally accepted government auditing standards.

Comments from the Department of Defense

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

DEFENSE SECURITY COOPERATION AGENCY

WASHINGTON, DC 20301-2800

MAY 0 7 2004

In reply refer to:
I-04/006190-P3

Mr. Joseph A. Christoff
Director, International Affairs and Trade
U.S. General Accounting Office
441 G Street, N. W.
Washington, DC 20548

Dear Mr. Joseph A. Christoff,

This is the Department of Defense (DoD) response to the GAO Draft report, "Nonproliferation: Further Improvements Needed in U.S. Efforts to Counter Threats from Man-Portable Air Defense," dated 16 April 2004 (GAO-04-519).

DoD has reviewed the draft report and agrees with the recommendations that we improve record-keeping and inventory procedures. Our specific comments concurring with these recommendations are provided below. Although we concur with the recommendations, there are several areas within the draft report where corrections are needed for technical accuracy. For example, the report does not recognize the policy guidance we have already issued regarding End-Use Monitoring (EUM) requirements for Stinger missiles or the implementing directives that have been issued by the Combatant Command visited by the GAO. Our comments regarding these technical discrepancies are also included in this memorandum.

RECOMMENDATION 1: The GAO recommended that the Secretary of Defense establish standardized record-keeping requirements for all U.S. organizations responsible for maintaining records on Stinger systems sold overseas. (p. 34/GAO Draft Report)

DoD RESPONSE: Concur. DoD 5105.38-M, "Security Assistance Management Manual (SAMM)" and DoD 7000.14-R, "Financial Management Regulation," Volume 15, specify record-keeping requirements for implementing agencies and security assistance organizations (SAOs). To make sure these requirements are clear, DSCA will amend the SAMM to specifically identify the record-keeping standards for End-Use Monitoring (EUM) activities.

RECOMMENDATION 2: The GAO recommended that the Secretary of Defense establish a centralized electronic database to 1) consolidate the records of the U.S. Army, DSCA, and U.S. security assistance organizations in countries with Stinger missile systems to establish a baseline of the worldwide Stinger inventory and 2) track the inventory worldwide. (p. 34/GAO Draft Report)

DoD RESPONSE: Concur. DSCA is developing an automated EUM tool that will be incorporated into the Security Cooperation Information Portal (SCIP) and will consolidate the data recommended by the GAO report. Deployment of this tool is tentatively planned for October 2004. It will include the following:

- It will give the security assistance community (e.g., DSCA, implementing agencies, Combatant Commands, security assistance organizations and host nations) access to input and view data regarding deliveries and inventory information/controls for Communication Security (C4ISR) articles, STINGER, Advanced Medium Range Air-to-Air Missile (AMRAAM), Tube-Launched, Optically-Tracked, Wire-Guided (TOW II-B) missiles, JAVELIN missiles, Night Vision Devices (NVD), cruise missiles, unmanned aerial vehicles, and articles and services provided under grant assistance programs.

- It will allow for entry of serial numbers, notes, inspection histories, technical details, delivery data, current inventory data, Presidential Determination dates, and other similar data required to successfully track and monitor defense articles and services.

- It will be secure and compartmentalized by country and Combatant Command ensuring that only users with a need-to-know may access specific data. Some users (e.g., DSCA and implementing agencies) will have access to all data.

- It will provide a method to track, extract, and report on all data.

RECOMMENDATION 3: The GAO recommended that the Secretary of Defense direct the Defense Security Cooperation Agency to issue standardized inventory and physical security inspection procedures for U.S. security assistance organization officials. (p. 34/GAO Draft Report)

DoD RESPONSE: Concur. DSCA has developed checklists for use by EUM Tiger Teams evaluating each of the articles listed as Enhanced EUM articles which includes Stinger missiles. In October 2003, DSCA provided the Combatant Commands draft copies of these checklists. The checklists are currently being staffed by DSCA to the implementing agencies for comments and recommendations prior to publication and dissemination. These checklists will help ensure that EUM Tiger Team members are reviewing items completely and consistently. It will also help the SAOs to understand what the Tiger Teams will be assessing. In addition to these checklists, each Combatant Command with Stinger Missiles is developing their own EUM standard operating procedures. These procedures will include checklists and other more detailed guidance for the SAOs.

General Comments:

The purpose of this GAO report was "... to assess (1) the nature and extent of the MANPADS threat, (2) the Department of State's efforts to control the international proliferation of MANPADS, (3) the Department of Defense's end-use monitoring of Stinger missiles, and (4) the Department of Homeland Security's efforts to develop technical countermeasures." (p. 1) The recommendations directed toward the Department of Defense and the focus of our technical comments below pertain to number 3 – our end-use monitoring (EUM) program.

The audit reviewed EUM inventory procedures and discussed at length record-keeping practices. These are valid topics and the report cited some areas where we need to improve. We are committed to our EUM program and will implement the GAO recommendations to enhance the targeted areas. While the GAO report highlighted some issues, it did not address many aspects of our total EUM program. There are several pieces to our overall export control program that must all be considered in any evaluation of its effectiveness.

There are several procedures we have in place to ensure that our weapon system technologies are protected and proliferation and terrorist risks are mitigated. In fact, our monitoring process begins before a transfer ever takes place. Our processes are extensive and cover a range of activities that occur before, during, and after a transfer. We check vigorously (1) who we sell to, and (2) what they do with it.

See comment 1.

Under security assistance procedures, the Department of Defense only provides defense articles, services and training to foreign governments and international organizations that have been approved by the Department of State and determined by the President as supporting our national security and foreign policy objectives. Each country we sell Stinger missiles to must in fact be "eligible" – as determined by the Department of State and the President on a country-by-country basis. Each proposed transfer is thoroughly vetted by many different organizations and offices to ensure releasability, disclosure, and other concerns are addressed. Foreign customers' requests for Stinger missiles are coordinated closely with the Combatant Commands and the U.S. country team. The U.S. country team must assess several aspects of the transfer to include political impacts in the region as well as the ability of the host nation and the security assistance organization in-country to properly perform end-use monitoring on the missiles. Formal Congressional Notification is required prior to offers of Stinger missiles that meet required dollar thresholds. Bottom line: The foreign customers to whom we provide Stinger missiles are trusted partners. Our vetting and review processes give us a high level of confidence that the missiles provided under security assistance programs do not pose a terrorist threat. The draft report (p. 2) points out that "... 20 countries have produced at least 30 different types of MANPADS, with between 500,000 and 750,000 weapons believed to be in the worldwide inventory today." These missiles, transferred by other countries, pose the more significant threat.

As indicated in the audit, our EUM program includes inventory and inspection requirements to be performed by the recipient nation as well as our USG security assistance organizations. We recognize the resource burden on our security assistance organizations (SAOs) and are working with the Defense Threat Reduction Agency (DTRA) to supplement their inventory activities. The DTRA personnel are well-versed in inspection procedures and should help us ensure inventories are completed accurately, consistently, and in a more timely manner.

Specific Comments:

1. Title/Highlight Page. "Because DoD has not required *DoD agencies to retain these records*, it does not know how many Stingers have been sold overseas."

See comment 2.

Page 21. "DoD lacks reliable control records because there have been *no DoD requirements for keeping Stinger shipping records over the years*."

DoD Comment: DoD agencies are required to retain security assistance-related records – which would include Stinger shipping records. These requirements have been in-place for many years and are found in DoD 5105.38-M, "Security Assistance Management Manual (SAMM)," 3 October 2003, Chapters 6 and 8, and DoD 7000.14-R, "Financial Management Regulation," Volume 15, Chapter 6, January 2002. With the current emphasis we are placing on EUM we recognize that more specificity about tracking and retaining EUM records would be helpful. The EUM functionality currently in-work for the Security Cooperation Information Portal (SCIP) should allow us to consolidate existing records and make it easier to track these records. As stated in our response to Recommendation #1, we will amend the SAMM to make sure the record-keeping standards for End-Use Monitoring (EUM) activities are more clear.

2. Title/Highlight Page. "DoD officials overseas use inconsistent practices when inspecting Stinger inventories because *DoD lacks procedures for conducting these inspections*."

Page 26 . "*The lack of inventory inspection procedures* may result in Stingers not receiving the level of inspection envisioned by DoD and would impair DSCA's ability to collect consistent and useful inventory data necessary for managing the Stinger end-use monitoring program."

See comment 3.

DoD Comment: DoD has provided procedures for conducting Stinger inventories and inspections---both with regard to inspecting record-keeping as well as inventory procedures. Procedures for Stinger inventories were provided in DSCA Policy Memorandum 03-10, dated 4 June 2003. Specifically, the policy required that "Except for missiles deployed to hostile areas, the SAO will physically inventory 100 percent of in-country Stinger missiles, grip stocks and other essential components annually. The inventory must include review of the recipient's records of monthly two-man verifications as required by the Stinger/MANPADS LOA or other arms transfer document note. Unless problems indicate the necessity for such action, the manufacture sealed missile and weapon round containers should not be opened during the inventory." DSCA Policy Memorandum 04-11, dated 2 April 2004, included a draft Stinger missile inventory checklist. This checklist provides detailed guidance on facility and security requirements as well as specific inspection standards to be used by EUM Tiger Teams. The checklist also provides signs to look for to identify any tampering that may have been done to the missile. These memoranda were incorporated in the SAMM, Chapters 5 and 8. Additionally, the Combatant Commands' EUM directives and Standard Operating Procedures should provide more detailed guidance for these inventories. For example, EUCOM Directive Number 90-5, Annex A, "Stinger/MANPADS Procedures/ Requirements," reiterates guidance in the DSCA policy memoranda and includes a detailed checklist to verify SAO inspection actions are complete. PACOM and CENTCOM, the other Combatant Commands with countries who have purchased Stinger missiles under Foreign Military Sales (FMS), have issued similar guidance. DSCA recognizes that even more information may be needed and is adding pictures to our checklists to help ensure these inventories are consistent across the Combatant Commands.

See comment 4.

3. Page 22. "Army and DSCA officials said that there had been great pressure in recent years, particularly in the 1990's, to reduce paperwork at U.S. missions and offices overseas. Therefore, many older Stinger records were likely destroyed during efforts to dispose of older paperwork."

DoD Comment: This statement should not be attributed to DSCA officials.

4. Page 24. "However, in August 2000, we reported that relying on foreign government's records might pose a risk to achieving 100-percent accounting of the missiles because the reliability of accountability systems varies from country to country. We further reported that DSCA had discovered discrepancies in foreign governments' Stinger missile inventories after completing its annual inventory in December 1999. DSCA officials stated in August 2000 that it would investigate these discrepancies. We recommended that DoD reconcile discrepancies in foreign governments' Stinger missile inventories, where discrepancies existed. However, *as of April 2004, our specific recommendation has not been implemented.*"

See comment 5.

DoD Comment: DSCA agrees that foreign governments' records should not substitute for mandatory USG inventories. As agreed to in our response to the August 2000 audit, DSCA monitored the CY2000 inventory results, and found no discrepancies in the reports that warranted corrections. In addition, in December 2002, DSCA published DSCA Policy Memorandum 02-43 that requires the SAO to "establish inventory and reporting procedures with the host nation for all Enhanced EUM items." Additionally, in June 2003, DSCA published DSCA Policy Memorandum 03-10 requiring 100% accountability of Stinger missiles by the SAO. The requirements in these memoranda have been incorporated into the SAMM.

5. Page 24. "However, because DoD does not have complete original shipping records, SAO officials have sometimes had to rely on the recipient country or the European Stinger Project Group to provide records to perform the inventory inspections. For example, DSCA officials said that in 2003 the Japanese government provided the only available Stinger records in Japan. At one of the SAOs we visited, the latest SAO official arrived in 2003 to find there was no Stinger paperwork on record. At another SAO we visited, SAO officials had no record of the Stingers purchased from the United States."

See comment 6.

DoD Comment: DSCA agrees that in some instances the SAOs are overly-dependent on host nation records. We are addressing this problem through our policy guidance, the EUM SCIP functionality, and our Familiarization Visits. However, the reference above to the Japan inventories is not correct. In fact, in response to the DSCA Policy Memorandum 03-10, in 2003, Mutual Defense Assistance Office (MDAO)-Japan (the USG SAO-equivalent office in Japan) conducted a 100% inventory of the Japanese Self Defense Forces' Stingers and provided corresponding serial numbers to DSCA.

6. Page 26. "We reported in August 2000 that DoD had similar problems in the routine monitoring of defense articles the United States sold overseas. At that time, we reported that DoD had not effectively implemented the requirement for routine monitoring that its field personnel observe and report on foreign governments' use of U.S. defense articles and services transferred through the Foreign Military Sales program, including Stingers.

DoD had not issued guidance specifying what monitoring was required. As a result, field personnel interpreted differently the requirements and activities that they were to perform. We recommended that DoD issue additional guidance for the routine observation of U.S. defense articles sold overseas. As of April, our specific recommendation had not been implemented."

See comment 7.

DoD Comment: DSCA Policy Memoranda 02-43 (4 December 2002), provides guidance to the SAOs regarding their EUM responsibilities. Included in this policy is the requirement to conduct Routine EUM visits in compliance with existing guidance in pamphlet "End-Use Monitoring of Defense Articles & Services." While we are focusing most of our efforts on the Enhanced items, we also expect the security assistance community to conduct Routine EUM in conjunction with other assigned duties. This expectation has been communicated through the policy memorandum cited above and during Familiarization and Tiger Team visits as well as other out-reach programs (e.g., security assistance conferences).

7. Page 27. "In addition to the SAOs, we found that DSCA has gaps in its inventory inspection records. DSCA has maintained a total of 18 annual inventory inspection reports from SAOs over the 22-year history of Stinger sales. For 2002 - the most recent year for which records were available - DSCA had on record 6 of 18 countries' inventory inspection reports. Moreover, DSCA has no procedures for SAOs to report the results of their Stinger inventories to DSCA. As a result, DSCA said that some SAOs report their Stinger missile inventories to DSCA using missile serial number but that others do not."

See comment 8.

DoD Comment: DSCA provided specific reports that were requested by the GAO for Turkey, the U.K., Pakistan, Greece, and Germany. With regard to procedures for SAOs to report results of Stinger inventories---DSCA Policy memorandum 03-10 mandates that the Combatant Commands consolidate and provide Stinger inventory reports to DSCA by 1 December of each year.

The Department of Defense appreciates the opportunity to comment on the draft report. My point of contact on this matter is Mr. Leon Yates. He may be contacted by e-mail: leon.yates@dsca.mil or by telephone at (703) 601-3865.

Sincerely,

TOME H. WALTERS, JR.
LIEUTENANT GENERAL, USAF
DIRECTOR

The following are GAO's comments on the Department of Defense letter dated May 7, 2004.

GAO Comments

1. We incorporated DOD's comments on how it vets and reviews each proposed transfer of Stinger missiles to foreign governments to present a description of the review that occurs prior to delivery and monitoring of Stingers. According to DOD, it provides defense articles, services, and training to foreign governments and international organizations that have been approved by State and determined by the President as supporting U.S. national security and foreign policy objectives. DOD said that each proposed transfer of Stinger missiles is thoroughly vetted by many different organizations and offices, thus providing DOD a high level of confidence that the missiles under security assistance programs do not pose a terrorist threat. However, these procedures do not negate the need for rigorous and comprehensive end-use monitoring of Stingers after their delivery to recipients.

2. In its comments, DOD stated that it has recordkeeping requirements for implementing agencies and security assistance organizations regarding security assistance management.[1] However, the DOD recordkeeping requirements to which DOD referred apply specifically to (1) case managers of Foreign Military Sales transfers, not to organizations responsible for end-use monitoring and to (2) Stinger missiles sold through Foreign Military Sales, not those produced by European countries under license agreement with the United States (roughly two-thirds of Stingers produced worldwide). DOD said that it would amend the appropriate security assistance manual to specifically identify the recordkeeping standards for end-use monitoring activities to ensure that the requirements are clear.

3. DOD said it has provided procedures for conducting Stinger inventories and inspections, regarding inspection recordkeeping and inventory procedures. The document that DOD cited, DSCA Policy Memorandum 03-10, dated June 4, 2003, establishes a requirement for conducting a 100 percent annual Stinger inventory, but does not provide detailed procedures for the SAOs on how such inventories are to be conducted. The checklists noted in DSCA Policy Memorandum 04-11, dated April 2,

[1]DOD 5105.38-M, "Security Assistance Management Manual" and DOD 7000-14-R, "Financial Management Regulation," Volume 15.

2004, (1) are directed to teams evaluating SAO inspections, not to the SAOs themselves, (2) were provided as draft copies to Combatant Commands only in October 2003, and (3) are currently out for comment and recommendations prior to publication and dissemination, according to DOD. Thus, these checklists had no impact on any of the inventories or other data that we reviewed. Furthermore, DOD's comments about Combatant Commands' directives are contradictory: DOD states that the Combatant Commands are both developing these procedures and have already issued them.

4. DOD stated we should not attribute to DSCA officials the point that there had been great pressure in recent years to reduce paperwork at U.S. missions and offices overseas. However, a DSCA official made this statement.

5. DOD said that the 2000 inventory results showed no discrepancies that warranted corrections. However, the 2000 inventory required inspection of only 5 percent of Stingers and used unreliable Stinger control records. As of April 2004, our specific recommendation had not been implemented.

6. DOD stated that our finding that in 2003 the Japanese government provided the only available Stinger records in Japan is incorrect. DOD stated that the relevant U.S. office in Japan conducted a 100 percent inventory of Stingers in-country and provided corresponding serial numbers to DSCA. However, we asked DOD for documentary evidence to show that this inventory did not rely on foreign government Stinger records, but DOD provided none.

7. DOD said that it implemented our 2000 recommendation through issuance of DSCA Policy Memorandum 02-43, dated December 4, 2002, which established SAO responsibilities for end-use monitoring. This guidance instructed SAOs to conduct routine end use monitoring with host nations, using a December 1996 pamphlet, End-Use Monitoring of Defense Articles & Services, incorporated into Appendix 5 of a June 2001 document, The Management of Security Assistance, to be found at a listed Web site. We reviewed these documents and found them insufficient to address our 2000 recommendation. For example, the 2002 DSCA Policy Memorandum lists a requirement to conduct routine end-use monitoring, but does not provide procedures or detailed guidance for doing so.

8. We said that DSCA has gaps in its inventory inspection records and that DSCA has no procedures for SAOs to report the results of their Stinger inventories. DOD commented that DSCA provided specific reports that we requested and that DSCA Policy Memorandum 03-10 mandates that the Combatant Commands consolidate and provide Stinger inventory reports to DSCA by December 1 of each year. First, DSCA did not dispute our finding that DSCA has maintained a total of 18 annual inventory inspection reports from SAOs over the 22-year history of Stinger sales or that for 2002, DSCA had on record inventory inspection reports for 6 of 16 countries (plus Taiwan). Second, DSCA did not provide only those reports it mentioned in response to our specific request. On September 16, 2003, we requested from DSCA all inventory inspection records related to Stingers, including records for those countries that we planned to visit. On October 17, 2003,DSCA provided requested records for multiple countries, including 4 countries that we did not plan to visit; it did not provide the requested records for the United Kingdom, which we did plan to visit.

Comments from the Department of Homeland Security

U.S. Department of Homeland Security
Science and Technology Directorate
Washington, DC 20528

Homeland Security

May 5, 2004

Mr. Norman J. Rabkin
Managing Director
Homeland Security and Justice
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Rabkin:

Thank you for the opportunity to review the draft report, *Nonproliferation: Further Improvements Needed in U.S. Efforts to Counter Threats from Man-Portable Air Defense Systems.*

Overall, the report looks fine. However, we recommend that the last sentence of the second paragraph on page 29 be changed from "Finally, it will be a challenge to develop a corresponding air traffic control missile launch detection system" to "Finally, it will be a challenge to develop a missile launch notification system that effectively passes warning information in the National Airspace System." Additionally, it might be useful to note that the program has in place a number of milestones, complete with entrance and exit criteria that must be completed by the contractors before they can advance to the next stage. Some examples of these milestones include the System Requirements Review, Interim Design Review, Preliminary Design Review, and the Critical Design Review. Examples of entrance and exit criteria for the System Requirements Review include such things as the completion of a System Concept and Concept of Operations, a System-level Requirements Analysis, and a Configuration Control Document."

Please let us know if you have questions regarding our recommendations. The point of contact for this action is Mr. Thomas Krones 202 402 5861 Thomas.Krones@dhs.gov.

Mary Jo Alderman
for Anna F. Dixon
Director, Bankcard Programs
and GAO/OIG Liaison

Comments from the Department of State

United States Department of State

Assistant Secretary and Chief Financial Officer

Washington, D.C. 20520

MAY 6 2004

Ms. Jacqueline Williams-Bridgers
Managing Director
International Affairs and Trade
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548-0001

Dear Ms. Williams-Bridgers:

We appreciate the opportunity to review your draft report, "NONPROLIFERATION: Further Improvements Needed in U.S. Efforts to Counter Threats from Man-portable Air Defense System," GAO Job Code 320187.

The enclosed Department of State comments are provided for incorporation with this letter as an appendix to the final report.

If you have any questions concerning this response, please contact Ronald Parson, Econ Commercial Officer, Bureau of Nonproliferation, at (202) 647-0397.

Sincerely,

Christopher B. Burnham

cc: GAO – Patrick Hickey
NP – Susan Burk
State/OIG – Mark Duda
State/H – Paul Kelly

Department of State Comments on GAO Draft Report
NONPROLIFERATION: Further Improvements Needed in U.S. Efforts to Counter Threats from Man-Portable Air Defense Systems
(GAO-04-519, GAO Job Code 320187)

The State Department commends the General Accounting Office for its report on Man-Portable Air Defense Systems (MANPADS). These weapons are indeed a deadly threat to civil as well as military aviation, and have the potential for causing great economic dislocation through disruption of air travel. For this reason, the Administration has pursued an aggressive diplomatic bilateral and multilateral strategy to address the threat posed by these weapons. In a variety of fora, during 2003 all but a few of the producers/exporters of MANPADS have made strong commitments with respect to export controls, security for stockpiles at home and when exported, and the importance of eliminating excess or obsolete MANPADS. Russia, China, France, and the UK all made such statements in the G-8 and or APEC. A number of other governments joined those statements and elaborated on them in the Wassenaar decision.

We note the GAO's recommendation that the State Department develop a strategy to work in multilateral fora "to establish mechanisms for assessing foreign governments' implementation of their commitments to reduce MANPADS proliferation," and acknowledge that these multilateral political fora – the G-8, APEC, and the Wassenaar Arrangement – lack formal mechanisms to monitor members' implementation of commitments. We share the GAO view that addressing how participating governments implement the policy undertakings made in December 2003 is a key next step. It is for this reason that the United States and other Wassenaar states are examining implementation during 2004, and will continue to do so in future years.

However, as GAO acknowledges, the G-8 and APEC are not organizations but multilateral processes for coordinating national policies. Although more formally structured, with an organizing document and a (very small) secretariat, the Wassenaar Arrangement too is a policy coordinating forum, albeit one specifically focused on export controls for munitions and related dual-use technologies. Examination of how participating states are implementing the policies discussed and agreed upon will be conducted in this context. We believe these fora provide the best

opportunity for sustained high level attention and speedy and flexible responses to the threats posed by MANPADS.

GAO Contact and Staff Acknowledgments

GAO Contact

David Maurer (202) 512-9627

Staff Acknowledgments

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