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Congressional Addressees

This is GAO's second annual report to Congress in response to the statutory requirement that GAO identify and report annually on federal programs, agencies, offices, and initiatives, either within departments or governmentwide, which have duplicative goals or activities.¹ This body of work can help to inform government policymakers as they address the fiscal pressures facing our national government. The first report in this series, issued in March 2011,² presented 81 opportunities to reduce potential government duplication, achieve cost savings, or enhance revenue.

This report for 2012 presents 51 areas where programs may be able to achieve greater efficiencies or become more effective in providing government services. Like our March 2011 publication, this report identifies government duplication, overlap, and fragmentation as well as other cost savings and revenue enhancement opportunities. Its findings involve a wide range of government missions and touch virtually all major federal departments and agencies.

Federal agencies and Congress have taken or planned a number of actions that respond to issues we raised in our March 2011 report. Consistent with the commitment expressed in that report, we have continued to monitor developments in the 81 areas we identified. In a companion publication, *Follow-up on 2011 Report: Status of Actions Taken to Reduce Duplication, Overlap, and Fragmentation, Save Tax Dollars, and Enhance Revenue*,³ which we are releasing concurrently with this report, we describe the extent to which progress has been made to address the actions we identified a year ago. In summary, GAO's specific assessment of progress as of February 10, 2012, showed that 4

¹Pub. L. No. 111-139, § 21, 124 Stat. 29 (2010), 31 U.S.C. § 712 Note.

²GAO, *Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue*, GAO-11-318SP (Washington, D.C.: Mar. 1, 2011).

³GAO, *Follow-up on 2011 Report: Status of Actions Taken to Reduce Duplication, Overlap, and Fragmentation, Save Tax Dollars, and Enhance Revenue*, GAO-12-453SP (Washington, D.C.: Feb. 28, 2012).

(or 5 percent) of the 81 areas GAO identified were addressed; 60 (or 74 percent) were partially addressed; and 17 (or 21 percent) were not addressed.⁴ In addition, the Office of Management and Budget (OMB) instructed agencies to consider areas of duplication or overlap identified by GAO and others in their fiscal year 2013 budget submissions and management plans.

What GAO Found

This report is divided into two sections. Section I presents 32 areas in which we found evidence of duplication, overlap, or fragmentation among federal government programs. Section II of this report summarizes 19 additional opportunities for agencies or Congress to consider taking action that could either reduce the cost of government operations or enhance revenue collections for the Treasury.

To find areas where duplication might exist, GAO's work begins, in many cases, by identifying fragmentation—that is, those circumstances in which more than one federal agency (or more than one organization within an agency) is involved in the same broad area of national interest. In some instances of fragmentation, we find overlap—that is, programs that have similar goals, devise similar strategies and activities to achieve those goals, or target similar users. Duplication occurs when two or more agencies or programs are engaged in the same activities or provide the same services to the same beneficiaries. In many cases, the existence of unnecessary duplication, overlap, or fragmentation can be difficult to estimate with precision due to a lack of data on programs and activities.

Where information has not been available that would provide conclusive evidence of duplication, overlap, or fragmentation, we often refer to "potential duplication," and where appropriate we suggest actions that agencies or Congress could take to either reduce that potential or to improve the accuracy and accessibility of information about program operations, performance, and results. In some instances of duplication, overlap, or fragmentation, it may be appropriate for multiple agencies or entities to be involved in the same programmatic or policy area due to the nature or magnitude of the federal effort. However, the areas discussed in

⁴An issue area was considered "addressed" if all actions needed in that area were addressed; "partially addressed" if at least one action needed in that area showed some progress toward implementation, but not all actions were addressed; and "not addressed" if none of the actions needed in that area were addressed.

the first section of this report identify instances where multiple government programs or activities have led to inefficiencies, and we determined that greater efficiencies or effectiveness might be achievable. Further, we have expanded the scope of our work this year to look for areas where a mix of federal approaches is used, such as tax expenditures, direct spending, and federal grant or loan programs.

Among the 32 areas where we found evidence of duplication, overlap, or fragmentation, this report describes a range of conditions. As the "Actions Needed" presented in this report show, addressing our varied findings will require careful deliberation and tailored, well-crafted solutions.

We have found that agencies can often realize a range of benefits, such as improved customer service, decreased administrative burdens, and cost savings from addressing the issues we raise in this report. Cost savings related to reducing or eliminating duplication, overlap, and fragmentation can be difficult to estimate in some cases because the portion of agency budgets devoted to certain programs or activities is often not clear. In addition, the implementation costs that might be associated with consolidating programs, establishing collaboration mechanisms, or reducing activities, facilities, or personnel, among other variables, are difficult to estimate, or needed information on program performance or costs is not readily available.

Section II of this report summarizes 19 additional opportunities for agencies or Congress to consider taking action that could either reduce the cost of government operations or enhance revenue collections for the Treasury. Collectively, this report shows that, if actions are taken to address the issues raised herein, as well as those from our 2011 report, the government could potentially save tens of billions of dollars annually, depending on the extent of actions taken.

GPRA Modernization Act Provides Opportunities to Address Duplication, Overlap, and Fragmentation

Many federal efforts, including those related to protecting food and agriculture, providing homeland security, and ensuring a well trained and educated workforce, transcend more than one agency, yet agencies face a range of challenges and barriers when they attempt to work collaboratively. Both Congress and the Executive Branch have recognized this, and in January 2011, the GPRA Modernization Act of 2010 (the Act) was enacted, updating the almost two-decades-old Government Performance and Results Act.⁵ The Act establishes a new framework aimed at taking a more crosscutting and integrated approach to focusing on results and improving government performance. Effective implementation of the Act could play an important role in clarifying desired outcomes, addressing program performance spanning multiple organizations, and facilitating future actions to reduce unnecessary duplication, overlap, and fragmentation.

The Act requires OMB to coordinate with agencies to establish outcome-oriented goals covering a limited number of crosscutting policy areas as well as goals to improve management across the federal government, and to develop a governmentwide performance plan for making progress toward achieving those goals. The performance plan is to, among other things, identify the agencies and federal activities—including spending programs, tax expenditures, and regulations—that contribute to each goal, and establish performance indicators to measure overall progress toward these goals as well as the individual contribution of the underlying agencies and federal activities. The President's budget for fiscal year 2013 includes 14 such crosscutting goals. Aspects of several of these goals—including Science, Technology, Engineering, and Math (STEM) Education, Entrepreneurship and Small Businesses, Job Training, Cybersecurity, Information Technology Management, Procurement and Acquisition Management, and Real Property Management—are discussed in this report or in our March 2011 report. The Act also requires similar information at the agency level. Each agency is to identify the various federal organizations and activities—both within and external to the agency—that contribute to its goals, and describe how the agency is working with other agencies to achieve its goals as well as any relevant crosscutting goals. OMB officials stated that their approach to responding to this requirement will address fragmentation among federal programs.

⁵Pub. L. No. 111-352, 124 Stat. 3866 (2011); Pub. L. No. 103-62, 107 Stat. 285 (1993).

These requirements provide a much needed basis for more fully integrating a wide array of potentially duplicative, overlapping, or fragmented federal activities as well as a cohesive perspective on the long-term goals of the federal government focused on priority policy areas. It could also be a valuable tool for decision makers when reexamining existing programs and considering proposals for new programs.

GAO's Systematic Examination of Federal Programs and Activities

This annual report is based upon work conducted for completed GAO products and certain ongoing audits, which were conducted in accordance with generally accepted government auditing standards or with our Quality Assurance Framework as appropriate. For issues based on GAO work that has not yet been published or those that update prior GAO work, we provide additional information on the methodologies used in that ongoing work or update in the section of each issue area titled "How GAO Conducted Its Work." For additional information on our approach to preparing the overall report, see appendix II.

Appendix III includes lists of federal programs or other activities related to issues in this report, and their fiscal year 2010 obligations data, where such information was available.⁶ Where information is being reported on for the first time in this report, GAO sought comments from the agencies involved and incorporated those comments as appropriate. In most cases, agencies provided technical comments. Written comments are reproduced in appendix IV.

While the areas identified in our annual reports are not intended to represent the full universe of duplication, overlap, or fragmentation within the federal government, we will have conducted a systematic examination across the federal government to identify major instances of potential duplication, overlap, and fragmentation governmentwide by the time we issue our third annual report in fiscal year 2013.⁷ This examination involves a multiphased approach. First, to identify potential areas of

⁶For some issue areas, agencies were not able to readily provide programmatic information. Similarly, in some cases, we did not report budgetary information because such information was either not available or not sufficiently reliable.

⁷The statutory requirement calling for this report also asked GAO to identify specific areas where Congress may wish to cancel budget authority it has previously provided—a process known as rescission. To date, GAO's work has not identified a basis for proposing specific funding rescissions.

overlap, we examined the major budget functions and subfunctions of the federal government as identified by OMB. This was particularly helpful in identifying issue areas involving multiple government agencies. Second, GAO subject matter experts examined key missions and functions of federal agencies—or organizations within large agencies—using key agency documents, such as strategic plans, agency organizational charts, and mission and function documents. This further enabled us to identify areas where multiple agencies have similar goals, or where multiple organizations within federal agencies are involved in similar activities. Next, we canvassed a wide range of published sources—such as congressional hearings and reports by the Congressional Budget Office, OMB, various government audit agencies, and private think tanks—that addressed potential issues of duplication, overlap, and fragmentation. Lastly, we have work under way or planned in the coming year to evaluate major instances of duplication, overlap, or fragmentation that we have not yet covered in our first two annual reports.

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Report at a Glance

This report presents 51 areas where programs may be able to achieve greater efficiencies or become more effective in providing government services. The findings in this report involve a wide range of government missions and touch on virtually all major federal departments and agencies.

Section I of this report presents 32 areas in which we found evidence of duplication, overlap, or fragmentation among federal government programs.

Table 1: Duplication, Overlap, and Fragmentation Areas Identified in This Report

Mission	Areas Identified	Page
Agriculture	1. Protection of Food and Agriculture: Centrally coordinated oversight is needed to ensure nine federal agencies effectively and efficiently implement the nation's fragmented policy to defend the food and agriculture systems against potential terrorist attacks and major disasters.	14
Defense	2. Electronic Warfare: Identifying opportunities to consolidate Department of Defense airborne electronic attack programs could reduce overlap in the department's multiple efforts to develop new capabilities and improve the department's return on its multibillion-dollar acquisition investments.	21
	3. Unmanned Aircraft Systems: Ineffective acquisition practices and collaboration efforts in the Department of Defense unmanned aircraft systems portfolio creates overlap and the potential for duplication among a number of current programs and systems.	26
	4. Counter-Improvised Explosive Device Efforts: The Department of Defense continues to risk duplication in its multibillion-dollar counter Improvised Explosive Device efforts because it does not have a comprehensive database of its projects and initiatives.	33
	5. Defense Language and Culture Training: The Department of Defense needs a more integrated approach to reduce fragmentation in training approaches and overlap in the content of training products acquired by the military services and other organizations.	39
	6. Stabilization, Reconstruction, and Humanitarian Assistance Efforts: Improving the Department of Defense's evaluations of stabilization, reconstruction, and humanitarian assistance efforts, and addressing coordination challenges with the Department of State and the U.S. Agency for International Development, could reduce overlapping efforts and result in the more efficient use of taxpayer dollars.	45
Economic development	7. Support for Entrepreneurs: Overlap and fragmentation among the economic development programs that support entrepreneurial efforts require OMB and other agencies to better evaluate the programs and explore opportunities for program restructuring, which may include consolidation, within and across agencies.	52
	8. Surface Freight Transportation: Fragmented federal programs and funding structures are not maximizing the efficient movement of freight.	62
Energy	9. Department of Energy Contractor Support Costs: The Department of Energy should assess whether further opportunities could be taken to streamline support functions, estimated to cost over \$5 billion, at its contractor-managed laboratory and nuclear production and testing sites, in light of contractors' historically fragmented approach to providing these functions.	69
	10. Nuclear Nonproliferation: Comprehensive review needed to address strategic planning limitations and potential fragmentation and overlap concerns among programs combating nuclear smuggling overseas.	73
General government	11. Personnel Background Investigations: The Office of Management and Budget should take action to prevent agencies from making potentially duplicative investments in electronic case management and adjudication systems.	79

Mission	Areas Identified	Page
	12. Cybersecurity Human Capital: Governmentwide initiatives to enhance cybersecurity workforce in the federal government need better structure, planning, guidance, and coordination to reduce duplication.	84
	13. Spectrum Management: Enhanced coordination of federal agencies' efforts to manage radio frequency spectrum and an examination of incentive mechanisms to foster more efficient spectrum use may aid regulators' attempts to jointly respond to competing demands for spectrum while identifying valuable spectrum that could be auctioned for commercial use, thereby generating revenues for the U.S. Treasury.	89
Health	14. Health Research Funding: The National Institutes of Health, Department of Defense, and Department of Veterans Affairs can improve sharing of information to help avoid the potential for unnecessary duplication.	96
	15. Military and Veterans Health Care: The Departments of Defense and Veterans Affairs need to improve integration across care coordination and case management programs to reduce duplication and better assist servicemembers, veterans, and their families.	102
Homeland security/Law enforcement	16. Department of Justice Grants: The Department of Justice could improve how it targets nearly \$3.9 billion to reduce the risk of potential unnecessary duplication across the more than 11,000 grant awards it makes annually.	110
	17. Homeland Security Grants: The Department of Homeland Security needs better project information and coordination among four overlapping grant programs.	120
	18. Federal Facility Risk Assessments: Agencies are making duplicate payments for facility risk assessments by completing their own assessments, while also paying the Department of Homeland Security for assessments that the department is not performing.	128
Information technology	19. Information Technology Investment Management: The Office of Management and Budget, and the Departments of Defense and Energy need to address potentially duplicative information technology investments to avoid investing in unnecessary systems.	132
International affairs	20. Overseas Administrative Services: U.S. government agencies could lower the administrative cost of their operations overseas by increasing participation in the International Cooperative Administrative Support Services system and by reducing reliance on American officials overseas to provide these services.	139
	21. Training to Identify Fraudulent Travel Documents: Establishing a formal coordination mechanism could help reduce duplicative activities among seven different entities that are involved in training foreign officials to identify fraudulent travel documents.	146
Science and the environment	22. Coordination of Space System Organizations: Fragmented leadership has led to program challenges and potential duplication in developing multibillion-dollar space systems.	150
	23. Space Launch Contract Costs: Increased collaboration between the Department of Defense and the National Aeronautics and Space Administration could reduce launch contracting duplication.	157
	24. Diesel Emissions: Fourteen grant and loan programs at the Department of Energy, Department of Transportation, and the Environmental Protection Agency, and three tax expenditures fund activities that have the effect of reducing mobile source diesel emissions; enhanced collaboration and performance measurement could improve these fragmented and overlapping programs.	162
	25. Environmental Laboratories: The Environmental Protection Agency needs to revise its overall approach to managing its 37 laboratories to address potential overlap and fragmentation and more fully leverage its limited resources.	169
	26. Green Building: To evaluate the potential for overlap or fragmentation among federal green building initiatives, the Department of Housing and Urban Development, the Department of Energy, and the Environmental Protection Agency should lead other federal agencies in collaborating on assessing their investments in more than 90 initiatives to foster green building in the nonfederal sector.	175
Social services	27. Social Security Benefit Coordination: Benefit offsets for related programs help reduce the potential for overlapping payments but pose administrative challenges.	180
	28. Housing Assistance: Examining the benefits and costs of housing programs and tax expenditures that address the same or similar populations or areas, and potentially consolidating them, could help mitigate overlap and fragmentation and decrease costs.	185

Mission	Areas Identified	Page
Training, employment, and education	29. Early Learning and Child Care: The Departments of Education and Health and Human Services should extend their coordination efforts to other federal agencies with early learning and child care programs to mitigate the effects of program fragmentation, simplify children's access to these services, collect the data necessary to coordinate operation of these programs, and identify and minimize any unwarranted overlap and potential duplication.	193
	30. Employment for People with Disabilities: Better coordination among 50 programs in nine federal agencies that support employment for people with disabilities could help mitigate program fragmentation and overlap, and reduce the potential for duplication or other inefficiencies.	203
	31. Science, Technology, Engineering, and Mathematics Education: Strategic planning is needed to better manage overlapping programs across multiple agencies.	214
	32. Financial Literacy: Overlap among financial literacy activities makes coordination and clarification of roles and responsibilities essential, and suggests potential benefits of consolidation.	221

Section II of this report summarizes 19 additional opportunities for agencies or Congress to consider taking action that could either reduce the cost of government operations or enhance revenue collections for the Treasury.

Table 2: Other Cost Savings or Revenue Enhancement Opportunities Identified in This Report

Mission	Areas Identified	Page
Defense	33. Air Force Food Service: The Air Force has opportunities to achieve millions of dollars in cost savings annually by reviewing and renegotiating food service contracts, where appropriate, to better align with the needs of installations.	229
	34. Defense Headquarters: The Department of Defense should review and identify further opportunities for consolidating or reducing the size of headquarters organizations.	233
	35. Defense Real Property: Ensuring the receipt of fair market value for leasing underused real property and monitoring administrative costs could help the military services' enhanced use lease programs realize intended financial benefits.	239
	36. Military Health Care Costs: To help achieve significant projected cost savings and other performance goals, DOD needs to complete, implement, and monitor detailed plans for each of its approved health care initiatives.	243
	37. Overseas Defense Posture: The Department of Defense could reduce costs of its Pacific region presence by developing comprehensive cost information and re-examining alternatives to planned initiatives.	250
	38. Navy's Information Technology Enterprise Network: Better informed decisions are needed to ensure a more cost-effective acquisition approach for the Navy's Next Generation Enterprise Network.	255
Economic development	39. Auto Recovery Office: Unless the Secretary of Labor can demonstrate how the Auto Recovery Office has uniquely assisted auto communities, Congress may wish to consider prohibiting the Department of Labor from spending any of its appropriations on the Auto Recovery Office and instead require that the department direct the funds to other federal programs that provide funding directly to affected communities.	259
Energy	40. Excess Uranium Inventories: Marketing the Department of Energy's excess uranium could provide billions in revenue for the government.	264
General government	41. General Services Administration Schedules Contracts Fee Rates: Re-evaluating fee rates on the General Services Administration's Multiple Award Schedules contracts could result in significant cost savings governmentwide.	269
	42. U.S. Currency: Legislation replacing the \$1 note with a \$1 coin would provide a significant financial benefit to the government over time.	273
	43. Federal User Fees: Regularly reviewing federal user fees and charges can help the Congress and federal agencies identify opportunities to address inconsistent federal funding approaches and enhance user financing, thereby reducing reliance on general fund appropriations.	278

Mission	Areas Identified	Page
	44. Internal Revenue Service Enforcement Efforts: Enhancing the Internal Revenue Service's enforcement and service capabilities can help reduce the gap between taxes owed and paid by collecting billions in tax revenue and facilitating voluntary compliance.	285
Health	45. Medicare Advantage Payment: The Centers for Medicare & Medicaid Services could achieve billions of dollars in additional savings by better adjusting for differences between Medicare Advantage plans and traditional Medicare providers in the reporting of beneficiary diagnoses.	291
	46. Medicare and Medicaid Fraud Detection Systems: The Centers for Medicare & Medicaid Services needs to ensure widespread use of technology to help detect and recover billions of dollars of improper payments of claims and better position itself to determine and measure financial and other benefits of its systems.	294
Homeland security/Law enforcement	47. Border Security: Delaying proposed investments for future acquisitions of border surveillance technology until the Department of Homeland Security better defines and measures benefits and estimates life-cycle costs could help ensure the most effective use of future program funding.	298
	48. Passenger Aviation Security Fees: Options for adjusting the passenger aviation security fee could further offset billions of dollars in civil aviation security costs.	304
	49. Immigration Inspection Fee: The air passenger immigration inspection user fee should be reviewed and adjusted to fully recover the cost of the air passenger immigration inspection activities conducted by the Department of Homeland Security's U.S. Immigration and Customs Enforcement and U.S. Customs and Border Protection rather than using general fund appropriations.	312
International affairs	50. Iraq Security Funding: When considering new funding requests to train and equip Iraqi security forces, Congress should consider the government of Iraq's financial resources, which afford it the ability to contribute more toward the cost of Iraq's security.	316
Social services	51. Domestic Disaster Assistance: The Federal Emergency Management Agency could reduce the costs to the federal government related to major disasters declared by the President by updating the principal indicator on which disaster funding decisions are based and better measuring a state's capacity to respond without federal assistance.	321

Table 3: Appendixes

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Abbreviations

Auto Recovery Office	Office of Recovery for Auto Communities and Workers
ATA	Anti-Terrorism Assistance
ATAT	abusive tax avoidance transaction
BEDI	Brownfields Economic Development Initiative
CBO	Congressional Budget Office
CBP	U.S. Customs and Border Protection
CCDF	Child Care and Development Fund
CDBG	Community Development Block Grant
CERP	Commander's Emergency Response Program
CIO	Chief Information Officer
CMS	Centers for Medicare & Medicaid Services
Commerce	Department of Commerce
COPS	Community Oriented Policing Services
DHS	Department of Homeland Security
DI	Disability Insurance
DOD	Department of Defense
Dodd-Frank Act	Dodd-Frank Wall Street Reform and Consumer Protection Act
DOT	Department of Transportation
Education	Department of Education
Energy	Department of Energy
EPA	Environmental Protection Agency
EUL	enhanced use lease
FCC	Federal Communications Commission
FECA	Federal Employees Compensation Act
Federal Reserve	Board of Governors of the Federal Reserve System
FEMA	Federal Emergency Management Agency
FHA	Federal Housing Administration
FMS	U.S. Foreign Military Sales
FPS	Federal Protective Service
FRCP	Federal Recovery Coordination Program
GM	General Motors
GPRA	Government Performance and Results Act
GPRAMA	GPRA Modernization Act of 2010
GPS	Global Positioning System
GSA	General Services Administration
HHS	Department of Health and Human Services
HSPD-9	Homeland Security Presidential Directive-9
HUD	Department of Housing and Urban Development
ICASS	International Cooperative Administrative Support Services
ICE	Immigration and Customs Enforcement
IDR	Integrated Data Repository
IED	improvised explosive device
IPC	Interagency Policy Committee
IRAC	Interdepartment Radio Advisory Committee
IRS	Internal Revenue Service
ISC	Interagency Security Committee
IT	information technology
IWG	interagency working group
JAG	Edward Byrne Memorial Justice Assistance Grant
JIEDDO	Joint IED Defeat Organization

Justice	Department of Justice
MALD-J	Miniature Air Launched Decoy-Jammer
MAS	Multiple Award Schedules
MOU	memorandum of understanding
NASA	National Aeronautics and Space Administration
Navy	Department of the Navy
NGEN	Next Generation Enterprise Network
NIH	National Institutes of Health
NIST	National Institute of Standards and Technology
NNSA	National Nuclear Security Administration
NOAA	National Oceanic and Atmospheric Administration
NPOESS	National Polar-orbiting Operational Environmental Satellite System
NRO	National Reconnaissance Office
NSC	National Security Council
NSTC	National Science and Technology Council
NTIA	National Telecommunications and Information Administration
OJP	Office of Justice Programs
OMB	Office of Management and Budget
One PI	One Program Integrity
OPM	Office of Personnel Management
ORD	Office of Research and Development
OSTP	Office of Science and Technology Policy
OVW	Office on Violence Against Women
PTSD	post-traumatic stress disorder
RAMP	Risk Assessment and Management Program
RCP	Recovery Coordination Program
RHS	Rural Housing Service
SBA	Small Business Administration
SSA	Social Security Administration
SSI	Supplemental Security Income
State	Department of State
STEM	Science, Technology, Engineering, and Mathematics
Treasury	Department of the Treasury
TSA	Transportation Security Administration
UAS	unmanned aircraft system
ULA	United Launch Alliance
USAID	U.S. Agency for International Development
USDA	U.S. Department of Agriculture
VA	Department of Veterans Affairs
Wi-Fi	wireless fidelity

Section I: Areas in Which GAO Has Identified Duplication, Overlap, or Fragmentation

This section presents 32 areas in which we found evidence of duplication, overlap, or fragmentation among federal government programs.

1. Protection of Food and Agriculture

Centrally coordinated oversight is needed to ensure nine federal agencies effectively and efficiently implement the nation's fragmented policy to defend the food and agriculture systems against potential terrorist attacks and major disasters.

Why This Area Is Important

Agriculture is critical to public health and the nation's economy. It annually produces \$300 billion worth of food and other farm products, provides a major foundation for prosperity in rural areas, and is estimated to be responsible for 1 out of every 12 U.S. jobs. As a result, any natural or deliberate disruption of the agriculture or food production systems can present a serious threat to the national economy and human health. Recognizing the vulnerability of the U.S. food and agriculture systems, the President issued Homeland Security Presidential Directive-9 (HSPD-9) in January 2004 to establish a national policy to defend the food and agriculture systems against terrorist attacks, major disasters, and other emergencies. HSPD-9 assigns more than nine federal agencies various responsibilities to enhance the nation's preparedness for food and agriculture emergencies.

What GAO Found

For many years, GAO has reported that federal oversight of food safety is fragmented and results in inconsistent oversight, ineffective coordination, and inefficient use of resources. In 2007, GAO added food safety to its list of high-risk areas that warrant attention by Congress and the executive branch. More recently GAO found that this fragmentation extends to the responsibilities across multiple agencies to defend food and agricultural systems against terrorist attacks and natural disasters. (See the table below for information on agencies' roles and responsibilities under HSPD-9.) Many of these activities are everyday functions or part of the broader food and agriculture defense initiative and would be difficult for the agencies to separately quantify.

Federal Agency Roles and Responsibilities for Food and Agriculture Defense as Defined by HSPD-9

Agency responsibilities

	Department of Homeland Security	Department of Agriculture	Department of Health and Human Services	Environmental Protection Agency	Department of the Interior	Department of Justice	Department of Education	Central Intelligence Agency	White House Office of Science and Technology Policy	Other
Awareness and Warning										
Develop surveillance and monitoring systems for animal, plant, and wildlife disease, as well as food, public health, and water quality for early detection and awareness of disease, pest, or poisonous agents		●	●	●	●					●
Develop systems to track specific animals and plants, as well as specific commodities and food		●	●	●	●					●
Develop nationwide laboratory networks for food, veterinary, plant health, and water quality that are interconnected and standardized		●	●	●	●					●
Develop and enhance intelligence operations and analysis capabilities for agriculture, food, and water sectors	●	○	○	○		●		●		
Develop new biological threat awareness capacity to enhance detection and characterization of an attack	●	○	○	○						○
Vulnerability Assessments										
Expand and continue vulnerability assessments of the agriculture and food sectors	●	●	●							
Mitigation Strategies										
Prioritize, develop, and implement mitigation strategies to protect vulnerable critical production nodes from the introduction of diseases, pests, or poisonous agents	●	○	○	○		●		○		○
Expand development of common screening procedures for agriculture and food items entering the United States and maximize effective domestic inspection activities for food items within the United States	●	●	●							
Response and Recovery										
Develop a National Veterinary Stockpile containing sufficient amounts of animal vaccine, antiviral, or therapeutic products to respond to the most damaging animal diseases affecting human health and the economy	○	●	○	○						
Develop a National Plant Disease Recovery System capable of responding to a high-consequence plant disease with pest control measures and the use of resistant seed varieties	○	●	○	○						
Enhance recovery systems to stabilize agriculture production, the food supply, and the economy, including disposal and decontamination procedures	○	●	●	○						

	Department of Homeland Security	Department of Agriculture	Department of Health and Human Services	Environmental Protection Agency	Department of the Interior	Department of Justice	Department of Education	Central Intelligence Agency	White House Office of Science and Technology Policy	Other
Response and Recovery (continued)										
Study and make recommendations to the Homeland Security Council for the use of financial risk management tools for self-protection of food and agriculture enterprises vulnerable to losses due to terrorism		●								
Ensure adequate federal, state, and local response capabilities to respond quickly and effectively to a terrorist attack, major disease outbreak, or other disaster affecting the national agriculture or food infrastructure	●	○	○	○		○				
Develop a coordinated agriculture and food-specific standardized response plan to be integrated into the National Response Plan ^a	●	○	○	○		○				
Outreach and Professional Development										
Establish an effective information sharing and analysis mechanism for agriculture and food in cooperation with appropriate private sector entities	●	○	○							○
Develop and promote higher education programs for the protection of animal, plant, and public health	○	●	●			○				
Develop and promote higher education programs to address protection of the food supply	○	●	●			○				
Establish opportunities for professional development and specialized training in agriculture and food protection	●	●	●							
Research and Development										
Accelerate and expand development of countermeasures against the intentional introduction or natural occurrence of catastrophic animal, plant, and zoonotic diseases	●	●	●	●				○		●
Develop a plan to provide safe, secure, and state-of-the-art agriculture biocontainment laboratories to research and develop diagnostic capabilities for foreign animal and zoonotic diseases	●	●								
Establish university-based centers of excellence in agriculture and food security	●	○	○							
Budget										
Submit an integrated budget plan for defense of the U.S. food system	●	●	●							

● Primary Responsibility for Task Execution

○ Support Task Execution

Source: GAO analysis of HSPD-9.

^aThe National Response Plan was replaced by the National Response Framework in 2008.

As GAO reported in August 2011, there is no centralized coordination to oversee the federal government's overall progress in implementing the nation's food and agriculture defense policy. Because the responsibilities outlined in this policy (HSPD-9) are fragmented and cut across at least nine different agencies, centralized oversight is important to ensure that efforts are coordinated to overcome this fragmentation, efficiently use scarce funds, and promote the overall effectiveness of the federal government.

Previously, the White House Homeland Security Council conducted some coordinated activities to oversee federal agencies' HSPD-9 implementation by gathering information from agencies about their progress. In 2008, it tasked the Department of Homeland Security (DHS) with creating an online forum intended to enable agencies to share information that coordinated their HSPD-9 efforts, allowing the Council to efficiently view agencies' implementation progress in a consistent manner. However, these efforts are no longer ongoing. Officials from the U.S. Departments of Agriculture (USDA), Homeland Security, Health and Human Services (HHS) and the Environmental Protection Agency (EPA) told us that the Homeland Security Council's efforts were valuable. For example, officials from EPA told us it was valuable to interact with other agencies regarding HSPD-9 efforts, HHS officials found the Homeland Security Council's consolidation of information across multiple agencies to be useful. Officials from EPA noted that although the Homeland Security Council's and DHS's oversight roles have not been consistent for the past few years, EPA and other agencies have used multi-agency working groups to coordinate food and agriculture emergency activities.¹ It is unclear why the Homeland Security Council no longer gathers such information, but officials from DHS noted that interest from agencies and the Homeland Security Council has decreased, and as of late 2008 or early 2009, they no longer coordinate agencies' reporting of their HSPD-9 implementation progress. Top-level review can help ensure that management's directives are carried out and determine if agencies are effectively and efficiently using resources.

Moreover, without centrally coordinated oversight, agencies may not have sufficient direction for prioritizing responsibilities, and they may not have sufficient incentive to monitor progress internally. For example, GAO found that USDA does not have a departmentwide strategy for prioritizing and allocating resources to its numerous HSPD-9 responsibilities. According to USDA officials, because food and agriculture defense has not been a primary focus in recent years for the National Security Staff—which supports the White House Homeland Security Council under the current administration—USDA has been less focused on HSPD-9 oversight and has prioritized other, more recently directed activities. Instead, USDA assigned its responsibilities to its component agencies based on their statutory authority and expertise and allowed individual agencies to set their implementation and budget priorities.

However, USDA agencies are facing various challenges carrying out these responsibilities. For example, from 2005 through 2010, USDA's

¹In 2005, GAO reported that, since the terrorist attacks of 2001, agencies had formed numerous working groups to protect agriculture. For example, DHS created a Food and Agriculture Sector Coordinating Council to help the federal government and industry share ideas about how to mitigate the risk of an attack on agriculture. See GAO, *Homeland Security: Much Is Being Done to Protect Agriculture from a Terrorist Attack, but Important Challenges Remain*, GAO-05-214 (Washington, D.C.: Mar. 8, 2005).

Agricultural Research Service allocated approximately \$10.6 million to develop a system—the National Plant Disease Recovery System—to help the nation recover from plant disease outbreaks that could devastate the nation's production of economically important crops. A major part of this effort involved developing recovery plans that identified critical research gaps; however, the Agricultural Research Service does not have a documented, systematic process to monitor the extent to which research gaps are filled, calling into question the efficient use of these funds. In addition, from 2006 through 2010, USDA's Animal and Plant Health Inspection Service allocated approximately \$33 million (including about \$18 million in supplemental funding) to develop the National Veterinary Stockpile—a stockpile containing resources to respond to the 17 most damaging animal diseases affecting human health and the economy. HSPD-9 calls for the National Veterinary Stockpile to leverage where appropriate the mechanisms and infrastructure that have been developed for HHS's Strategic National Stockpile—which contains medical supplies to address public health emergencies. Although there has been some collaboration, there appears to be confusion about the mission and capabilities of the stockpiles that could hinder USDA's and HHS's efforts to identify leveraging opportunities. Unless resolved, the agencies may be missing opportunities to more efficiently use federal resources.

Because there is currently no centralized coordination to oversee agencies' HSPD-9 implementation progress, it is unclear how effectively or efficiently agencies are using resources in implementing the nation's food and agriculture defense policy. As a result, the nation may not be assured that agency efforts to protect agriculture and the food supply are well designed and effectively implemented. USDA officials told us that the department would benefit from strategic direction from the National Security Staff to help prioritize specific activities and funding decisions in this time of limited resources. GAO has previously reported that effective strategies help set priorities and allocate resources to inform decision making and help ensure accountability.² Such priority setting and resource allocation is especially important in a fiscally constrained environment.

²See, for example, GAO, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, GAO-04-408T (Washington, D.C.: Feb. 3, 2004).

Actions Needed and Potential Financial or Other Benefits

GAO recommended in August 2011 that to help ensure that the federal government is effectively implementing the nation's food and agriculture defense policy, the Secretary of Homeland Security should

- resume DHS's efforts to coordinate agencies' overall HSPD-9 implementation efforts.

In addition, the Homeland Security Council should direct the National Security Staff to

- establish an interagency process that would provide oversight of agencies' implementation of HSPD-9; and
- encourage agencies to participate in and contribute information to DHS's efforts to coordinate agencies' implementation of HSPD-9.

Furthermore, to ensure that USDA is fulfilling its responsibilities to protect the nation's food and agriculture systems, the Secretary of Agriculture should

- develop a departmentwide strategy for implementing its HSPD-9 responsibilities. Such a strategy would include an overarching framework for setting priorities, as well as allocating resources.

Also, to help ensure that the nation is adequately prepared to recover from high-consequence plant diseases, the Secretary of Agriculture should direct the Administrator of the Agricultural Research Service, in coordination with relevant USDA agencies, to

- develop and implement a documented, systematic process to track research gaps identified in the National Plant Disease Recovery System recovery plans and monitor progress in filling these gaps.

Moreover, to ensure the most effective use of resources and to resolve any confusion, the Secretaries of Agriculture and Health and Human Services should

- jointly determine on a periodic basis if there are appropriate opportunities for the National Veterinary Stockpile to leverage Strategic National Stockpile mechanisms or infrastructure as directed by HSPD-9. If such opportunities exist, the two agencies should formally agree upon a process for the National Veterinary Stockpile to use the identified mechanisms and infrastructure.

By taking these actions, federal decision makers will acquire critical information they need to help assess how well the nation is prepared for major emergencies and how efficiently agencies are using federal resources to prepare.

Agency Comments and GAO's Evaluation

GAO provided a draft of its August 2011 report to DHS, HHS, USDA, EPA, and the National Security Staff for review and comment. DHS, HHS, and USDA generally agreed with GAO's recommendations. In addition, in an e-mail received July 22, 2011, the National Security Staff's Deputy Legal Advisor stated that the National Security Staff agrees that a review of HSPD-9 is appropriate and that they will look for an opportunity to do so. DHS, HHS, USDA, EPA, and the National Security Staff also provided technical comments, which were incorporated as appropriate. As part of GAO's routine audit work, GAO will track agency actions to address these recommendations and report to Congress.

How GAO Conducted Its Work

This information contained in this analysis is based on findings from the products in the related GAO products section. GAO reviewed key documents and interviewed officials from USDA, DHS, HHS, and EPA because these agencies have the most responsibilities under HSPD-9. GAO also met with an official from the National Security Staff to discuss any current efforts they are coordinating to oversee agencies' HSPD-9 implementation progress.

Related GAO Products

Homeland Security: Challenges for the Food and Agriculture Sector in Responding to Potential Terrorist Attacks and Natural Disasters.
GAO-11-946T. Washington, D.C.: September 13, 2011.

Homeland Security: Actions Needed to Improve Response to Potential Terrorist Attacks and Natural Disasters Affecting Food and Agriculture.
GAO-11-652. Washington, D.C.: August 19, 2011.

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2. Electronic Warfare

Identifying opportunities to consolidate Department of Defense airborne electronic attack programs could reduce overlap in the department's multiple efforts to develop new capabilities and improve the department's return on its multibillion-dollar acquisition investments.

Why This Area Is Important

Airborne electronic attack—an electronic warfare capability—involves use of aircraft to neutralize, destroy, or temporarily suppress enemy air defense and communications systems, either through destructive or disruptive means. These capabilities are increasingly important and complex as networked systems, distributed controls, and sophisticated sensors become ubiquitous in military equipment, civilian infrastructure, and commercial networks. These technological developments complicate the Department of Defense's ability to exercise control over the electromagnetic spectrum, when necessary, to support U.S. military objectives. Aircraft executing airborne electronic attack missions employ a variety of mission systems, such as electronic jamming pods, and weapons, such as antiradiation missiles and air-launched expendable decoys. These aircraft also rely on aircraft self-protection systems and defensive countermeasures for additional protection.

All four military services within the Department of Defense are separately acquiring new airborne electronic attack systems. Department of Defense investments to develop and procure new and updated airborne electronic attack systems are projected to total more than \$17.6 billion from fiscal years 2007 through 2016. With the prospect of slowly growing or flat defense budgets for years to come, the department must get better returns on its weapon system investments and find ways to deliver more capability to the warfighter for less than it has in the past.

What GAO Found

GAO's ongoing review of planned airborne electronic attack systems found that the department is developing multiple systems to provide similar capabilities. Opportunities may exist for consolidating some current service-specific acquisition efforts. As GAO reported in March 2011, service-driven requirements and funding processes continue to hinder integration and efficiency and contribute to unnecessary duplication in addressing warfighter needs. In the airborne electronic attack mission area, systems in development may overlap—at least to some extent—in terms of planned mission tasks. Yet, they are being developed as individual programs by the different services. The table below highlights overlap among four systems being developed to counter irregular warfare¹ threats—one subset of airborne electronic attack. While

¹Irregular warfare is defined as a violent struggle among state and nonstate actors for legitimacy and influence over the relevant population(s). Irregular warfare favors indirect and asymmetric approaches, though it may employ the full range of military and other capacities, in order to erode an adversary's power, influence, and will.

the host platforms for each system are different, the missions each system performs are similar.

Potential Overlap among Communication Jamming Systems Supporting Ground Forces

System name	Collaborative On-line Reconnaissance Provider Operationally Responsive Attack Link (CORPORAL)	Intrepid Tiger II	Communications Electronic Attack with Surveillance and Reconnaissance (CEASAR)	MQ-9 Reaper Electronic Attack Pod
Service sponsor	Marine Corps	Marine Corps	Army	Air Force
Host platform	RQ-7B Shadow unmanned aerial vehicle	AV-8B fixed wing aircraft ^a	C-12 fixed wing aircraft	MQ-9 Reaper unmanned aerial vehicle
Mission description	Communications jamming in support of ground forces ^b	Communications jamming and surveillance capability in support of ground forces	Denial and disruption of enemy communications systems and improvised explosive devices in support of unit-level ground commanders	Communications and improvised explosive device jamming in support of combatant commander mission needs
Estimated acquisition cost	\$54.5 million	\$76.8 million	\$13.8 million ^c	\$233.7 million

Source: GAO analysis of Department of Defense data.

^aAfter the AV-8B, the Intrepid Tiger II pod will be integrated onto additional aircraft.

^bCORPORAL also consists of other technologies that serve broader purposes.

^cTotal excludes \$26.3 million in funding from the Operations and Maintenance, Army budget account through fiscal year 2013. The Army uses these funds to (1) lease two C-12 aircraft to fly the CEASAR pod and (2) fund aircraft and pod sustainment costs.

According to Department of Defense officials, airborne electronic attack limitations in recent operations, urgent needs of combatant commanders, and the desire to provide ground units with their own locally controlled assets have all contributed to the services' decisions to develop their own systems to address irregular warfare threats.

Requirements for most of these irregular warfare systems were derived from Department of Defense urgent needs processes—activities aimed at rapidly developing, equipping, and fielding solutions and critical capabilities to the warfighter in a way that is more responsive to urgent warfighter requests than the department's traditional acquisition procedures. As GAO reported in March 2011, the department's urgent needs processes often lead to multiple entities responding to requests for similar capabilities, resulting in potential duplication of efforts. As military operations in Iraq and Afghanistan wind down—and the services evaluate whether to transition their current urgent needs program over to the formal weapon system acquisition process—opportunities may exist to better consolidate current program activities, such as the CORPORAL and CEASAR pod systems that are still demonstration programs whose transitions to formal acquisition programs have not yet been determined.

The potential for unnecessary duplication of efforts within the airborne electronic attack area is not limited to irregular warfare systems. Similar

issues exist with airborne electronic attack systems designed to counter potential near-peer adversaries.² Most notably, both the Air Force and Navy are separately evaluating options for acquiring advanced jamming decoys—the Air Force through an upgrade (referred to as Increment II) to its Miniature Air Launched Decoy-Jammer (MALD-J) program, and the Navy through its planned Airborne Electronic Attack Expendable initiative.

The two services have held discussions with one another about combining efforts toward a joint solution—including a meeting between Navy and Air Force requirements offices and acquisition officials in December 2010—but they have not reached resolution on a common path forward. According to Navy officials, relatively minor design and software modifications to the Air Force's planned MALD-J Increment II system could produce a system that satisfies both services' mission requirements. However, Air Force officials stated that accommodating the Navy's mission requirements within the system would increase program costs and delay planned fielding of the Increment II system, essentially rendering the current program unexecutable. Subsequently, Air Force officials stated that unless MALD-J Increment II, as currently configured, sufficiently meets Navy requirements, they do not expect the Navy to have any formal role in the program. In July 2011, the Air Force suspended MALD-J Increment II because of future funding shortfalls. This pause in the program affords an opportunity for continued dialogue between the two services as to potential benefits and drawbacks to the pursuit of a common acquisition solution.

On the other hand, the services have shown in some instances that they can share information across the different efforts. For example, Marine Corps decisions to reuse jammer technologies from CORPORAL for Intrepid Tiger II have driven significant commonality in hardware and software for these systems, which program officials state has reduced technical challenges and produced cost savings.

Pursuing multiple separate acquisition efforts to develop similar capabilities within the airborne electronic attack mission area can lead to insufficient use of resources and may contribute to other warfighting needs going unfilled. Leveraging resources and acquisition efforts across services can simplify developmental efforts, improve interoperability among systems, and decrease operations and support costs—outcomes that position the department to maximize the returns it gets on its airborne electronic attack investments.

²Potential near-peer adversaries include countries capable of waging large scale conventional war on the United States. These nation-states are characterized as having nearly comparable diplomatic, informational, military, and economic capacity to the United States.

Actions Needed and Potential Financial or Other Benefits

To ensure investments in airborne electronic attack systems are cost-effective and to prevent unnecessary overlap, GAO expects to recommend that the Secretary of Defense

- review the capabilities provided by the Marine Corps's Intrepid Tiger II pod and CORPORAL, Army's CEASAR, and Air Force MQ-9 Reaper Electronic Attack Pod systems and identify opportunities for consolidating these different efforts, as appropriate; and
- assess Air Force and Navy plans for developing and acquiring new expendable jamming decoys, specifically those services' MALD-J Increment II and Airborne Electronic Attack Expendable initiatives, to determine if these activities should be merged.

Department of Defense analysis of airborne electronic attack programs—both current and planned—could reduce duplication of similar acquisition initiatives and improve efficiencies. More analysis is needed by the department to determine the potential for cost savings.

Agency Comments and GAO's Evaluation

GAO provided a draft of this report section to the Department of Defense for review and comment. The department provided technical comments, which were incorporated as appropriate. In its comments, the department noted that the Army and Marine Corps have held high-level discussions to collaborate on the CEASAR, Intrepid Tiger II, and CORPORAL programs. According to the department, discussions to share hardware and software technology are ongoing—an arrangement that, if implemented, could result in significant cost avoidance—but talks have not yet yielded a design or set of requirements agreeable to both services. As part of GAO's routine audit work, GAO will track agency actions to address these expected recommendations and report to Congress.

How GAO Conducted Its Work

The information contained in this analysis is based on findings from the products listed in the related GAO products section and additional work GAO conducted to be published as a separate product in 2012. GAO reviewed program documentation to identify planned capabilities, technical challenges, and anticipated costs for key systems. GAO also analyzed Department of Defense documents outlining airborne electronic attack-related mission requirements and acquisition needs and reviewed platform-specific capabilities documents, service roadmaps, and budget documents, which together provided insight on the department's overall strategy for acquiring airborne electronic attack capabilities. GAO conducted interviews with relevant Department of Defense officials responsible for managing airborne electronic attack requirements and programs.

Appendix III lists the programs GAO identified that may have similar or overlapping objectives, provide similar services or be fragmented across government missions. Overlap and fragmentation may not necessarily lead to actual duplication, and some degree of overlap and duplication may be justified.

Related GAO Products

Warfighter Support: DOD's Urgent Needs Processes Need a More Comprehensive Approach and Evaluation for Potential Consolidation. GAO-11-273. Washington, D.C.: March 1, 2011.

Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue. GAO-11-318SP. Washington, D.C.: March 1, 2011.

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3. Unmanned Aircraft Systems

Ineffective acquisition practices and collaboration efforts in the Department of Defense unmanned aircraft systems portfolio creates overlap and the potential for duplication among a number of current programs and systems.

Why This Area Is Important

The Department of Defense (DOD) estimates that the cost of current unmanned aircraft systems (UAS) acquisition programs and related systems will exceed \$37.5 billion in fiscal years 2012 through 2016.¹ These programs and systems can be found across DOD and the military services (Air Force, Army, Navy, and Marine Corps). The continued success of UAS on the battlefield has led to greatly increased demand from warfighters and the development of many new systems. Further, in announcing the department's new budget priorities, the Secretary of Defense highlighted various current and planned unmanned systems that are considered to be high-priority in terms of meeting the requirements of the new strategic guidance.

In 2009, GAO's work highlighted the need to consider commonality in UAS—using the same or interchangeable subsystems and components in more than one subsystem to improve interoperability of systems—and indicated that DOD lacked an analytical approach to prioritize capability needs which would reduce the likelihood of redundancies in UAS capabilities. As GAO reported in June 2011, although the Joint Requirements Oversight Council is directed to ensure that trade-offs among cost, schedule, and performance objectives are considered as part of its requirements review process, it currently does not prioritize requirements, consider redundancies across proposed programs, or prioritize and analyze capability gaps in a consistent manner. Congress has enacted legislation requiring DOD to establish a policy and acquisition strategy for more common ground stations and payloads for manned and unmanned aircraft systems.²

The elements of DOD's planned UAS portfolio include unmanned aircraft, payloads, and ground control stations. Unmanned aircraft are fixed or rotary winged aircraft capable of flight without an onboard crew. Payloads are subsystems and equipment carried on a UAS configured to accomplish specific missions, including intelligence, surveillance, and reconnaissance and attack. Ground control stations handle multiple mission aspects such as system command and control, mission planning, payload control, and communications.

¹The \$37.5 billion amount includes funding for the development, procurement, sustainment, military construction and personnel, and war funding to support UAS activities in then year dollars identified in the President's 2012 budget submission.

²Duncan Hunter National Defense Authorization Act for Fiscal Year 2009, Pub. L. No. 110-417, §144 (2008).

What GAO Found

Military service-driven requirements—rather than an effective departmentwide strategy—have led to overlap in DOD's UAS capabilities, resulting in many programs and systems being pursued that have similar flight characteristics and mission requirements. DOD currently has 15 unmanned aircraft programs which it categorizes into five groups according to weight, altitude, and speed. Groups 4 and 5 contain the largest and most expensive aircraft, with weights exceeding 1,320 pounds. Group 5 aircraft fly higher—above 18,000 feet—than Group 4 aircraft. DOD has spent almost \$19 billion through fiscal year 2011 to develop and procure three aircraft in Group 5 and five aircraft in Group 4, where GAO found potential overlap, and expects to spend an additional \$32.4 billion to complete these programs.

Illustrative of the overlap, in Group 5, the Navy plans to spend more than \$3 billion to develop its own variant of the Air Force Global Hawk—the Broad Area Maritime Surveillance UAS—rather than using the already fielded Global Hawk. According to the Navy, its unique requirements necessitate modifications to the Global Hawk airframe, payload interfaces, and ground control station. However, the Navy program office was not able to provide quantitative analysis to justify the variant. According to program officials, no analysis was conducted to determine the cost-effectiveness of developing a new aircraft to meet the Navy's requirements versus buying more Global Hawks.

If the preference for service-unique solutions persists in the absence of a departmentwide strategy, so will the potential for overlap in the future. DOD plans to significantly expand the UAS portfolio through 2040, including five new systems in the planning stages that are expected to become formal programs in the near future.

In addition to unmanned aircraft, DOD expects to spend about \$9 billion to buy 42 UAS payloads through fiscal year 2016. Each payload provides a sensor using one of three different technologies: electro-optical/infrared, radar, and signals intelligence. For Group 4 and 5 aircraft, GAO identified overlap among numerous sensors being developed within each of the three technologies (see table below).

Overlapping Development of Sensors for UAS Payloads in Group 4 and 5 Aircraft

Sensor type	Number of programs
Electro-optical/infra-red	Four Air Force programs
	Four Army programs
	One Navy program
	Five multiservice programs
Radar	Three Air Force programs
	Two Army programs
	One Navy program
	One multiservice program
Signals intelligence	Four Air Force programs
	Two Navy programs
	Two Army programs

Source: GAO analysis of DOD data.

While the fact that some multiservice payloads are being developed shows the potential for collaboration, the service-centric requirements process still creates the potential for overlap. For example, the Army and Air Force are developing two separate signals intelligence sensors (the TSP and ASIP 2-C, respectively) that have similar capabilities to track ground communication and activity. According to a DOD-sponsored study in March 2010, the department could have saved almost \$1.2 billion had the Air Force acquired the same sensor as the Army. However, since such an approach was not considered earlier in the program, DOD concluded there was not a business case for combining the programs. Instead, the study noted, the ideal time for such a decision would have been when requirements were being determined. More recently, the Navy has begun development of its own signals intelligence payload (the MCS-21) for the Broad Area Maritime Surveillance aircraft, even though the sensor's capabilities are similar to those of the Air Force and Army payloads.

Through fiscal year 2016, DOD plans to spend about \$3 billion to acquire 13 ground control stations and GAO identified overlap and potential duplication among 10 of these systems. Because aircraft, payloads and control stations are usually developed together, a unique ground control station therefore exists for almost every UAS that DOD has acquired. According to a cognizant DOD official, the associated software is about 90 percent duplicative because similar software is developed for each ground control station. Even though the functionality of the software is similar, a considerable amount of additional time and money is invested in capabilities that have already been paid for and can also make it difficult and costly to modify or upgrade.

DOD has acknowledged that an open architecture framework could provide opportunities for increased competition and collaboration to satisfy requirements through common software solutions, among other areas. DOD has created a UAS control segment working group, which is chartered to increase interoperability and enable software re-use and

open systems. This could allow for greater efficiency, less redundancy, and lower costs, while potentially reducing levels of contractor proprietary data that cannot be shared across UAS programs. However, existing ground control stations already have their own architecture and migration to a new service-oriented architecture will not happen until at least 2015, almost 6 years after it began.³

DOD has acknowledged that it has bought many UAS systems inefficiently and has begun to take steps to improve outcomes as it expands these capabilities over the next several years. DOD continues to face challenges in its ability to improve efficiency and reduce the potential for overlap and duplication as it buys UAS capabilities:

- GAO recommended in November 2008, among other things, that DOD designate a single entity to integrate all crosscutting efforts related to improving the management and operation of UAS, including to ensure that all UAS systems were designed to meet joint service requirements and interoperability standards. DOD did not agree, stating that rather than an executive agent, the combination of the UAS Task Force (created in 2007 to encourage initiatives for collaboration among the military services) and other initiatives would serve to address UAS challenges. Currently, the Task Force has no decision-making authority and cannot direct the military services' efforts to acquire UAS capabilities. As such, while the military services participate at all levels of the Task Force, they do not always fully support related initiatives and, therefore, do not achieve the potential benefits from collaboration.
- GAO recommended in July 2009 that DOD not begin new programs until evaluating systems from a multiservice perspective and take an open systems approach to product development. While DOD concurred with this recommendation, it believes current practices do not encourage duplicative systems development. However, among future UAS aircraft, the Army and Navy are planning to spend approximately \$1.6 billion to acquire separate systems that are likely to have similar capabilities to meet upcoming cargo and surveillance requirements. DOD officials state that current requirements do not preclude a joint program to meet these needs, but the Army and Navy have not yet determined whether such an approach will be used.
- Despite DOD direction, although the Air Force and the Army used the same contractor to procure the Predator and Gray Eagle UAS, the programs achieved only limited success with efforts to combine

³In 2009, the Office of the Secretary of Defense directed the military services to develop a common control station service-oriented architecture for implementation into the military services' control stations to help acquire, integrate, and extend the capabilities of current control stations across the UAS portfolio. The Air Force has decided to implement a "complementary" architecture.

programs and missed an opportunity to potentially save hundreds of millions of dollars. The Air Force now plans to procure Reaper UAS rather than the Predator.

Actions Needed and Potential Financial or Other Benefits

To reduce the likelihood of overlap and potential duplication in its UAS portfolio, GAO has made several prior recommendations to DOD which have not been fully implemented. While DOD generally agreed with the intent of those recommendations, the department has not always agreed with the proposed method of implementation. The overlap in current UAS programs, as well as the continued potential in future programs, shows that DOD must still do more to implement GAO's prior recommendations. GAO believes the potential for savings is significant and with DOD's renewed commitment to UAS for meeting new strategic requirements, all the more imperative. Specifically, DOD should

- re-evaluate whether a single entity would be better positioned to integrate all crosscutting efforts to improve the management and operation of UAS;
- consider an objective, independent examination of current UAS portfolio requirements and the methods for acquiring future unmanned aircraft, including strategies for making these systems more common, to ensure the best return on every dollar it invests; and
- prior to initiating future unmanned aircraft programs, direct the military services to identify and document in their acquisition plans and strategies specific areas where commonality can be achieved, take an open systems approach to product development, conduct a quantitative analysis that examines the costs and benefits of various levels of commonality, and establish a collaborative approach and management framework to periodically assess and effectively manage commonality.

Agency Comments and GAO's Evaluation

GAO provided a draft of this report section to DOD. DOD provided clarifications on individual program decisions and other technical comments which were incorporated as appropriate. As part of its routine audit work, GAO will track agency actions to address these recommendations and report to Congress.

How GAO Conducted Its Work

The information contained in this analysis is based on findings from products listed in the related GAO products section and additional work GAO conducted. GAO comprehensively identified, to the extent possible, using a data collection instrument, DOD's UAS portfolio to analyze how DOD and the military services acquired this portfolio. GAO assessed the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics and military service UAS roadmaps, requirements, and concepts of operation. GAO conducted interviews with officials from the Joint Chiefs of Staff, the Office of the Under Secretary of Defense for

Acquisition, Technology, and Logistics, military service laboratories and program offices, as well as UAS contractors. Using these data, GAO evaluated to what extent collaboration and coordination efforts by DOD and the military services resulted in—or reduced the potential for—duplication, fragmentation, and overlap. Appendix III lists the programs GAO identified that may have similar or overlapping objectives, provide similar services or be fragmented across government missions. Overlap and fragmentation may not necessarily lead to actual duplication, and some degree of overlap and duplication may be justified.

Related GAO Products

DOD Weapon Systems: Missed Trade-off Opportunities During Requirements Reviews. GAO-11-502. Washington, D.C.: June 16, 2011.

Intelligence, Surveillance, and Reconnaissance: Actions Are Needed to Increase Integration and Efficiencies of DOD's ISR Enterprise. GAO-11-465. Washington, D.C.: June 3, 2011.

Defense Acquisitions: Opportunities Exist to Achieve Greater Commonality and Efficiencies among Unmanned Aircraft Systems. GAO-09-520. Washington, D.C.: July 30, 2009.

Unmanned Aircraft Systems: Additional Actions Needed to Improve Management and Integration of DOD Efforts to Support Warfighter Needs. GAO-09-175. Washington, D.C.: November 14, 2008.

Unmanned Aircraft Systems: Advance Coordination and Increased Visibility Needed to Optimize Capabilities. GAO-07-836. Washington, D.C.: July 11, 2007.

Defense Acquisition: Better Acquisition Strategy Needed for Successful Development of the Army's Warrior Unmanned Aircraft System. GAO-06-593. Washington, D.C.: May 19, 2006.

Unmanned Aircraft Systems: New DOD Programs Can Learn from Past Efforts to Craft Better and Less Risky Acquisition Strategies. GAO-06-447. Washington, D.C.: March 15, 2006.

Unmanned Aircraft Systems: DOD Needs to More Effectively Promote Interoperability and Improve Performance Assessments. GAO-06-49. Washington, D.C.: December 13, 2005.

Unmanned Aerial Vehicles: Changes in Global Hawk's Acquisition Strategy Are Needed to Reduce Program Risks. GAO-05-6. Washington, D.C.: November 5, 2004.

Force Structure: Improved Strategic Planning Can Enhance DOD's Unmanned Aerial Vehicles Efforts. GAO-04-342. Washington, D.C.: March 17, 2004.

Defense Acquisitions: Matching Resources with Requirements Is Key to the Unmanned Combat Air Vehicle Program's Success. GAO-03-598. Washington, D.C.: June 30, 2003.

Ballistic Missile Defense: More Common Systems and Components Could Result in Cost Savings. GAO/NSIAD-99-101. Washington, D.C.: May 21, 1999.

Unmanned Vehicles: Assessment of DOD's Unmanned Aerial Vehicle Master Plan. NSIAD-89-41BR. Washington, D.C.: December 9, 1988.

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4. Counter-Improvised Explosive Device Efforts

The Department of Defense continues to risk duplication in its multibillion-dollar counter Improvised Explosive Device efforts because it does not have a comprehensive database of its projects and initiatives.

Why This Area Is Important

The threat of improvised explosive devices (IED) continues to be a major concern in Afghanistan, as well as to other areas throughout the world with over 500 reported IED events per month worldwide outside of Southwest Asia according to Department of Defense (DOD) officials. Further, there is widespread consensus in DOD that this threat will not go away and that IEDs will continue to be a weapon of strategic influence in future conflicts. In support of the fight against IEDs, Congress has appropriated over \$18 billion to the Joint IED Defeat Organization (JIEDDO)¹ from fiscal year 2006 through fiscal year 2011 to address the IED threat. In addition, other DOD components, including the military services, also have spent billions of dollars from their own funds developing counter-IED capabilities. For example, the Mine Resistant Ambush Protected Task Force, which leads DOD's efforts to produce and field Mine Resistant Ambush Protected vehicles to protect troops against IEDs and other threats, received over \$40 billion from fiscal years 2005 through 2010. With the current fiscal challenges facing the nation, it will be important for DOD to coordinate its counter-IED efforts in order to use funds efficiently.

As GAO reported in March 2011, there are several examples of duplication in DOD's counter-IED efforts and neither JIEDDO nor any other DOD organization had full visibility over all of DOD's counter-IED efforts.² GAO also reported in February 2012 on additional examples of potential duplication in DOD's counter-IED efforts.

What GAO Found

DOD does not have full visibility over all of its counter-IED efforts. DOD relies on various sources and systems for managing its counter-IED efforts, but has not developed a process that provides DOD with a comprehensive listing of its counter-IED initiatives and activities. For example, JIEDDO has developed the JIEDDO Enterprise Management System to manage its own operations by collecting and reporting cost and

¹This total represents appropriations and rescissions made to the Joint Improvised Explosive Device Defeat Fund for JIEDDO. Prior to the establishment of JIEDDO in 2006, no single entity was responsible for coordinating DOD's counter-IED efforts. A primary role for JIEDDO is to provide funding and assistance to rapidly develop, acquire, and field counter-IED solutions.

²GAO, *Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue*, GAO-11-318SP (Washington, D.C.: March 1, 2011).

other information related to JIEDDO's organizational and funds management, its coordination of JIEDDO-funded projects and projects funded by other DOD activities, its administrative activities, and its own counter-IED projects. However, while this system contains information that could be used to identify individual initiatives, it does not automatically separate costs directly expended on counter-IED initiatives from JIEDDO's overhead and infrastructure costs such as facilities, contractor support, pay and benefits, and travel. Consequently, this system does not provide an automated means to comprehensively and rapidly identify and list all of JIEDDO's counter-IED initiatives. Further, even if it did collect this information, the system is limited to JIEDDO, and therefore would not include a comprehensive listing of other DOD efforts outside of JIEDDO. However, JIEDDO is currently developing a new information technology architecture and plans to develop a database for counter-IED efforts across DOD as part of this new architecture. This effort is in the conceptualization stage, and JIEDDO officials do not anticipate completion before the end of fiscal year 2012. Further, JIEDDO does not have an implementation plan that includes a detailed timeline with milestones to help track its progress in achieving this goal.

Without a comprehensive listing of counter-IED initiatives, DOD components may be unaware of the total spectrum of counter-IED efforts within the department, and thereby continue to independently pursue counter-IED efforts that focus on similar technologies and may be duplicative. GAO identified three examples of potential duplication within DOD counter-IED efforts focusing on relatively high-cost areas.

- *Counter-IED directed energy technology:* The military services have developed six systems that emit energy directed at IEDs to neutralize them.³ DOD has spent about \$104 million collectively on these efforts to date. However, given the lack of a DOD-wide counter-IED database, there could be more directed energy efforts that GAO has not identified. Concerns regarding duplication in DOD's directed energy efforts vis-à-vis counter-IEDs have risen to the highest levels within DOD's warfighter community. Specifically, the commander of U.S. Central Command, in August 2011, conveyed concern regarding issues including apparent "duplication of (development) effort" in directed energy technology with organizations (in DOD) working different solutions. The correspondence called for coordination and cooperation by DOD on its directed energy efforts to develop a directed energy system that works in theater as quickly as possible given that the development has been under way since 2008. In response in August 2011, JIEDDO, as DOD's coordinating agency for these efforts, developed a plan and, in September 2011, brought various service program offices together to develop a solution as soon as possible. According to JIEDDO officials, the six systems will

³The specific capability gap addressed by this technology is classified and therefore not discussed in this report.

continue in development through fiscal year 2012, at which point, JIEDDO will determine which of the systems best satisfies U.S. Central Command's requirement. While this new approach may eliminate future unnecessary duplication of effort, earlier coordination and better visibility could have prevented duplication that may have occurred up to this point.

- *Radio-frequency jamming systems:* The Army and Navy continue to pursue separate development of counter-IED jamming systems, which provide a limited radius of protection to prevent IEDs from being triggered by an enemy's radio signals. In 2007, DOD established the Navy as the single manager and executive agent for ground-based jamming.⁴ Under DOD Directive 5101.14, military services may conduct ground-based jammer research and development to satisfy military service-unique requirements if the requirements are coordinated before initiation with the DOD's single manager for jammers and, for any system or system modifications resulting from such efforts, operational technical characteristics and logistics plans are approved by the single manager. The Navy has developed a standard technology and system for ground-based jamming called JCREW I1B1, which DOD has designated as the ground-based jamming program for the entire department. However, the Army has continued to develop its own ground-based jamming system called Duke.

In 2010, according to Navy officials, the Army continued to develop new technology for insertion into its Duke system—expected to cost about \$1.062 billion when completed and installed—without notifying and coordinating with the Navy. According to Army officials, the Army is pursuing development of its own system because it intends to expand the use of this technology for purposes other than countering IEDs, such as jamming enemy command, control, and communication systems. However, according to Navy officials, the CREW system's technology has the flexibility and capacity to expand and provide the same additional functions as the Army plans for its Duke system. Moreover, according to Navy officials, the Navy's system is further along in its development. Because the Navy and Army are pursuing separate jamming systems, it is not clear if DOD is taking the most cost-effective approach. While, according to JIEDDO officials, the Office of the Secretary of Defense was considering how to resolve this issue, a decision had not been made before GAO's report was completed. Regardless of the final outcome, however, a more coordinated approach early in the process when initiating programs of this magnitude could prevent unnecessary duplication in costs and effort.

⁴ See Department of Defense Directive 5101.14, DoD Executive Agent and Single Manager for Military Ground-Based Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Technology, ¶ 5.3.1 (June 11, 2007) (requiring the Secretary of the Navy to designate a single manager).