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FORCE PROTECTION EQUIPMENT PROGRAMS FOR OPERATIONS IN IRAQ AND AFGHANISTAN

JOINT HEARING

BEFORE THE

SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

MEETING JOINTLY WITH

AIR AND LAND FORCES SUBCOMMITTEE

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

SECOND SESSION

HEARING HELD
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[There were no Documents submitted.]

WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING:

[There were no Questions submitted during the hearing.]

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[There were no Questions submitted post hearing.]

FORCE PROTECTION EQUIPMENT PROGRAMS FOR OPERATIONS IN IRAQ AND AFGHANISTAN

HOUSE OF REPRESENTATIVES, COMMITTEE ON ARMED SERVICES, SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE MEETING JOINTLY WITH AIR AND LAND FORCES SUBCOMMITTEE, *Washington, DC, Wednesday, March 17, 2010.*

The subcommittees met, pursuant to call, at 2:29 p.m., in room HVC–210, Capitol Visitor Center, Hon. Gene Taylor (chairman of the Seapower and Expeditionary Forces subcommittee) presiding.

OPENING STATEMENT OF HON. GENE TAYLOR, A REPRESENTATIVE FROM MISSISSIPPI, CHAIRMAN, SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

Mr. TAYLOR. The subcommittee will come to order.

Today, the Seapower and Expeditionary Forces Subcommittee joins the Air and Land Forces Subcommittee in open session to receive testimony on force protection equipment for Operation Iraqi Freedom and Operation Enduring Freedom, with particular focus on armored vehicles, personnel body armor and counter-IED [improvised explosive device] initiatives.

We welcome our witnesses for today.

Representing the Army to discuss Army force protection systems are Major General Thomas Spoehr, director of force development, Army G–8; and Brigadier General Peter Fuller, program executive officer, soldier and commanding general, Soldier Systems Center.

Representing the Marine Corps to discuss Marine Corps force protection and the MRAP [mine resistant ambush protected] joint vehicle program is Brigadier General Michael Brogan, commander of Marine Corps Systems Command, and the program executive officer for the MRAP Joint Program Office.

Representing the Joint IED Defeat Organization is the new director of JIEDDO [Joint Improvised Explosive Device Defeat Organization], Lieutenant General Michael Oates.

Representing the Government Accountability Office [GAO] is Ms. Davi D'Agostino, director, Defense Capabilities and Management. Ms. D'Agostino appears to discuss the release of the GAO's latest report on intelligence, surveillance and reconnaissance issues, based on site visits to Iraq and Afghanistan and prepared for the House Armed Services Committee.

Today's joint hearing continues the committee's ongoing oversight activities regarding the full spectrum of force protection matters in Iraq and Afghanistan. Our last formal activity regarding force protection was a classified briefing in December of 2009.

We meet today to receive updates on these critical, life-saving programs and to provide an opportunity for the families of our fighting men and women to hear what the Army, Marine Corps and the DOD [Department of Defense] leadership are doing to protect their loved ones against the threats that their soldiers and Marines face abroad.

Today's hearing is expected to cover and provide updates on a wide rate of programs to include: the mine-resistant family of vehicles, to include the lighter and smaller MRAP all-terrain vehicle; individual protective equipment, such as lighter-weight body armor; the Army's new battle dress uniform; equipment used to detect snipers; counter radio controlled IED electronic warfare jammers; the continued challenge of getting adequate intelligence, surveillance and reconnaissance assets; and improvements in weapons and tactics for our operational forces.

At this time last year, the MRAP all-terrain vehicle was still under source selection. No vehicles had been produced beyond small numbers of test assets, and no vehicles had been fielded to Afghanistan. In just one year, over 4,700 MATVs [MRAP all-terrain vehicles] have been produced, over 1,400 have been delivered to Afghanistan, and over 900 have been fielded to operational units. Their current producer is averaging 1,000 vehicles per month.

I want to publicly thank General Brogan and his entire team for the service they have provided to our nation in spearheading the MRAP and MATV effort. And as I have publicly mentioned before, I do not think there has ever been an acquisition program in the history of our nation that has fielded as fast and with such immediate and dramatic results.

Your team's efforts have saved lives, General, and I want to thank you on behalf of the American people. There are young people alive today, because of what you have done, what you and your team have done.

There are still major challenges ahead for us with respect to long-term sustainment of these vehicles, both in the field, here and overseas, as well as improving these vehicles through capability insertions.

I am aware the MRAP Joint Program Office is currently pursuing several capability insertions and vehicle modifications to include installing independent suspensions on legacy vehicles, heavier and more capable door hinges on the MATVs. And I expect to receive updates on these today.

A critical component to force protection is adequate training. That means having the ability to realistically train on the equipment the warfighter will actually use in combat ranging from individual equipment to jammers and armored vehicles.

For example, more than half of the accidents involving MRAPs since November 2007 have been rollovers. I realize that some of these rollovers were attributed to poor roads and infrastructure, but I do believe some of the rollovers might have been prevented through better training.

General Brogan, you stated in formal response to these subcommittees that—I am quoting—"the better trained the driver; the

less likely they are to conduct a maneuver that will hazard the vehicle."

I understand that one of the lessons learned from the original, legacy MRAP program was to concurrently field vehicles to address both operational and training requirements, and that we are applying that lesson in the MATV program.

I am still concerned over the limited number of legacy MRAP vehicles available to the Army for training, and hope to gain a better understanding of the Army's plan for addressing these vehicle shortfalls.

Clearly, the MATV is a good news story and demonstrates that we are capable of applying lessons learned. However, we cannot become complacent.

In the last year, Afghanistan has experienced a near doubling of IED events, and U.S. casualties have continued to increase.

General Oates, in your testimony you state—and I am quoting—"over the past three years in Afghanistan, casualty rates of our warfighters have increased by roughly 50 percent."

This concerns me, and I look forward to hearing from you on how your organization is addressing this trend.

Before going to the witnesses' opening remarks, I would like to recognize my friend—okay, well, I will not be recognizing my friend from Washington state, Congressman Smith. I will, however, recognize my ranking member and my friend from Missouri, Mr. Akin, for any comments he may make.

STATEMENT OF HON. W. TODD AKIN, A REPRESENTATIVE FROM MISSOURI, RANKING MEMBER, SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

Mr. AKIN. Thank you, Mr. Chairman. And I would also thank you for scheduling this important hearing today. Because you have hit a lot of the highlights, I am going to be brief.

I would also like to thank our GAO and Army witnesses for being here today.

And, of course, General Brogan, you are not a stranger to this committee, and we are delighted to have you back. Thank you for being here.

And also, General Oates, I believe this is your first time testifying in front of this committee. Welcome. This is an important subject. The testimony you are about to provide will assist us in determining how best to proceed with providing the necessary congressional oversight of these programs.

Again, I want to thank all of you for your service to our country, and thank you for being here.

And thank you, Mr. Chairman.

Mr. TAYLOR. Thank you, Mr. Akin.

The Chair now recognizes the ranking member of the Air and Land Forces Subcommittee, the Honorable Roscoe Bartlett.

STATEMENT OF HON. ROSCOE G. BARTLETT, A REPRESENTATIVE FROM MARYLAND, RANKING MEMBER, AIR AND LAND FORCES SUBCOMMITTEE

Mr. BARTLETT. Thank you. I will be very brief, so we can get to the testimony and questions. Thank you very much for your service

to your country. Thank you for being here today. I look forward to your testimony.

Thank you, Mr. Chairman.

Mr. TAYLOR. Thank you, Mr. Bartlett.

The Chair now recognizes the new chairman of the Air and Land Forces Subcommittee, the Honorable Adam Smith.

STATEMENT OF HON. ADAM SMITH, A REPRESENTATIVE FROM WASHINGTON, CHAIRMAN, AIR AND LAND FORCES SUBCOMMITTEE

Mr. SMITH. Thank you, Mr. Chairman. I apologize for running a little bit behind schedule.

Welcome to you all.

If there is no objection, I would ask that my full statement be included in the record, and then I will follow Mr. Bartlett's lead. And I look forward to your testimony, and will ask questions at the appropriate time. And I appreciate the very important issues that we are here to discuss today, and the work that you all are doing on them.

And with that, I will yield back.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Smith can be found in the Appendix on page 43.]

Mr. TAYLOR. Thank you, Mr. Smith.

Without objection, all the witnesses' prepared testimony will be included in the record.

General Oates, thank you for your service and taking the time to be with us today. Please proceed with your remarks.

STATEMENT OF LT. GEN. MICHAEL L. OATES, USA, DIRECTOR, JOINT IMPROVISED EXPLOSIVE DEVICE DEFEAT ORGANIZATION (JIEDDO)

General OATES. Thanks, Mr. Chairman. I appreciate the opportunity to be here today and testify.

The IED remains the single greatest threat to life and limb of our forces in Iraq and Afghanistan, to include the civilian employees that are present. And so, the protection of those forces is a priority for the organization I know lead, the Joint IED Defeat Organization.

I have provided a written statement, sir, and I will stand by. I am anxious to answer your questions.

Thank you, sir.

[The prepared statement of General Oates can be found in the Appendix on page 47.]

STATEMENT OF MAJ. GEN. THOMAS W. SPOEHR, USA, DIRECTOR, FORCE DEVELOPMENT, U.S. ARMY; AND BRIG. GEN. PETER N. FULLER, USA, PROGRAM EXECUTIVE OFFICER, SOLDIER, COMMANDING GENERAL, SOLDIER SYSTEMS CENTER, U.S. ARMY

STATEMENT OF MAJ. GEN. THOMAS W. SPOEHR

General SPOEHR. Chairman Taylor, Chairman Smith, Ranking Member Akin, Ranking Member Bartlett, and other distinguished

members of the committee, on behalf of the Army, Brigadier General Peter Fuller and I are honored to be here today to provide updates on Army force protection efforts.

Let me preface my remarks by thanking the members of both committees for their leadership and continued support of the Army. We share a common purpose and commitment to develop in field the best equipment available to our soldiers, Army civilians and contractors serving in Operation Enduring Freedom and Iraqi Freedom.

The brave men and women serving today represent the best of our society, and they continue to perform magnificently against a determined enemy in a complex and dangerous operational environment.

After more than 8 years of continuous combat, we recognize the importance of keeping our deployed forces at the highest level of readiness and providing them the best capabilities available. Protection of our soldiers and critical warfighting assets remains the Army's highest priority.

In response to the continued threat of improvised explosive devices, suicide bombers, other non-traditional threats, as well as the more conventional threats, such as small arms fire, the Army has pursued numerous initiatives to enhance the mobility, lethality and survivability of our soldiers and the formations in which they serve.

These initiatives are captured in complementary and reinforcing layers of protection, which include continuous improvements to individual soldier protection, new and enhanced armored and wheel-tracked vehicles, new active and passive based defense capabilities, improved battlefield situational awareness with better intelligence, surveillance and reconnaissance platforms, as well as advances in biometrics and robotics.

In addition, the Army has taken steps to lighten the soldier's load by fielding freight carriers, light-weight machine guns and tripods.

While we have made significant improvements in our force protection posture, we know we must continue to provide improved solutions for two significant reasons.

First, technology is always changing. Advancements are always being made. And we owe it to our soldiers to continue to invest in promising technologies that will give them a decisive edge in combat.

Second, the weapons, tactics and motivation of our adversaries continues to adapt, and we must be more versatile, adaptable and unpredictable than the enemies we face. Therefore, the Army's ongoing commitment to provide our soldiers with the best equipment in the world is just that—ongoing.

We are always mindful that the soldiers in the field are the ones that bear the burden of battle. The Army remains fully committed to provide unwavering support for our soldiers, by giving them the best protective equipment and capabilities available to successfully confront current and emerging threats.

Again, thank you for this opportunity to testify before your subcommittees today on this important issue. Thank you for your

steadfast support of the American soldier. General Fuller and I look forward to answering any questions you may have.

Thank you.

[The joint prepared statement of General Spoehr and General Fuller can be found in the Appendix on page 53.]

Mr. TAYLOR. The Chair thanks the gentleman.

The Chair now recognizes Brigadier General Fuller.

General FULLER. Thank you, sir. I have no prepared remarks. I am prepared to answer any questions you may have.

Mr. TAYLOR. I hope you guys do not think you are getting off this light. [Laughter.]

The Chair now recognizes a true American—you are all true American heroes—but another true American hero, Brigadier General Brogan.

STATEMENT OF BRIG. GEN. MICHAEL M. BROGAN, USMC, COMMANDER, MARINE CORPS SYSTEMS COMMAND

General BROGAN. Chairman Taylor, Chairman Smith, Ranking Members Akin and Bartlett, distinguished members of the subcommittees, thank you for the opportunity to be with you this afternoon, and to answer questions concerning Marine Corps force protection programs and the Joint Mine Resistant Ambush Protected Vehicle program.

I appreciate, sir, that you are going to enter the written statement for the record.

Your support these last many years in providing necessary funding to equip our Marines and the joint force to meet the challenges of irregular warfare has been tremendous.

We work together on a daily basis with our counterparts in JIEDDO and the various program executives offices in the Army to field just this type of equipment.

Throughout this conflict, we have fielded numerous generations of gear, and have had the opportunity to iteratively improve it. That goes for individual body armor plates, from the small arms protective insert, to the enhanced small arms protective insert and the side SAPI plate; in flame-resistant gear, from Nomex suits normally worn by combat vehicle crewmen, to now having fire-retardant uniforms that include antimicrobial, antibacterial, anti-vector properties.

I very much appreciate your kind remarks regarding the MRAP program. As Paul Mann, the program manager, frequently states, it is a team sport.

The leadership of the Congress in providing funding, and to the support of the Secretary of Defense, the services, the defense agencies and our industrial partners at all levels—prime, sub, vendor and suppliers—has made that program possible.

Because of that, we have been able to rapidly field these vehicles and have a marked impact on the survivability of our joint warfighters.

I would only ask that we recognize this is an open hearing. And though the topic is very important, some of the matters in force protection would go into classified areas. We do not want to broach that. We also, sir, would not like to discuss specific capabilities or limitations of the equipment in an open session.

This nation has fielded the best-equipped, best-protected force in its history, largely due to the support of the Congress.

And finally, sir, on a personal note, this is likely my last appearance in front of these committees as the commander of Marine Corps Systems Command. I very much appreciate the access that you have provided me and the patience you have afforded me, and I look forward to your questions.

[The prepared statement of General Brogan can be found in the Appendix on page 66.]

Mr. TAYLOR. The Chair thanks the gentleman.

The Chair now recognizes Ms. Davi D'Agostino. I hope that is correct.

STATEMENT OF DAVI M. D'AGOSTINO, DIRECTOR, DEFENSE CAPABILITIES AND MANAGEMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Ms. D'AGOSTINO. You did a great job. Thank you.

Chairman Taylor, Chairman Smith, members of the subcommittees, thank you for having me here today to discuss GAO's January 2010 report on DOD's intelligence, surveillance and reconnaissance, or ISR, processing, exploitation and dissemination or sharing capabilities.

There has been a dramatic increase, as you know, in demand for ISR systems to collect intelligence in Iraq and Afghanistan, to a point where DOD now has more than 6,800 unmanned aircraft systems alone.

ISR is also seen as the first line of defense for U.S. and allied forces against insurgent attacks and roadside bombs. But to be useful to the warfighter, after intelligence is collected, it must be analyzed and shared with all those who need it in a timely manner.

The presentation board beside me shows the intelligence data processing cycle. And you should have a sheet in your briefing book that shows that, too, up close.

This processing cycle is commonly described in five interconnected phases. At the front end you have, first, planning and direction, and second, collection. At the back end you have, third, processing and exploitation; fourth, dissemination; and fifth, evaluation and feedback.

My testimony today focuses on phases three and four of the cycle, or the back end of the cycle, that transforms the collected data into useable intelligence for the force.

Today I will discuss, first, the challenges DOD faces in processing, exploiting and disseminating the information collected by ISR systems, and the extent to which DOD has developed the capabilities needed to share the information. We have reported on DOD's challenges with ISR integration, requirements and tasking of collection assets.

For this report, we spent 16 months obtaining and analyzing documentation from the Under Secretary of Defense for Intelligence, all four military services, the ISR Task Force, Joint Forces Command, Central Command, the National Security Agency and the National Geospatial-Intelligence Agency. We also traveled to several locations in Iraq and the United States to observe the processing of ISR data firsthand.

We found that the military services and defense agencies face longstanding challenges with processing, exploiting and disseminating the ISR data they collect.

First, the dramatic increase in collection has not been accompanied by an increase in processing capabilities, and these capabilities are now overwhelmed. As General Deptula, the Air Force's ISR chief, recently stated, in the not too distant future, the department will be swimming in sensors, and it needs to ensure that we do not end up drowning in data.

Second, transmitting ISR data requires high-capacity bandwidth for communications, which can be extremely limited in theater.

Third, analyst shortages, including linguists, hamper DOD's ability to exploit all the ISR information being collected. For example, Central Command officials told us they exploit less than one-half of the signals intercepts collected from the Predator.

DOD has begun some initiatives to try to deal with these issues, but it is too soon to tell whether or not the efforts will result in measurable improvements.

DOD is also trying to improve the sharing of intelligence information through a family of interoperable systems called the Distributed Common Ground Surface System, or DCGS. DOD has directed the services to transition to DCGS, but each service is at a different stage in doing so.

Further, to facilitate the sharing of ISR data on this system, DOD developed common information standards and protocols. A key problem for all of this is that the legacy ISR systems, the older systems, do not automatically tag data for sharing with certain key information, like location and time. And the services are also not prioritizing the data that should be tagged.

The services have expressed concern to us that DOD has not developed overarching guidance or a concept of operation that provides them needed direction and priorities for sharing intelligence information. As a result, we recommended in our report that DOD develop such guidance, and that the services then develop plans with timelines, and prioritize and identify the types of ISR data they will share consistent with the overarching guidance. DOD agreed with our recommendations.

And while my testimony has been focused on the back end of the intelligence cycle, our prior work for this committee has shown that there are also problems on the front end. In theater, collection taskings are fragmented, and visibility into how ISR systems are being used, both within and across domains, is lacking. And all of these challenges combine to increase the risk that the operational commanders on the ground may not be receiving mission-critical ISR information, which can also create the perception that additional collection assets are needed to fill gaps.

Mr. Chairman, members of the subcommittees, this concludes my oral summary. I would be happy to answer any questions you may have.

[The prepared statement of Ms. D'Agostino can be found in the Appendix on page 84.]

Mr. TAYLOR. The Chair thanks the gentlewoman.

The Chair now recognizes the chairman of the Air and Land Forces Subcommittee, Mr. Smith.

Mr. SMITH. Thank you, Mr. Chairman.

General Oates, I will start with you on the JIEDDO process. When this originally came up, certainly, in our response to the problems that we had in Iraq, it was, you know, multifaceted and an evolving threat in Iraq, and now in Afghanistan, as well. And JIEDDO was stood up to try to grab every corner of that and do everything we could to respond to that threat. And there are many, many different pieces of it.

There have been some concerns on behalf of the committee and others about the way that money has come together, how well organized and well structured JIEDDO is, because there is a bunch of different ideas floating around out there. It is everything from, you know, individual, certainly—you know, body protection for our troops. It is the vehicles that they are in, you know, a variety of different other countermeasures that we have employed.

And I think there have been some concerns in terms of keeping track of the money and whether or not it is being well spent and well organized. I know you have made statements that that is a priority of yours, to make sure that you get that organized and structured.

I was wondering if you could just take a moment to sort of walk us through how that has improved and, you know, improve our confidence that the money and the resources are going to their absolute best use in terms of defeating the threat.

General OATES. Thank you, Congressman. It is an interest of mine in two areas. One is full accountability. I do know that we are the stewards of the government's money, and I want to make sure that that is not opaque to anyone, especially the Congress.

The second is transparency with our other partners. That would include the services, the other combatant commanders, as well.

Let me first start at the process. There are a great number of good ideas. Those are generally filtered by the combatant commander, and, as you know, comes forward with a Joint Urgent Operational Needs Statement [JUONS]. That is screened by the combatant commander and the Joint Chiefs of Staff. And not all of those come to JIEDDO.

We are generally the first stop, if it is a largely IED-related issue, or there is a requirement to respond very quickly. So, in our budgeting, we actually set aside about 20 percent of our budget every year for that emerging enemy technique or capability gap that appears that we did not anticipate.

I receive my priorities from the Deputy Secretary of Defense and the Secretary of Defense. And he has just shifted mine recently, on becoming the director, to the Afghanistan surge. And so, we have appropriately assigned our funding towards meeting the capability gaps and JUONS that have come out of Central Command.

Mr. SMITH. How do you measure the effectiveness of what you do? And it is hard, I know, because we are certainly not going to stop the IED threat no matter how we do it. But how do you measure whether or not a given idea and a given amount of money spent on that idea actually worked or it did not?

General OATES. Sir, let me take that in just a second. I want to conclude by reminding you that we do provide monthly reports, if not more frequent, to the oversight committees to ensure there is

absolutely transparency on the spending of our money. And I am very confident that we can account for it.

This is a very difficult challenge, establishing measures of effectiveness against dollars spent in this particular realm, so there are some objective tenets that we use. We actually look at the total number of IEDs, those that are effective, how many and what type of IEDs render a resultant casualty or killed. And we can draw some analogies to money that we put into force protection, how much more energy is required by the enemy to inflict a casualty, for instance.

There are subjective tests, largely in the area of training. And we rely on our troop commanders and their non-commissioned officers, in particular, to inform us about what training is required and what might be effective.

And most recently, in my short time as the director, I had a chance to see some, what you would call good ideas, developmental ideas in simulated air training, which we know intuitively from having been in the fight now for a number of years, will bring dividends, save our soldiers and deny the enemy access to our soldiers.

But this is a major challenge, is trying to establish concrete, objective measures of effectiveness against the money that is spent, sir.

Mr. SMITH. Have you found that the challenges are significantly different in Afghanistan than in Iraq? Or is it pretty much the same battle?

General OATES. Sir, the battle writ large against the IED is fairly similar, but the methods employed and the type of IED is very different, as is the terrain in Afghanistan. I would be happy to elaborate if you would like me to.

Mr. SMITH. You can, if you want. Actually, I would love it if your staff could just give a statement on that. I have taken up quite a bit of time. I do have a couple of other questions, but I will wait until the next go-around, to give some of my colleagues a chance.

But I would be interested if your staff could provide some information on how they see the threat different and the response different as it is shifting more to Afghanistan. Obviously, it is still a problem in Iraq, but it is certainly a growing threat in Afghanistan.

Thank you, Mr. Chairman.

Mr. TAYLOR. Thank you, Mr. Smith.

And just for everyone's information, I made the decision, for Chairman Smith and the two ranking members, we will not have a 5-minute rule. But I would remind you that we are expected to have votes sometime around 3:15.

Mr. Akin.

Mr. AKIN. Thank you, Mr. Chairman.

First of all, General Oates, my understanding is there were some people that were critical about resources and what we were doing with your organization. You had a chance, as I understand it, to kind of read over that.

You have been a user of the services. Now you are charged with trying to provide the same services you were using in the past.

Are there some structural things that you have wanted to change about how you approach the problem, or anything? Or is it just

kind of an ongoing management situation? Or what has been your perspective moving from user to first in charge?

General OATES. Thank you, sir.

I have been a tactical customer of JIEDDO now for about 6 years. Over three tours in Iraq, I did not always know where the capability and benefits were coming from. I have a clear vision of that now.

And I would like to take this opportunity to thank the Congress for what it has done for my soldiers, both in the 101st and the 10th Mountain Division.

Now, from my perspective as the director of JIEDDO, one of my key concerns is ensuring that we provide a good response to the Congress about these particular lines of operation, whether they are adequately funded, whether we need to make any changes.

And defeating the device, largely focused on some technology developments and detect, attacking the network is an area that really is difficult to establish measures of effectiveness, going back to the chairman's question, and train the force, which in my experience has been the greatest return on investment, and an area where, as the chairman alluded earlier with the MRAP, providing quality training for soldiers in all three of those domains—defeating the device, attacking the network and, in fact, training in this environment—will return great dividends.

I am not prepared at this point to give you a very specific answer on whether adjustments need to be made. We are adequately funded at this point, sir. The funding has been provided by the Congress that is allowing us to meet these very urgent capability gap requirements that have come out of Afghanistan. And we believe that we can handle them at this point.

Mr. AKIN. Thank you.

And then, the second question over to the loop, or the intelligence data processing cycle, and being able to process all of the—we are picking up so many—our sensors are so good.

Have you seen an approach of what has to be done to process the data? Or do you have any suggestions along that line? Or what is our plan to be able to process as well as to collect?

Ms. D'AGOSTINO. Yes, one of the challenges I think they have had is the problem of tagging this data automatically. If it is not automatically tagged, either on board the system or at the ground stations, it has to be done somehow—maybe by hand or by some kind of adaptor or with a computer.

So, it would take time away from the soldier's main mission. So, it creates a difficult problem.

And if it is not tagged, then it is not discoverable by other people. Even if it is put up onto a DSIG, it is not discoverable without being tagged.

So, I think that is probably the most pivotal problem that they face in being able to share——

Mr. AKIN. I did not understand a word you just said—tagged and discoverable. And those are not my normal vocabulary.

Ms. D'AGOSTINO. Okay. It is like when you take a picture with your digital camera, it has a date on it. And when you load it onto your computer, you can find your digital photos by date. If it does not have any tag on it, there is no way to find it for you.

So, this is part of the problem with——

Mr. AKIN. So, it is a classification, how to identify information.

Ms. D'AGOSTINO. Right. It is how to locate it. It is like giving it a name. And without the names, there is no way for somebody to discover it and then use it. So, that is——

Mr. AKIN. So, how do we name it, then?

Ms. D'AGOSTINO. Well, there are requirements that the data be tagged. But the problem is, some of the older systems do not have the capability to automatically do that. And therefore, some unknown amount of the data that we are collecting right now in theater cannot be shared in its form that it comes off the platform.

Mr. AKIN. I would think that you would want a date and a location, would you not? Would those two be the main things that you are looking for?

Ms. D'AGOSTINO. Right.

Mr. AKIN. Because if somebody does an IED, you want to run time backwards——

Ms. D'AGOSTINO. And the time——

Mr. AKIN [continuing]. Two days and see who has been there.

Ms. D'AGOSTINO. There are these standards and protocols, and also rules that have been made about the kind of tagged data that you put on when you tag it. General Brogan is going, "yes, yes."

But it is important to get that onto the data, so that other people can find it and use it, and benefit from it.

Mr. AKIN. So, it is a classification kind of thing.

General Brogan, you want to comment?

General BROGAN. It is not really a classification in the sense of confidential, secret, top secret. It is more of identification by date, time and location, sir.

Mr. AKIN. And that allows you, then, if something occurs, you can go back and take a look at what you might have seen? License plates or——

General BROGAN. Well, it makes it database searchable. And so, particularly if you are looking at the same area in multiple scans, you can look for differences. You know, were there disturbances that were not there previously, to help identify the locations of the IEDs, sir.

Mr. AKIN. Good.

Thank you, Mr. Chairman.

Mr. TAYLOR. The Chair thanks the gentleman.

We would now recognize the ranking member of Air and Land, Mr. Bartlett.

Mr. BARTLETT. Thank you very much.

I have two questions. The first is for General Fuller and General Brogan. The second is for General Fuller.

General Fuller and General Brogan, I continue to be very concerned about the short-term and long-term effects on our soldiers and Marines in regards to the total weight of the individual equipment that they are carrying in Afghanistan. As you know, in Vietnam the average weight was 30 to 40 pounds. Today they are carrying 90 to 100 pounds, and sometimes even more than that.

Obviously, body armor is a major part of that weight increase. And I understand that we have modular and—designs that can

help with this issue. And certainly, every pound that we can reduce this weight count.

But in the mid to long term, what are we doing to incentivize industry to lower this weight?

For example, what would it take, assuming an ESAPI level of protection to reduce the weight of body armor by, say, 50 percent in less than 5 years? Have we even asked industry something along these lines?

And General Fuller, as you know, the Army and the Department of Defense have recently started a new round of body armor testing to help establish a standard testing protocol with a specific focus on statistical analysis and statistical confidence levels.

We briefly discussed this in my office a couple of weeks ago. Can you explain this testing, give us an update on the progress of the testing, and explain what you hope to achieve with the results?

Thank you.

General BROGAN. Sir, you are absolutely right. The weight is significant. The long-term impact is currently unknown. We have not seen a marked increase in injuries to our Marines during training or during their combat operations, but we do not know the long-term impact.

The answer to the question, we do communicate with industry in a number of forums in all of my public comments. Every 2 years we hold an advanced planning brief for industry, where all of those who do business with the United States Marine Corps, and academia, as well as government labs are there. And we lay out for them what our priorities are.

The commandant and the commanding general of the Marine Corps Combat Development Command have all indicated that reducing the weight is important.

I believe the most significant thing we need, though, sir, is a materials breakthrough. We have nothing better than the ceramic plates that we are currently using with the attendant weight that goes with them. We need a materials science advance.

And to that end, the commandant, in his guidance for the planning of POM [Program Objective Memorandum] 2012 has directed that our S&T funding be fenced. If we have bills to pay corporately throughout the institution, we are not permitted to reach into those science and technology accounts to get the money. Much of that money is not run by my command; it is handled by the Office of Naval Research, or the Naval Research Laboratory and the Marine Corps Warfighting Lab.

But that is an area where we could certainly use some help from our industrial partners.

Mr. BARTLETT. We were advocating, as you know, for a specific line for R&D for this. We believe that the potential for markedly reducing this weight is there, if industry is sufficiently incentivized. We believe that including the acquisition of this and the research on this, along with underwear and uniforms and helmets, and so forth, is probably not the best way to get the best technology out there.

General Fuller, my first question?

General FULLER. Yes, sir. As General Brogan said, weight is a concern we have with our soldiers. And when we think about our

soldier, we try not to treat him like they are a Christmas tree and we just hang things on them. Body armor is one of those elements that we are putting on our soldiers, and we are looking at how do we lighten that load.

We have lightened the load when we fielded them the new, improved outer tactical vest. It was three pounds lighter. And as General Brogan said, not only are we trying to lighten their load, but we are redistributing how that weight was worn by the soldier. So, now it is coming off all on their shoulders down to their hips where you can distribute and carry that weight better.

We have also looked at, on the soft body armor side, a new plate carrier, which we are now fielding into Afghanistan.

Between a fold-up, improved outer tactical vest and our plate carriers, an eight pound delta. That eight pounds is what our soldiers are looking for.

In terms of the hard body armor that you were talking about, as General Brogan said, you really need a new technology. We are just tweaking the edges of that technology right now to refine it, to try to lighten some of that weight.

But until we have that new breakthrough in science and technology, I do not believe our R&D efforts, or even the independent research and development efforts of our contractors, is going to give us that breakthrough that we need to get that lighter weight onto our soldiers. But we treat them as a total system.

You heard General Spoehr talk about we are also providing our soldiers with improved lethality. And that lethality is now lighter. We are giving them a lighter machine gun, because you want to give them the total package—their survivability package, their lethality package and also their operating environment.

When we talked, you asked the other question specific to what we call our phase two testing.

Sir, as you are aware, Congress directed that we conduct additional testing on our ESAPI, our enhanced small arms and protective inserts, and our XSAPI, which is the next generation of our protective inserts. We conducted that testing with GAO oversight, and also DOT&E [Director of Operational Test and Evaluation, Office of the Secretary of Defense] oversight. And when we completed that testing, we realized, we have been working on—our testing protocol has been one of over-match.

We take our products and we test them through a round that is heavier, harder and faster than any round found in the battlefield. And we realized what we were doing is taking that capability and giving it great capability, but we do not have the statistical confidence that we have of the best body armor. We know that it is the best, because of what we hear from our soldiers and through the over-match testing.

So, we are transitioning our testing. We are transitioning from over-matched to a statistical confidence basis.

And we are really pleased to report that we have conducted one phase of that testing, where we have taken real plates from our soldiers down-range, wearing them. We took them off—we gave them other ones—but we took them off their backs, brought them back, and we have shot at those plates with real threat rounds at

a high statistical confidence interval. And we have outstanding performance with those plates.

We are taking another set of plates, doing the same thing. And these are going to be brand-new coming off of production line.

So, what we are doing is, I tell everybody we are stepping up our game. We have always had quality product. But we are not going from bad to good in any of this. We are going from good to great.

And we want to ensure to the American public and to Congress and anybody else, we have the best body armor. And now we are doing it through a statistical method, so you can demonstrate it with high confidence that it is quality product.

Mr. BARTLETT. Mr. Chairman, I would just like the record to show, and I would like our witnesses to confirm this. There have been some questions about a specific protocol in the testing procedures.

My understanding is that none of that has in any way permitted any defective armor to get out to the troops, that these were some protocol differences that did not in any way impact the quality of the armor that our young men and women wear.

The XSAPI is not yet fielded? Is that correct? It is there to be used if needed?

General FULLER. Yes, sir. The XSAPI product is currently listed as contingency stocks. It is available if the threat materializes in the theater. And we are watching through different intelligence sources very carefully if that threat materializes in theater, and it has not.

It is a heavier plate. The reason we are not fielding it now, the threat is not there, and we do not want the soldiers to bear the weight of a heavier plate. It is approximately a half-pound heavier for each plate to have them have that capability, when the plates that we have right now are doing the job, as you said.

We might have had some process issues. We never had any challenge with our product. It is quality product.

Mr. BARTLETT. Our fathers and mothers can be assured that these differences in testing procedures in no way had any impact on the quality of the protection that got out to the field to our young men and women. That is a correct statement?

General FULLER. Yes, sir. That is an absolute correct statement.

Mr. BARTLETT. I just want to make sure the record shows that, because I want to remove any concern that in any way, any armor that was less than what we thought it was got out to our young men and women.

Thank you.

Thank you, Mr. Chairman.

Mr. TAYLOR. The Chair recognizes the chairman of the Readiness Subcommittee, Mr. Ortiz, for 5 minutes.

Mr. ORTIZ. Thank you, Mr. Chairman.

Thank you so much for joining us today and for your service.

I note that you were touching on the testing of the technical vest. But we are buying from two different sources. Am I correct?

General FULLER. In two different sources, you mean between the Marine Corps and the Army, sir?

Mr. ORTIZ. Correct.

General FULLER. We have the same product, sir.

Mr. ORTIZ. It is the same product, but different——

General FULLER. Different colors, just as we have different color of uniforms on today.

On the plates? Well, when we talk about body armor, sir, there are two components. The soft body armor, the same ballistic package is inside, different color, and how we might attach them. On the hard plates, the Army procures the hard body armor plates for all the services, so the Marines are getting the exact same plates that the Army or the Air Force or the Navy is getting.

We have currently, we have three vendors building the ESAPI plates. And the Army is no longer in the procurement business for plates. We have transitioned that for ESAPI plates over to DLA, the Defense Logistics Agency. And they are procuring it for a sustainment of all services.

Mr. ORTIZ. And the prices are the same for different services?

General FULLER. For the hard plates, yes, sir, because it is off of our contract, and they just buy the same thing.

Mr. ORTIZ. I spent some time lately, last year, visiting with the troops who were getting ready to deploy. And one of the things that the Army was very concerned with was the color of the camouflage uniform that they wear. They would much rather have like the Marines had.

Are you gentlemen sharing information with one another to see what would be the best uniform for training? Not the training, but the goal, they could move—are being shot at.

Now, have you decided on, the Army at least, on the uniform? Are you going to continue to have the same camouflage uniforms that you are utilizing today?

General FULLER. The first part I would like to answer on, sir, is the Marines and the Army, General Brogan and myself work very closely together. Our teams are working very closely on sharing information as to what we are working on. Matter of fact, the Marines were in our office yesterday looking at our new capabilities and inquiring as to what we are doing and how we are doing it.

We are doing the same thing with Special Operations Command. So, the three commands that are operating and generating new capability all the time, we are sharing all that data.

Specific to the uniform, the Army has made a decision, based on a new methodology that we have developed that we are sharing with the Marines and the other services, that we believe we need a different color uniform for Afghanistan specifically. And we are in the process of generating that uniform. We are calling it the MultiCam uniform.

And when you talk about our uniform, our Army combat uniform, I consider it to be two parts. One is the chassis—how it is designed, how we wear things such as the Velcro and things like that—and the other is the color.

When we field this new uniform to our troops in Afghanistan, not only are we going to change the chassis, we get soldier feedback. We are constantly getting input from the soldiers, understanding what are the challenges with our uniform. So we are making some chassis changes, and we are making a color change specific to Afghanistan. And that is going to be the MultiCam uniform that will be fielded starting in July, sir.

Now, we did consider, in that process, the Marine Corps uniforms. And actually, we had 57 different uniform options that we considered. And where we see the Army operating in Afghanistan, we believe that this uniform would work the best in all of the environments in Afghanistan.

Mr. ORTIZ. How soon before you get them?

General FULLER. We will start seeing the first uniforms available in the July time period, sir, and we will start fielding them to the units deploying in August, with major brigades going over in August.

And then we are working carefully with the theater to provide that same capability to the soldiers that are in the theater, but we are working through with the theater to ensure we do not fill up their lines of communications with the uniforms when they are also supporting a surge of troops. So, we are working on this whole effort real time, sir.

Mr. ORTIZ. One of the things that they were concerned with was that the issues were not sufficient, because they wore out quicker. And then, if they needed another set, they had to pay for them.

Are you aware of that?

General FULLER. Sir, I am aware of that. As a matter of fact, I received your letter concerning that.

Two items. One, the uniforms that we issue to our soldiers that are used in a combat zone are fire-resistant uniforms. They do not wear the same as our regular uniform that you would see. They look exactly the same in terms of the chassis and the color. They just are different material for fire resistance, so they wear differently.

What we do is provide our soldiers with four of these uniforms before they deployed. And as they wear out those uniforms, they can go into the supply system and get reissued uniforms in theater. So the soldier does not have to pay for uniforms when they are in the theater, if they tear them, rip them, or whatever they may do to them.

Mr. ORTIZ. You have to hear this, because it was one of the main concerns when I spent time with them in Italy.

Thank you so much.

Thank you, Mr. Chairman.

General BROGAN. Sir, I would only add that, there are fire-resistant uniforms, organizational equipment. It is issued to the Marines in theater. And then, they wear it out over there, they do not have to buy that uniform. They do not wear the flame-resistant uniforms when they are back at home station in garrison.

Mr. ORTIZ. Thank you so much.

Mr. TAYLOR. The Chair recognizes the gentleman from California, Mr. Hunter, for 5 minutes.

Mr. HUNTER. Thank you, Mr. Chairman.

Gentlemen, thank you for your service.

The first thing, General Fuller, I just wanted to make you aware of something in case you—do you know what the counter bomber is, the ECM [Electronic Counter Measure] device called counter bomber?

General FULLER. Not directly. No, sir.

Mr. HUNTER. Low-level radar, has some video. The Marines are using it right now. Air Force is using it over there. The Army has 12 here in a warehouse that it has yet to deploy.

General Brogan, do you know what I am talking about here?

General BROGAN. I am familiar with it, sir. And I will tell you that it has met with mixed results from the user in theater. They are dissatisfied with its performance—too many false alarms. And so, we are not——

Mr. HUNTER. Is it better than nothing? Or is——

General BROGAN. It may or may not be.

Mr. HUNTER. Okay.

General BROGAN. Best handled probably offline, sir.

Mr. HUNTER. Okay. Got it. Going with that, the only reason I bring this up is not because it is a great device or a bad one. It is that the Army has got 12 sitting back here.

So, they are in a warehouse, and it is kind of—this goes along with other things, too, where there are situations where we have stuff and we do not—the Army buys it. Different services buy it. You know, it could be anybody. And then it sits here as opposed to being deployed. There is no plan right now from the Army where they want to put them, so they are just sitting here.

This is one of those things that has been fast-tracked, has been purchased, has been fast-track testing, and now it is just sitting here in a warehouse. There are 12 of them.

Just so you know, they are here. There are 12 in the U.S. in a warehouse that have not been deployed yet. And just to see what, you know, if the Army is going to use them at all, or try to use them, or try to upgrade them, or whatever. So, that is the first thing.

Second, I want to get down to one more thing just to touch base with you. As everybody looks at a new carbine to replace the M–4 or replace the upper receiver, or do something with it, if we need anything done with it, if at all, if it is down to we do want to upgrade it.

Right now there are only three competitors in our small arms industrial base that are listed that can be—that are viable options to make the new carbine. There are three of them. One makes the Ma Duce .50-cal machine guns, so they are out. And then the other two left are the ones that make the M–4 now, and a foreign company, a Belgian company.

So, my question is, the Secretary of Defense has the ability right now to waive this rule and bring other companies in, like the three or four other American small arms manufacturers that we have, into this competition. And my question is, have you encouraged him to do so, or will you?

General FULLER. Sir, I understand what you are talking about. When we look at both the improved carbine competition, that it would be upcoming, and also improving our M–4 in a parallel path. We are looking at ensuring we have a full and open competition, meaning all vendors can come forward.

Recognizing that the current language would preclude potential full and open, we are working through that process right now. I cannot say that we have asked—we have not asked the Secretary

of Defense for a waiver at this time. But we are considering that process and how we are going to do that.

Mr. HUNTER. Great. Okay.

And my last question is for General Oates—something we do not talk about too often. We will talk about IEDs and what is going on with those.

I was able to talk with Dr. Ash Carter and General Paxton, who lead up the IED Task Force. It is a party of two, and that is good, I think, because they were talking about they were able to get more MRAPs over there, to do some things to bring people's different lanes together, and just get things going over faster. And they have Secretary Gates' ear all the time.

I asked them something yesterday. They did not have an answer. I asked General Petraeus this morning—did not have an answer. And it is this. Do we own any road in Afghanistan?

Do we own it? Do we own 20 kilometers? Do we own five kilometers? Can we say that we have persistent coverage of any road at all, any certain amount where we have ISR, whether it is manned or unmanned, watching that road?

General OATES. Sir, from this distance away from the warfight, I would not hazard a guess whether we actually own the road, any stretch of it 24 hours a day.

I do know that there is adequate ISR coverage and force to dominate portions of the road when they operate on them. But I, quite frankly, have not looked at how many kilometers that is.

My first visit to Afghanistan was a couple of weeks ago, and I was struck by the difference in Afghanistan versus Iraq in terms of how much unpaved road there is and the extreme peril of operating, especially in the east and the north—extreme fall-offs on either side and a twice as large country from Iraq.

I think——

Mr. HUNTER. But less road than Iraq, less ASRs [Alternate Supply Routes], less MSRs [Major Supply Routes]. You only have one quarter of the ring road from RC-South [Regional Command-South] to Nangarhar you have got to cover.

General OATES. I would agree with you—obviously, less paved road. But I could not give you an answer on how much we actually control day to day, sir.

Mr. HUNTER. Thank you, gentlemen.

Thank you, Mr. Chairman.

Mr. TAYLOR. The Chair recognizes the gentlewoman from Maryland, Ms. Tsongas.

Ms. TSONGAS. Massachusetts, excuse me.

Mr. TAYLOR. I am sorry, Massachusetts. My apologies.

Ms. TSONGAS. I only say that, because I know General Fuller is from Massachusetts, as well, and we are proud of it.

First, I would like to thank all of our witnesses for being here. I appreciate all the time and effort you have not only put into this hearing, but that you have put into providing our service members with the best force protection equipment available. Your efforts truly save lives, and I thank you for that.

General Fuller, as I said, it is nice to see you again. I want to commend you and all of our witnesses on the fine work that has

been done throughout the past 8 years to improve soldiers' survivability on the battlefield due to improvements in body armor.

The services have come a long way to ensure each and every soldier, sailor, airman and Marine has the individual protection equipment that they need.

But there is still far to go, and I still have some concerns about how the Department of Defense is going to meet the requirements of reduced weight, operationally tailored body armor. My primary concern is in the fact that the Department of Defense failed to establish separate procurement in RDT&E [research, development, test and evaluation] budget line items for body armor, as was mandated in last year's National Defense Authorization Act.

And this failure leads to the perception, in spite of what you all have been saying here today, that Department of Defense, the Army and the Marine Corps are not committed to body armor as an investment item. In fact, body armor procurement has traditionally been funded through supplemental and overseas contingency operations [OCO] funding, and this year is no different.

The Army is requesting $327 million for body armor in OCO, while there is no discernible amount requested in the base.

What is going to happen when there is no more OCO funding and the services can longer count on the supplemental funds to procure the central protective equipment?

The lack of commitment to move body armor procurement funding into the base is compounded by the fact that the Army reported in a hearing we held last week on acquisition and modernization that its fiscal year 2011 base budget request for modernization of body armor programs is zero dollars.

By requesting body armor funding solely in the overseas contingency operations fund, and by putting practically no dollars against research and development for body armor, my concern is that services are setting themselves up for a future situation where once again our soldiers are deployed for combat operations with inadequate and outdated body armor.

So, now, here are my questions, and I am going to ask several.

First, General Fuller and General Brogan, what is the long-term investment strategy for providing Army procurement and RDT&E? And I know, as we have heard today, the department is creating one standard for body armor testing and evaluation, and I appreciate your efforts. But what is the Army and the Marine Corps and the other services doing to create the same synergy of effort when it comes to procurement and research and development of body armor?

If you could, please describe the process you use to communicate body armor requirements and performance specifications to industry.

General FULLER. Yes, ma'am. I appreciate your question.

As we have talked about before, it is a complex issue when we talk about our soldier protection.

We are looking in the Army as to what should be in a portfolio associated with our soldier protection. And when we talk about that, we look at how do we protect the total soldier from their head to toe. And we are looking at the bomb suits, the concealable body armor, our hard and soft ballistic armor that we were talking about

previously, even our fire-resistant uniforms and our ballistic underwear.

We are working with, in the Army and the department, to address the language that was in the—address this year's language identifying we needed to have a research and development and a procurement line. And at this time, we do not have it. I recognize that. We are trying to define what should be in that line, what components, and then, how much should be there.

In terms of why we are not looking at buying additional product in the future, from a procurement perspective, our requirements right now in the Army is approximately 966,000 improved outer tactical vests. And we are reaching the end of that procurement. And in terms of our hard ESAPI plates, we have procured over 2 million of the ESAPI plates, and we have on contract 240,000 of our XSAPI that I talked about as contingency stocks.

So, I believe our soldiers are covered. But I do recognize we need to think, where are we going to go in the future when we want to have a new capability, and how do we fund for that when currently we are funding everything through OCO.

Ms. TSONGAS. General Brogan.

General BROGAN. Yes, ma'am. We actually communicate the performance specifications to industry. We do that through requests for information—can you provide this capability—requests for quotations, which is how much would it be, what in your production capacities, that sort of information.

And then, when there is an actual decision to buy, it is a request for procurement. Tell us in a proposal how much it would be, what your production capacity would be, the rates, delivery schedules, and things like that. So, those are the performance specifications.

With respect to purchasing, you are absolutely correct. We have purchased a large amount of this equipment with the overseas contingency operation funding, and the supplementals prior to that.

As General Fuller has said, we now have in our possession the required quantities. However, the soft body armor wears out roughly every 3 years. It has not met the investment threshold to be funded through a procurement line. We have funded that through an operations and maintenance line.

And as I mentioned, we have iterated. We started the conflict with the outer tactical vest. Based on feedback from the user in theater, we went to the modular tactical vest, which addressed a number of the deficiencies. And now, we have designed in the U.S. government improved modular tactical vest. And we have given that specification to industry to build to print.

So, we own the technical data package for that, and industry is making it to our specifications.

Aligned with that is the plate carrier, the smaller vest that does not have the extra soft armor. That reduces the weight being carried by the Marine in theater. We also own that design. It is interoperable, so the accoutrements that go with the improved module tactical vest can be moved back and forth between the plate carrier and the IMTV.

I mentioned, to an earlier question, how we communicate generally with industry, and that our 6–1s, 6–2, research and develop-

ment lines are handled by the Office of Naval Research and by the Naval Research Laboratory.

Ms. TSONGAS. Thank you for your testimony.

Mr. TAYLOR. The Chair recognizes the gentleman from Colorado, Mr. Coffman, for 5 minutes.

Mr. COFFMAN. Thank you, Mr. Chairman.

The preponderance of our casualties are in Afghanistan now. And I believe that the preponderance of those are due to IED roadside bombs.

Recently in Afghanistan, it is my understanding that the government there outlawed ammonium nitrate, and that ammonium nitrate is a primary ingredient in Afghanistan for the making of IEDs, unlike, I think, in Iraq, where it was old munitions, mortar artillery rounds were a primary source for the IEDs there.

What impact—and I understand that north of 90 percent of the ammonium nitrate in Afghanistan was used for the making, actually, of IEDs—what impact does this outlawing, or this ban on ammonium nitrate in Afghanistan, if I am correct in that, have in a reduction of IED capability?

General OATES. Sir, thanks. That is a great question.

As a point of clarification, ammonium nitrate actually has some beneficial uses in Afghanistan and every other country for road preparation and mining, to some degree. But President Karzai did—at some insistence on our part—ban ammonium nitrate.

I believe, and I think the command currently assesses, that will have an impact, a favorable impact, on the availability of this fertilizer to be used as an explosive device.

We also have a challenge with potassium chlorate, which is used to make matches. It comes out of facilities in Pakistan, as well, for perfectly legitimate reasons, but can be converted to explosive capability.

So, the short answer to your question is, the enemy has shown us in Iraq, and is showing us in Afghanistan, that they are adaptive. Were we to go take away all the ammonium nitrate, they would shift somewhere else.

And so, while it is a good step, and it will have good benefits for protecting our soldiers, airmen, Marines, it is not going to close out their options, sir.

Mr. COFFMAN. Have we seen any effect that can be traced back to this decision at this time, in terms of any kind of slow-down or reduction in IED-making capability?

General OATES. Sir, it is a little early. I do not want to misspeak, but I think this ban has been in place for a little bit over a month maybe.

Mr. COFFMAN. Okay.

General OATES. And so, I think it is a little premature. However, there are indications from our intelligence sources that it will have an impact. How much so, we will have to gauge.

Mr. COFFMAN. Okay. Very well. Thank you.

In terms of individual force protection equipment, where are we at in terms of the next generation of helmet?

General BROGAN. The enhanced combat helmet that you mentioned, sir, started as a joint effort between the United States Army and the United States Marine Corps. They did the first

round of research and development, testing. There was certainly potential in a new, composite material that we looked at.

We took on, then, the next step of actually putting out the request for proposals to industry and awarding a number of development contracts for test items.

When we got those test items in and tested them, they did not perform as we had hoped and anticipated. We provided the results of those tests back to our industry partners, so that they could make the modifications to their designs. And we would expect to begin to start receiving the next set of test items early this summer, sir.

Mr. COFFMAN. Very well.

Let us see. Could someone go over with me? I know that in the ISR area that we have been flooded with data. And I think that the primary problem seems to be it is too much information coming in, and an inability to sort it in real time in order to have an effect on the battlefield.

Can you tell me what improvements there are in terms of managing the information coming in from various ISR platforms?

Ms. D'AGOSTINO. I can speak to two initiatives that were discussed with us during the course of our work for the Air and Land Subcommittee. One is the National Security Agency, is finding innovative ways to find more linguists to help in translating and dealing with the signals intelligence data that is being collected.

And again, you know, these are initiatives that we are unable to measure how, you know, how much impact they have.

In addition, the Air Force has announced plans to add 2,500 analysts to their corps, to be able to process more, and exploit and disseminate more of the data coming off the ISR systems.

So, these are two that we mention in our report and that were raised to us. So, people are trying to deal with it, as, you know, breaking the back of the back end of the cycle with all of this flooding of data.

But again, you know, it is too early to tell how effective these efforts are going to be.

Mr. COFFMAN. Thank you, Mr. Chairman. I yield back.

Mr. SMITH [presiding]. Thank you.

Mr. Kissell.

Mr. KISSELL. Thank you, gentlemen, and thank you for being here today. And I would like to note that, while the apparent position to me being near the end of the line and asking questions, I do want to allocate—you know, note that I have a whole row allocated to me here. [Laughter.]

So, do not let that kind of show you where I am in importance.

Mr. SMITH. The room is a little big. [Laughter.]

But we are very happy back in Rayburn when we get back there.

Mr. KISSELL. Yes, you kind of lose track of who is behind you when you are down here.

Mr. SMITH. I did not even see you down there for a couple of minutes. [Laughter.]

Mr. KISSELL. Thank you, Mr. Chairman.

I do have a question. And it is kind of hard to—and General Fuller, I think maybe this question would go to you. This is a ques-

tion I normally might run through channels. And I am not advocating a particular vendor here.

But we had a—being that so much of our conversation has been about body armor and about can we move ahead to a new technology, a new generation—I had a gentleman come to my office a while back that was on the cutting edge of science at one end of an idea, and using some of the oldest technology known to mankind at the other.

If what he said was true, it would seemingly be a huge step forward in the possibility of reducing weight and increasing the strength of protection to our people. And he has been working with, you know, Department of Defense, and just seemingly getting more and more frustrated as he went.

I am going to ask my military E.A. [Executive Assistant], Captain Tim Meadows over here, to get with whoever you would like for him to get with. I would like to have a report back from you all. Is this a possibility? Is what he is talking about realistic? Is it a step forward, a giant step forward as he is talking about?

I am not pushing this vendor. I am just wanting some feedback as to—because if it is, then let us pursue it. If it is not, then I can just say, I am sorry, this is not what we are looking for. But there are some things here that got me somewhat curious about what he is offering.

And General Oates, in the scheme of—and Mr. Bartlett said it today, that, you know, the proportion amount of money we spend in fighting IEDs and protecting our soldiers versus the cost of IEDs. And then also, we have got to keep doing that. We have got to protect our soldiers.

But are we catching up, or are they getting further ahead?

General OATES. Sir, it is a great question. I actually think Iraq might be informative here.

If we go back and look at what has transpired in Iraq and the funding that has come forward to protect our soldiers, but also allow us to understand the networks that were engaging us, begin to attack them directly, understand the devices and defeat a great number of them, the trend lines are fairly clear. And we can get back to you on the record on the specifics over the years.

But in aggregate, it took the enemy more IEDs to attack us to achieve the same results. And those are all positive trend lines, to now, where Iraq does not begin to resemble this year, as it did the first time I was there in 2003, and several more times after that.

I do believe that, if we look at the investment provided to the services and to JIEDDO, that would directly translate to protecting our soldiers and helping us attack the networks over there, the results are clear. The difficulty is tying individual dollars to, you know, what will 10 more dollars get you in terms of effects against the IED. That one is very tough.

And we are going to try and do better, to the chairman's question, and try and play back what we believe the reasonable measures of effectiveness are. But I think Iraq is informative of great success we have had in this area.

Mr. KISSELL. And I do not want to indicate at all that this is a monetary issue. We have got to protect our soldiers. I am just wondering, you know, are all the technological things we are doing, all

the efforts we are making, are they getting further ahead, or are we catching up in terms of protecting our soldiers?

And I do want to also follow up with what Congressman Hunter said about sharing the technologies, and making sure that if we have something sitting somewhere because somebody has chosen not to use it at that point in time, that we are not just ignoring the fact that somebody else might have need for it, because there have been a couple of situations brought to our attention that we followed up on that that happened. And we want to make sure all our assets are being used.

And I yield back.

Thank you, Mr. Chairman.

Mr. TAYLOR [presiding]. The Chair thanks the gentleman.

The Chair now recognizes the gentleman from Virginia, Mr. Wittman, for 5 minutes.

Mr. WITTMAN. Thank you, Mr. Chairman.

And thank you, panel members, so much for joining us today. I appreciate you taking times out of your busy schedule. And thank you for your service to our nation.

General Spoehr, I wanted to ask, at last year's joint forces protection hearing, I asked General Lennox about what the Army was doing to upgrade our small arms capability, specifically in the M–9 pistol and M–4 carbine. In regards to the M–9, at that point I cited the findings of a 2006 Center for Naval Analysis study of our soldiers and Marines in Afghanistan—and also Iraq—who had engaged the enemy with their weapons in combat.

And in that study, 48 percent of the respondents were dissatisfied with the M–9 pistol, with 26 percent requesting a larger caliber weapon, and 20 percent saying the M–9 should be replaced.

I note that the fiscal year 2011 DOD budget includes new start authority for a handgun to replace the M–9, and that the requirement may already be JROC approved.

I was wondering if you could tell us what progress the Army has made towards replacing the M–9 with a more powerful, modern and feature-rich sidearm. And when can the committee expect an RFP [request for proposal] for the new handgun? And what is the Army's timeline for fielding the new weapon?

General SPOEHR. Thank you, sir. As you say, there has been a new Joint Requirements Oversight Council requirement for a pistol approved. It was actually submitted by the Air Force, who felt the need for a new pistol. So, that requirement was approved.

We are still examining the requirements in the Army for a new pistol. We are aware of the study you mentioned and the soldiers' feedback on the pistol.

In light of their feedback, we have done a couple of key improvements for the pistol. We have given them improved magazine. And General Fuller's people are going to put new hand grips, modular hand grips, to kind of accommodate the variety of people's hand sizes for the pistol, because we think that is a fair amount of the dissatisfaction with that weapon.

We are going to look at the Air Force's requirements document. They have done a lot of work to get it to this point. If we think, and if we believe that that requirement meets the Army's require-

ment, I think you will—you know, we could proceed with a program. But no decision has been made yet, sir.

Mr. WITTMAN. I know there has been some talk about the caliber of the handgun and its stopping power, and people being a little concerned about the small caliber that they currently have. So, I am assuming that is going to be one of the array of issues that you will address in looking at a replacement for the M–9?

General SPOEHR. Yes, sir. And as you are aware, stopping power is caliber. But there is also a component of ammunition. And you have probably heard in recent press reports about something called "green ammunition," which we are going to be fielding soon for the M–4 carbine—much more stopping power, much more, we believe, lethality.

We think that same technology has applicability over to the M–9 pistol. So, as we get done probably with fielding green ammo for the carbine, we are going to be looking at importing some of that same technology over to the pistol, where it may make up for any lethality gaps that they currently have.

Mr. WITTMAN. Do you believe some of the concerns with the M–4 as far as its range or capability will be taken up with this green ammunition? In other words, are the main objections to the weapon basically its stopping power? Or are there other aspects of the M–4 that are creating challenges for our men and women in——

General SPOEHR. Sir, most of the concerns we hear about the M–4 have to do with its reliability and how many rounds between stoppages—mean rounds between stoppages.

The carbine as it is now is demonstrating performance well beyond its specifications. It was only required to do 600 rounds between stoppages, and it is demonstrating around 3,600.

We are looking at improving the carbine, giving it a heavier barrel, some other improvements. There have been over 60 improvements made to the M–4 carbine. But we do not get a lot of complaints, frankly, about the M–4 carbine. It has met with fairly widespread success.

I would defer to General Fuller, if you have anything you want to add.

General FULLER. Thank you, sir.

In light of your question, what would we think about when we talk about our M–4 and other weapons is, it is a combination. It is the weapon. It is the ammunition. It is the optics. It is the training. And then, equally important, it is how it interfaces with the soldier.

And as General Brogan and I work through not hanging things onto soldiers, we need to ensure that what we do for body armor, for example, does not adversely impact a soldier's ability to get a good sight picture on their weapon.

In light of what General Spoehr was talking about, we are looking at improvements to our M–4. But we believe we have made, actually, a very recent one that is going to have significant impact in the field.

Where we are doing all the additional testing, we saw that the magazine did not reliably feed the ammunition straight up into the upper receiver. And we have now fielded a new magazine. We have

pushed that into the theater. It is now part of our rapid fielding initiative, and we are rapidly getting that capability out there.

But we also are getting ready to release a RFP, a request for a proposal, that will give us the ability to give the soldiers that heavier barrel, so they can have an increased, sustained rate of fire. The Army is asking us to look at giving them back the fully automatic mode in that M–4. We are also looking at changing some of the bolt in the upper receiver components. And we are looking at all these different options.

At the same time we are working on the M–4, we are looking at a new carbine. Is there something better out there than what we currently have? But we believe the M–4 is a very good—provides a very good capability to our soldiers. But it is a combination.

And I think the green ammunition is going to give back a lot of that lethality that the soldiers were asking about, where did it go. Well, it went because we gave you a much shorter barrel, a round that was designed on a longer barrel, and a lot of other technical components, sir.

Mr. WITTMAN. Thank you, Mr. Chairman.

Mr. TAYLOR. Thank you, Mr. Chairman.

Again, I want to thank all the panel, particularly Lieutenant General Oates. I think you, with your combat experience in Iraq, you bring—you all bring a lot to this conversation, but in particular, your experience.

General Oates, our nation's ability to deliver vehicles that have mine resistance has been a challenge. The Humvee was a great vehicle until the enemy discovered it had a vulnerability to explosions from beneath it, which resulted in the fielding of the mine resistant vehicle.

The Stryker is a great vehicle. But unfortunately, now that the bar has been raised with the introduction of the mine resistant vehicle, the Stryker appears to be more vulnerable to that problem.

What steps are you taking to address that? What does this committee need to do to help you?

And above all, what are the lessons that we have learned in the development of the MRAP? Again, I always will commend General Brogan on a great job that he did, but it is just a sad fact that from the time we made up our minds that we were going to buy 18,000 MRAPs till they were fielded, people needlessly died in Iraq and Afghanistan.

So, what steps are we taking for a more survivable Stryker? What did we learn from the MRAP program, so that we can field it quicker than we did, and even though General Brogan did a phenomenal job of fielding the MRAP?

General OATES. Sir, I thank you very much.

As you know, this is an extremely complex set of interdependent variables on a vehicle. Afghanistan, what we have learned is, due to the absence of improved roads, that there is another significant ingredient to survivability of vehicles, and that is the enemy's placement of the IED and, in some cases, the inability to go off-road.

But the Stryker is a very, very survivable vehicle, in my opinion. I have been in it and been in combat with it.

In Afghanistan it has a unique capability, because it can go off-road, and it is very quiet. And so, it can seek to avoid obvious emplacements of IEDs [Improvised Explosive Devices].

So, just taking that independent variable, you could conclude the Stryker is more survivable, given that the MRAP is largely confined to the road, whereas the enemy has a very clear attack axis.

We have studied the process of the MRAP in JIEDDO [Joint Improvised Explosive Device Defeat Organization] and looked at the evolution and understanding of the V-shape and U-shape hulls. And we are working with the MRAP Task Force underneath the senior integration group to see what new technologies there may be out there that we have not yet explored, and how we might offer some assistance to the MRAP Task Force and what we discover in our own technological reviews.

But to date, my major concern is trying to help the forces that are in Afghanistan detect these under-body explosions where they are located, and seek to defeat them before we drive over them. That is my primary focus right now.

The MRAP Task Force is currently looking at the new set of vehicles, and we are a support role there, sir. And we offer advice along those roads, but we do not produce the vehicle platform itself.

So, I may have to defer on this issue to my good friend down there who does the MRAP business, or understands it better than I do.

Mr. TAYLOR. Would anyone like to address what steps are being taken on the Stryker? It is my understanding that one of the manufacturers has come up with a double-V-type bottom.

The immediate question that I would have is, I believe it was General Blum that explained to me that the drivetrain on the Humvee had the unintended consequence of shaping the charge, where the force of the blast tended to go in the cab because of that.

I guess my first question would be, with that double-V, do you get that same problem with the unintended consequence of shaping the charge? I guess that would be the apex of where the two Vs come together.

General SPOEHR. Yes, sir. As you mentioned, industry has come to the Army with a proposal for the Stryker for what we call the double-V hull. It is really a W. And we were concerned about the same thing you were, that the apex, wouldn't that channel all the energy and perhaps even make things worse.

Industry believes not. They have some actual blast tests. They have done modeling, as well. They say, because that apex is significantly higher than the floor of the Stryker used to be, that the exponential difference in height from the IED makes a huge difference in survivability.

Nevertheless, we are—so, we are going to ask, and we have asked OSD [Office of the Secretary of Defense] for permission, to build prototypes of this vehicle. And as quickly as get those prototypes, we intend to take them up to Aberdeen and blow them up, and see for real how this works.

Mr. TAYLOR. Well, I guess my next question would be, going back to our responsibilities, do you have the financial resources—do you have all the financial resources that you need to expedite this program?

General SPOEHR. Sir, right now in fiscal year 2010, we believe right now we can initiate this effort with no support needed from Congress. If that changes, if we develop some need, we will immediately come back to this committee.

Mr. TAYLOR. General Oates, going back to your observation, and since you actually mentioned potassium chloride and ammonium nitrate as being part of the problem, I am curious how—well, I will make an observation.

The Center for Remote Sensing from satellites happens to be in south Mississippi. One of the things they pointed out to me was that from space, looking at extremely slight differences in temperatures of trees, they can tell me or you which trees in the forest have pine beetles, which trees in the forest are stressed for lack of water.

They can tell you the 10 most likely places to catch bluefin tuna, updated every 90 minutes—a number of things that are just absolutely remarkable they can tell us from information coming from space.

I would imagine that both ammonium nitrate and potassium chloride have to give off vapors. I would imagine they have to give off heat.

To what extent have you just put out the word to industry, I need someone to help me find a better way to locate these substances when they are in concentrations of 10 pounds or more?

General OATES. Mr. Chairman, it is a great question. And I would like to take that one offline with you, only because we actually have some pretty good technology right now that we believe is going to assist us in detecting these items.

But we are actively looking for additional assistance in both change detection on the road and the detection of the actual items. And I would be happy to share with you for the record on an emerging technology that we intend to put in theater here very soon.

It actually returns to the point that Congressman Hunter made. If we can achieve some persistent surveillance on these roads, it will increase our confidence in understanding where the enemy is operating and what he is doing with those roads.

To that end, this is one of the top priorities for Central Command, is the emplacement of additional tethered capability to survey these roads, much as we used in Iraq. And that is the first tranche of items that we have funded and we will be moving forward to Afghanistan.

The technology you are describing, we would be very interested in, sir. And we have openly and directly with vendors indicated that we would like to close that gap.

Mr. TAYLOR. Let me ask you the same question. Do you have—has this committee and our appropriator counterparts, have they provided for you all the resources, financial resources you need to pursue this?

General OATES. Yes, sir. At present, we do not have any issues. And like my friend here, and based on what you have told me personally, we would return to you immediately, because we understand the sense of urgency. If we need additional resources, I would not hesitate to come ask for them.

Mr. TAYLOR. Lastly—and I will open this up to the panel—on almost every visit to theater, when you ask the troops what is it that you want, what can we get you, almost in every instance it comes back. They kind of shuffle their feet and say, gee, if you could just make my body armor lighter.

What sort of resources do you have to pursue that? And again, is that—was that adequately addressed in the President's budget request? Do you have the resources you need? If a manufacturer were to come to you today with a 10 percent or 20 percent reduction in that weight, would you have the funds available to see if that product is worth purchasing?

General FULLER. Sir, in light of that question, yes, we are. As General Brogan said, we really are at the knee of the curve. We are looking for a new technology to be able to get us that lighter weight, and in particular to our hard plates.

If it was found, we would buy it. I do not know how much we would buy, but we would be buying it. But we do not have it out there right now.

Mr. TAYLOR. Okay.

Again, General Fuller, if it was found, do you have the resources available now? Would you need an additional line item in the authorization and appropriations bills? I guess that is what I would like to know.

Do you have the authority to pursue that, if you saw a product that you liked and thought was worthwhile for the troops?

And General Brogan, if you would like to address that?

General BROGAN. We absolutely have the resources we would need to go test it, to see if it was, in fact, better. We entertain frequently industry members who think they have an idea of what could be a better body armor. Unfortunately, many of those are PowerPoint. And that is about how deep they are.

Very few people bring us actual product that we can go shoot and test. But if someone has that, we have the ability immediately to go to Aberdeen Test Center and shoot those, and determine if it is good enough.

And then, using our below-threshold reprogramming authority, and because on them there is a fungible appropriation, we can very easily move that and begin to buy it. And then, if we needed significant quantities, we would put that in the OCO request either at the beginning of the fiscal year, or, like we have often received, the June additional money, sir.

Mr. TAYLOR. General, can I follow up on that? I happen to come from, as most of the members of this committee, a very pro-defense community—heck of a lot of National Guardsmen, a heck of a lot of people who are serving and have served, and therefore, a heck of a lot of moms and dads who follow this issue very closely.

So, if someone were to come to you with a better body armor, are you telling me that you have the financial resources to not only test it, but to begin acquisition immediately?

General BROGAN. We certainly have to test, and we would have the money to begin production. Probably not to outfit the entire force, and we would come to you for that. But we do have the ability to begin production.

I have right now on my desk a letter from the father of a Marine, who is convinced that NASA [National Aeronautics and Space Administration] has an armor that we should be using, just because he knows that in space they armor their satellites.

I can tell you, I have personally visited the Jet Propulsion Laboratory in California, and looked at what they have. And it is not designed to stop bullets. It is designed to stop small pieces of junk that are flying at high velocity in space.

And I truly do reach out and try to find a solution, sir.

Mr. TAYLOR. Okay. Thank you very much.

Mr. Smith.

Mr. SMITH. I think I do not have anything much further, just to follow up a little bit on the Stryker discussion. We have several Stryker brigades out of Fort Lewis in my district. And it has received rave reviews from the soldiers coming back who have used it, not just in Iraq, but in Afghanistan. And I think that is an important point to make that you made, General, that its maneuverability really improves its survivability.

And also, the soldiers love it, because it gives them a little bit of control of their own destiny. They are not counting on a piece of metal below them to save them. They are counting on their own ability to foresee danger and react to it. And they very much appreciate that.

I guess the one question I have as we go through on the double-V—in the state of Washington I always say W-hull, but whatever. You know, as we test it and go forward, number one, what we do want to make sure—we want to move as quickly as possible, but we want to make sure it works.

And I know you know that, but it is going to be particularly difficult in this instance, because if it does work, we are going to want to do it quickly. So we have to be really careful about that.

I have gotten a different answer from a couple of different people to this question. If it works and we decide we want to do this, however, is the situation that it is not possible to retrofit the existing, I think roughly, 2,400 Strykers? That the way this is designed, it will have to be built on new Strykers? Is that your understanding? If we decide this works, we could not go back and put it on the existing fleet?

General SPOEHR. Sir, you are correct. It cannot be retrofitted currently. Now, we have asked the question, you know, could we hypothetically saw a Stryker and put the top back on it? That has not been the case so far.

And so, fortunately, there is currently an active production line from Stryker. So, if this improvement were to play out, we would ask the manufacturer to cut this improvement in, and so it would become a part of new Strykers coming off the line.

Mr. SMITH. And they are very confident that they can do that as they go forward. I understand that.

And then also, you know, just following up the original point, if we do this it is important to emphasize that the existing Stryker fleet is still very, very useful. And we certainly do not want to create the impression, because we have a new variant, that the old variant is not still very effective for the warfighter.

We have got 2,400 of them. We want to use them. And from all reports, they are performing quite well.

Thank you. I do not have anything further. I yield back.

Mr. TAYLOR. The Chair thanks the gentleman.

The Chair recognizes Mr. Hunter for 5 minutes.

Mr. HUNTER. Thank you, Mr. Chairman.

And my little brother is a specialist. He is a Stryker guy who is over there in Iraq now, so he is Chairman Smith's constituent, he and his family every now and then in Fort Lewis. In fact, he is home right now to have his third boy—his third baby, first boy. He has got a little three-week leave, and then he goes back for six months over to Iraq. So, I want to make sure that those Strykers are good to go.

One thing that I want to bring up that I think is important, and I think it is important that JIEDDO remains a consistent entity, probably forever, because one thing we have not talked about is future wars. The enemy knows how to get to us now. It is IEDs.

So, if you look at the level of IED in Afghanistan, think of what Iran could do with their level of sophistication. Think of what China could do, or a country that is not a backwoods spot like Afghanistan. The enemy knows how to do it now. It is going to be a threat to us forever, because we have not been able to actually defeat IEDs.

So, I think this is something that we are going to have to keep in mind forever. When it comes to warfare, why go line-to-line with us when you can just IED the hell out of us forever, whenever we are in someone else's territory?

So, I think this is something that, even when Afghanistan dies down, it is going to be up to us here, and to you all to ask for it, for us to maintain this persistence when it comes to IEDs, because we are going to see it forever. And we are going to see it in 20 years or 30 years. They are going to say, hey, look at Afghanistan and Iraq; we know how to do this.

But my last question for General Oates, you wrote here in your testimony, "In the last several months Task Force ODIN has been supplemented with U.S. Air Force Liberty aircraft to good effect. We are not where we need to be yet on this capability but are rapidly moving to close this gap."

Do you have metrics? I mean, how do you know ODIN's working? Have IEDs gone down where it has been flying? Have we been killing guys, or what?

General OATES. Yes, sir. Colonel Don Galli, who commands 3rd Cav, and I go back about 20 years. And I was in Iraq when ODIN [Observe, Detect, Identify and Neutralize (U.S. military task force)] was started. I am a big fan of it.

We did not have Liberty in Iraq. Now there is Liberty in Afghanistan. And they are roughly half-way through their intended fielding—I am sorry, about a third of the way through their intended fielding—of Liberty.

I have actual metrics I can share with you, that I will take for the record, on the effects we have had with ODIN.

[The information referred to is classified and retained in the committee files.]

General OATES. A problem to date is, ODIN has been carrying the load for the whole country. Now, with about 7 Liberty aircraft and about 14 more to come, maybe 15 more, I think they will be able to expand that coverage.

There is a direct, compelling corollary between integrating air assets like ODIN or Liberty with a maneuver force toward success on defeating the IED threat.

Mr. HUNTER. Let me interrupt you there. Is Liberty integrating like ODIN does? Or is it being used as the Air Force uses Predators, using Pred lines based on priorities? Or is it being used—that sensor-to-shooter ODIN relationship that made ODIN so effective—is it being used that way?

General OATES. No, sir. ODIN resides inside the combat aviation brigade. And it is a very tight link with the maneuver force.

Liberty, though, is following the priorities of the ground commander. And so, although it does not work directly inside a U.S. Army combat aviation brigade, it does respond to the ground commander's priorities.

The way the Air Force and the Army and the Marine Corps utilize their aviation assets, you know, is somewhat different. We really look at effects.

I personally believe that the additional assets of Liberty will generate those effects we are looking for. But the command and control structure is different. There is no doubt about that, sir.

Mr. HUNTER. Would you recommend that the Army have tactical control of Liberty, as it is intermixed with ODIN?

General OATES. Sir, I do not dodge many questions, and I am not dodging this one, but I do believe that is the inherent authority of the commander in Afghanistan to determine how he wants to command and control those assets. I will defer to his judgment.

Mr. HUNTER. Okay. How about this? As a division commander in Iraq, would you have rather had control of the air assets that are watching your roads and your rail? Or would you rather have a different service provide that for you?

General OATES. Sir, as a division commander in Iraq, I had control of the air assets that operated in my area. But I also received assets based on priorities. So, as a ground maneuver guy, I have always been more comfortable by culture having an air-ground team under my direct control.

But when I was the priority effort in Iraq, I received additional assets. And I think sometimes that that is not quite understood. I receive actually more assets if I am the priority. And there again, that goes to the ground commander.

So, I have full faith and confidence the guys over there know what they are doing. And if they need to make a change—and incidentally, they have made a change to the command and control relationships of the engineer route clearance teams, based on an observation that they should be in direct support, not in general support. And we can show you a direct corollary to improve in that regard. But the commanders in country made that call.

Mr. HUNTER. I would love to see those metrics, too.

Thank you, gentlemen.

Thank you, Mr. Chairman.

Mr. TAYLOR. The gentlewoman from Massachusetts, Ms. Tsongas.

Ms. TSONGAS. Thank you.

General Brogan and General Fuller, as you can see, the issue of body armor is a consistent theme here. And I have one more question before we head out to vote.

Those of you who have testified to the fact that you feel, as far as procurement goes, you have the right amount of body armor to support the force. You also said, when asked about lighter-weight body armor, that the technology just is not there to reduce the weight of the small arms protective insert.

And so, we find ourselves in a dilemma. Industry is now saying that, because the services have almost stopped buying body armor, they no longer have the internally generated funds to continue development of lighter-weight products. And the number of firms who supply body armor and its ceramic tile components is being reduced, due to the lack of procurement.

So, how do we balance this? You are not really buying body armor, which leads to the industrial base shrinking. There is no investment from DOD in research and development. And now, the industrial base is not putting its own money into research and development, because it does not have any.

You are saying the technology just is not there to reduce the weight of body armor, but it does not seem like anyone is actively investing in technology.

So, where do we go from here, given those realities?

General FULLER. Yes, ma'am. You do share the challenge that we have inside the Department of Defense right now.

Because we had such large procurements, we did have the industry invest their own IR&D [industry research and development], recognizing that they had an opportunity to have a large procurement to balance that investment that they have made.

What we are trying to do right now is bundle all of our sustainment contracts together under the Defense Logistics Agency between the Marines, the Army, Air Force and other services, to ensure while we are working through this action of, do we have a research and development line dedicated to soldier protection items, that we at least maintain that industrial base.

So, if we wanted to go and contract with them for a research and development future activities, they will still be in the business of wanting to do this.

At the same time, we are still working those S&T [science and technology] endeavors. When we had the question about the enhanced combat helmet, for example, that technology actually started in the MRAP and other heavy armor combat vehicles. It was part of the add-on armor that we were using that new technology. We are now taking it and trying to conform it into a new helmet design, and that is where we are having some challenges. It works great in flat sheets; it does not work as well when we conform it.

So, those S&T efforts, I think, will continue to move forward. We still are investing in that arena, and we might see some future efforts coming out of that.

But I recognize, we do need to look at a dedicated research and development line. We are going to work with the other services and

the Department of Defense to articulate what exactly is in that line, and how much is in that line. And while we are doing it, we are going to try to maintain that industrial base through bundling all our contracts to keep them viable.

Ms. TSONGAS. General Brogan.

General BROGAN. Congresswoman, what I would add is that, at least one of the vendors that you mentioned is one of the five largest defense contractors in the United States. It is kind of difficult for me to believe that they do not have any IR&D. They may not place it here, because they do not see the largest return on investment as compared to some of their other efforts.

As General Fuller said, we do have to have S&T dollars to look for the breakthrough. It's not, I think, valuable for us to continue to buy ceramic plates in large excess of what we need, just to keep the industrial base doing plates. Because, if we find that breakthrough in technology, we are going to want to buy that next best thing, and we will have created an obsolete item that we spent the taxpayers' money on. So, it is a challenge how to adequately balance it.

I think we need significant communication between us and industry, as opposed to lobbyists and you all. Them talking with us would be valuable. And we have provided them in our public communication for the desires of what it is we need, so that we can help them target those IR&D funds.

The other not often used research and development tool is something called a CRADA—a cooperative research and development activity—where the U.S. government and industry cooperatively develop a piece of the equipment. And I think we probably need to explore that in this area.

Ms. TSONGAS. Thank you both for your testimony.

Mr. TAYLOR. The gentleman from Colorado, Mr. Coffman. And I would remind the gentleman that there are about 6 minutes left on this vote.

Mr. COFFMAN. Thank you, Mr. Chairman.

I have just one quick question. And that is, sometimes there is an IED, a blast, where it is not a catastrophic kill for the vehicle. But because of the over-pressure, it causes casualties, if I understand it right. Have we been able to make any gains in terms of force protection relative to the over-pressure from a blast?

General BROGAN. That most likely happens in an up-armored High Mobility Multipurpose Wheeled Vehicle [UAH], where the survivability capsule is, in fact, perforated. And unfortunately, as we know, the UAH is often a catastrophic kill. What we find most often in MRAP is that we keep the blast over-pressure outside of the survivability capsule.

Now, injuries are the result of acceleration, not blast over-pressure. So, first, the vehicle is accelerated up into the air by the force of the blast. That happens very rapidly and causes compression injuries of the spinal column and of the lower back.

And then, second, that vehicle impacts the ground, which is a slower event relatively speaking, similar to an automotive crash. And we have energy-absorbing seats to try to deal with that.

The unfortunate thing, and I think what you are getting at, Mr. Coffman, is traumatic brain injuries. Those are not normally

caused by blast over-pressure. It is that acceleration event that causes the head to rapidly twist, and so, either shearing the curves inside the brain, or the brain moves slower than the skull. The skull stops. The brain then impacts the skull causing bruising, swelling, or, if it happens to the central cortex, loss of consciousness.

No helmet is able to protect against that. And because our occupants of the vehicles need to be able to scan, use the windows, we cannot tether their head like they would in a NASCAR. So, what we are looking for are ways to improve the seating and restraint system to help decouple the acceleration experienced by the vehicle from that which is delivered to the occupants.

General FULLER. Sir, also in light of that, the Army is fielding a helmet sensor. We had a generation alone that we fielded. And what we are trying to do is measure what is happening to that individual when they do have any type of traumatic event, so we can capture that data, provide it back to the medical community.

So, as General Brogan was talking specifically about the medical conditions that are happening while you are going through this traumatic event, we want to be able to provide that data back to the Army medical community, so they can assist in understanding what is actually happening. And we are measuring it through a new helmet sensor that we will have that will measure what is happening, and then are full axis to the soldier's head via their helmet when the event is going on.

And we are getting ready to field that capability. We had an initial capability out there. Now we are getting ready to field an upgraded one—longer battery life. You do not have to go up there and touch every helmet to get the data off it. We can do it remotely.

And it also can measure more axis of movement, really what your head is really doing inside that helmet—six degrees of freedom, sir.

Mr. COFFMAN. I would appreciate it, if you have a written description of what you just mentioned, I would appreciate if you could get that to myself and maybe other members of the committee.

Thank you, Mr. Chairman. I yield back.

[The information referred to was not available at the time of printing.]

Mr. TAYLOR. Mr. Bartlett, there are about 4 minutes left, but I am going to verbally honor Ms. Sandra Day O'Connor. I do not think I have to——

Mr. BARTLETT. I have a very quick comment. I think it is unlikely that we are going to be purchasing body armor from some big industry that has the capacity, the capital to invest in R&D [research and development], which is why we need the dedicated R&D line, because I think the creativity and innovation is going to be in small business. And they just do not have the capital to do that. We need to help.

Mr. TAYLOR. Gentlemen, I thank each and every one of you for what you do, for your service in theater, for your service back here stateside.

I think it has been one of the better hearings that we have had. I thank you very, very much for being straightforward with us.

General Brogan, thanks as always for the phenomenal job of—your life-saving-job—on the MRAP program.

And with that, if there are no further questions, this subcommittee hearing is adjourned.

[Whereupon, at 4:13 p.m., the subcommittees were adjourned.]

A P P E N D I X

March 17, 2010

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 17, 2010

Statement of the Honorable Adam Smith
Chairman, Subcommittee on Air and Land Forces
Army and Marine Force Protection Programs

March 17, 2010

- Thank you Chairman Taylor. I would like to associate myself with your comments and I look forward to the witnesses addressing your concerns and listening to their testimony.

- Welcome to you all. If there is no objection I would ask that my full statement be included in the record.

- Today we will continue our open dialogue regarding warfighter force protection in Iraq and Afghanistan.

- With over 190,000 servicemen and women operating in Iraq and Afghanistan it is our mission to ensure they are provided with the most effective equipment available in a timely manner and not repeat previous mistakes in failing to field urgent needed equipment.

- Insurgents' tactics have continued to evolve. Each generation of increased armor protection has been met with the use of larger Improvised Explosive Devices (IEDs).

- The challenge we face is to stay ahead of this evolution through active and passive force protection measures.

- The operational environment in Afghanistan differs from that of Iraq in significant ways, including a less developed infrastructure and higher and more rugged terrain.

- This obviously places greater demands on personnel and equipment, requiring modifications to tactics, techniques, and procedures to address these specific threats and topography.

- We expect to hear from our witnesses today on what they see as the unique equipment requirements of Afghanistan and how they have been addressing these equipment requirements.

- In the areas of personnel protection equipment, to include body armor, I hope to hear about how the Army and Marine Corps are coordinating efforts on weight reduction initiatives and understand how Congress can assist in the rapid development, procurement, and fielding of lighter-weight solutions.

- In last year's National Defense Authorization Act, Congress required the establishment of separate program elements and procurement line items for body armor to help foster advancements in lighter-weight body armor solutions and to provide more visibility into long term requirements and acquisition strategies.

- This year's budget request failed to include this requirement. I hope to gain a better understanding from the witnesses as to whether or not they support this requirement.

- Throughout 2009 we observed the total number of IEDs decrease dramatically in Iraq and begin to significantly increase in Afghanistan.

- I remain concerned by this disturbing trend for Afghanistan and expect to learn today from our witnesses how the military services and Joint Improvised Explosive Device Defeat Organization (JIEDDO) are communicating and coordinating efforts to reverse this trend for 2010.

- JIEDDO was established to "lead, coordinate, and advocate" all Department of Defense efforts to defeat IEDs as weapons of strategic influence.

- According to a congressionally mandated Defense Science Board report from July 2009 there are at least 20 ad-hoc elements or efforts within DOD attempting to perform similar missions. The Secretary of Defense has also announced the formation of another IED related task force, the Counter-IED Senior Integration Group (C-SIG).

- Given all these other task forces and ad-hoc efforts I hope to gain a better understanding today from General Oates as to how JIEDDO is performing its mission to lead, coordinate, and advocate all DOD efforts to defeat IEDs.

- To date, Congress has provided over $19.0 billion to JIEDDO to effectively counter the IED threat in Iraq and Afghanistan. This year JIEDDO is requesting $3.4 billion, a 21 percent increase over last year's request.

- I expect to gain a better understanding of the steps JIEDDO is taking to bring greater visibility and accountability for the funds it is responsible for and the metrics they are using to evaluate proposed projects.

- General Oates I am aware you have just recently been appointed director of JIEDDO and that you are in the process of conducting a comprehensive review of JIEDDO's current policy and mission directives and expect to challenge some of the previous institutional assumptions about JIEDDO. I hope to hear about some of your ideas and recommendations today.

- Thank you Mr. Chairman.

STATEMENT BY

LIEUTENANT GENERAL MICHAEL L. OATES
DIRECTOR, JOINT IMPROVISED EXPLOSIVE DEVICE
DEFEAT ORGANIZATION

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEES ON AIR AND LAND FORCES AND
SEAPOWER AND EXPEDITIONARY FORCES
U.S. HOUSE OF REPRESENTATIVES

PROTECING THE FORCE FROM THE IMPROVISED EXPLOSIVE DEVICE

SECOND SESSION, 111TH CONGRESS
17 MARCH 2010

Chairman Taylor, Chairman Smith, Ranking Member Akin, Ranking Member Bartlett, and distinguished Members of the Committee, thank you for inviting me to appear before you today on behalf of the men and women of the Joint Improvised Explosive Device (IED) Defeat Organization (JIEDDO).

In January I assumed duties as Director of JIEDDO, following in the footsteps of two tremendous leaders, General (Retired) Montgomery Meigs and Lieutenant General (Retired) Thomas Metz. My most recent experience as a division commander in Iraq provides me with a unique perspective and passion on the threat of IEDs and the tremendous support given to the protection of our troops from the Congress, the Department of Defense, the Services, and JIEDDO. Since my arrival, I have been assessing JIEDDO's operating procedures and have examined external criticism of the organization. We are in the process of sharpening JIEDDO's processes for the current counter-IED (C-IED) fight. Our core purpose – rapidly providing C-IED solutions to meet warfighter needs – will remain central to everything we do. JIEDDO will achieve our mission through teamwork with our stakeholders, a willingness to accept risk, the pursuit of innovation, a commitment to accountability, and a relentless focus on defeating the IED.

Our immediate priority is to support the Afghanistan surge. The lessons learned from years of experience with countering IEDs in Iraq, and the unique threats identified by commanders in Afghanistan, inform our vector. There are several ways to look at this problem, but I will briefly speak to three broad areas: total IED activity, including attacks, as well as found and cleared, effectiveness as measured by the casualty rate per incident, and how differences in terrain and enemy tactics, techniques, and procedures (TTPs) affect these casualty rates.

First, in terms of the gross level of enemy IED activity, Afghanistan has experienced a near doubling of IED events in the last year with a corresponding significant rise in U.S. and Coalition casualties. Conversely, the Iraq threat is roughly 10 percent of its 2007 peak. The drop of activity in Iraq reflects some tremendous strides by U.S. and Iraqi Security Forces in the prosecution of the Counter Insurgency (COIN) doctrine and effective C-IED processes. The rise in activity in Afghanistan reflects a resurgent Taliban and the struggle to establish control in the country.

The IED threat in Afghanistan also reflects some disturbing statistics when measured by the casualty per attack rate. Over the past three years in Afghanistan, casualty rates of our warfighters have increased by roughly 50 percent. In other words, each IED attack is causing 50 percent more casualties on average today in Afghanistan, than at this same time three years ago. Iraq, by comparison, has a U.S. IED casualty rate that currently is about half that of Afghanistan.

Several factors explain the difference in lethality between these two theaters. Most obvious is the much more rural terrain in Afghanistan, where we see a predominance of unpaved roads. This facilitates a successful enemy tactic of emplacing

large explosive charges buried in the middle of the road or in culverts. In many areas of the country the terrain does not provide for off-road vehicle mobility and this channelizes our forces on to the roads. Additionally, the enemy uses low or non-metallic content fertilizer-based explosives which frustrate detection. Furthermore, due to terrain and changes in operational strategy U.S. forces are conducting many more dismounted patrols in Afghanistan than in Iraq. Dismounted soldiers are more highly effective in interacting with the Afghan population and finding IEDs, but separated from the protection of an armored vehicle they are also more vulnerable to casualty from an IED.

JIEDDO is determined to counter the enemy's ever-evolving TTPs by rapidly responding to capability gaps identified by the Combatant Commander. We do so through our three Lines of Operation (LOO): Attack the Network, Train the Force, and Defeat the Device.

Attack the Network efforts seek to understand, identify, and disrupt IED bomb makers and their supply sources prior to assembling and emplacing IEDs. JIEDDO's Counter-IED Operations Integration Center, or COIC, works effectively to respond to requests for information and support from theater, integrating information from a wide variety of sources into a single product and rushing it to the warfighter in time to make a difference in the fight. Change detection sensors, improved quality and quantity of surveillance assets, airborne sensors to locate IEDs and their components, and analytical support to C-IED efforts are just a few of the successful efforts undertaken in this LOO.

Train the Force focuses on performance-oriented training of our troops to help them find and defeat IEDs, use Attack the Network analytical tools, and proper staff integration planning. We support Service pre-deployment home-station training lanes that replicates the battlefield for Soldiers and Marines. A key focus is improving battle staff training to improve ISR asset optimization and organizational structure for the C-IED fight. The JIEDDO Joint Center of Excellence at the National Training Center at Fort Irwin ensures that collective training across the force is timely, relevant, and accurate to the combat area units will deploy to in the immediate future. It is vital that we replicate the conditions Soldiers and Marines will face in exercises before they are committed to combat. Additional areas of emphasis are on development of simulators and improvement in the use of biometrics, forensics, and weapon technical intelligence information.

Defeat the Device seeks out cutting edge solutions that can detect IEDs on the ground, neutralize them prior to detonation, or mitigate the effects of detonation at the point of attack. Counter-mine detection systems, mine rollers, and trace explosive detectors have proven extremely successful on the battlefield. A significant effort is underway to rapidly add additional persistent surveillance capability to the forces in Afghanistan. Taking control of the roads using airborne and ground based surveillance was successful in Iraq and U.S. Central Command has identified this capability as an urgent requirement in Afghanistan. In the last several months Task Force Odin has been supplemented with U.S. Air Force Liberty aircraft to good effect. We are not where we need to be yet on this capability but are moving rapidly to close this gap. Additionally,

we are pursuing a significant effort to improve detection of homemade explosive devices, a significant threat in Afghanistan.

Our Fiscal Year 2011 budget request reflects the shift in focus and resources required to reduce the effectiveness of IED attacks in Afghanistan. It is comprised of both known and unknown requirements. We work very closely with the Combatant Commanders to ensure we invest in developmental efforts that address known urgent capability gaps, and that the Joint Staff has identified and validated those requirements. Our focus is to rapidly develop, demonstrate, and procure proven C-IED solutions to reduce those gaps. Additionally, we sometimes need to provide C-IED support for the emerging threats that are unknown at the time of our request. JIEDDO's budget request amount combines historic spending on continuing programs with reasoned projections of future threat levels and enemy activity that will form the basis of future requirements. Given the seriousness and urgency of our mission, risk must be a part of our calculus. Our budget development process has made great strides and, as we develop our capabilities across the organization, will continue to improve. Congress's generous appropriations each year have given us the agility to confront emerging threats. We appreciate the great trust and confidence you give to JIEDDO to responsibly manage these resources.

As JIEDDO pursues its planned initiatives or rapidly develops new countermeasures to meet emerging IED threats to our warfighters, we will continue to rely on our capabilities generation and acquisition management practices – the Joint IED Defeat Capability Approval and Acquisition Management Process, or JCAAMP. Through this process, JIEDDO develops and procures C-IED initiatives to get solutions to the battlefield as quickly as possible.

Early in JIEDDO's organizational development, we recognized the need for an affordable information technology architecture that could support our unique rapid acquisition management processes, as well as evolve to incorporate new functional requirements. The JIEDDO Enterprise Management System (JEMS) is a web-based architecture intended to be the umbrella technology solution to support collaborative staff action workflow and JCAAMP actions. The initial effort to implement JEMS has focused on creating and maintaining an authoritative information repository for each C-IED initiative through all phases of JCAAMP. In its final form, JEMS will incorporate the major processes in all functional areas of the organization, and enhance necessary decision making to rapidly provide effective portfolios of C-IED solutions to the warfighter. In concert with JCAAMP, JEMS will provide a high level of transparency throughout the Department to reduce duplication of effort as much as possible. These mechanisms will also greatly facilitate and enhance the development of new levels of internal management controls expected by the Congress and taxpayers.

As a rapid response organization, JIEDDO prides itself on agility, flexibility, and the willingness to take necessary and calculated risks. The Joint IED Defeat Fund (JIEDDF) provides us the ability to function in an ever-changing and volatile theater environment. JIEDDO is currently responding to immediate equipment needs in

Afghanistan by deferring some of our research and development efforts for later years. With the JIEDDF, we are able to instantly apply resources to the Combatant Commander's most critical needs. As this capability is instrumental to the IED fight, I will ensure we exercise appropriate controls, ever mindful of the trust placed in me by the Congress and the American taxpayer. Even as we increase our materiel support to Afghanistan, the drawdown in Iraq further complicates this picture. We will continue to work closely with the theater commanders to identify the appropriate reapportionment of C-IED assets from Iraq to Afghanistan.

In its efforts to protect the force by supporting the Combatant Commander, JIEDDO will continue to aggressively lead the Department of Defense's efforts to find and develop C-IED capabilities, as well as enable attacks against the networks that employ this lethal weapon. We keep the Soldier, Sailor, Airman, and Marine in combat foremost in our daily work as we endeavor to protect the force and provide our warfighters the safety and confidence they need to achieve the mission.

Thank you for the opportunity to be here today. I look forward to your questions.

Lieutenant General Michael L. Oates
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Director
Joint Improvised Explosive Device Defeat Organization
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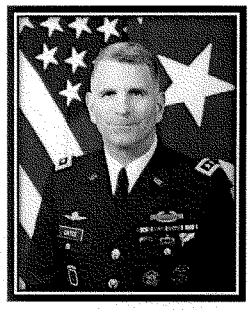

Lieutenant General Mike Oates is from San Antonio, Texas. His wife Barbara is from San Angelo, Texas and they have 3 grown daughters; Katherine, Elizabeth and Margaret. LTG Oates' previous assignment was as Commanding General of the 10th Mountain Division (Light Infantry) and Fort Drum and as Commanding General, Multi-National Division (SOUTH), in Iraq.

General Oates was commissioned as an infantry officer following his graduation from the United States Military Academy at West Point, New York in 1979. His initial duty assignments included service with the 2nd Battalion, 7th Cavalry, 1st Cavalry Division at Fort Hood, Texas and the 2d Battalion, 187th Infantry (Airborne), Republic of Panama. Subsequent tactical assignments included service with the 3d Brigade, 101st Airborne Division (Air Assault) at Fort Campbell, Kentucky, and as Commander, 1st Battalion, 32d Infantry, 10th Mountain Division at Fort Drum, New York. General Oates later commanded 1st Brigade, 101st Airborne Division (Air Assault) from 1998 to 2000 and commanded the 10th Mountain Division (Light) from 2007 to 2009.

General Oates' non-tactical assignments include service as an Infantry Assignments Officer; Current Operations Officer in the J3, Joint Staff; Executive Officer to Honorable Tom White, Secretary of the Army; and as Chief of Staff to LTG Keith Kellogg, U.S. Army, Retired, the Chief Operations Officer, Coalition Provisional Authority, Baghdad, Iraq.

General Oates holds a masters degree in National Security and Strategic Studies from the United States Naval War College, Newport, Rhode Island. He is a graduate of the Army's Command and General Staff College. His awards include the Distinguished Service Medal (with Oak Leaf Cluster), Legion of Merit (with Oak Leaf Cluster), Bronze Star Medal (with 2 Oak Leaf Clusters), Meritorious Service Medal (with 4 Oak Leaf Clusters), and Army Commendation Medal (with 2 Oak Leaf Clusters).

STATEMENT BY

MAJOR GENERAL THOMAS W. SPOEHR
DIRECTOR OF FORCE DEVELOPMENT
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-8

BRIGADIER GENERAL PETER N. FULLER
PROGRAM EXECUTIVE OFFICER SOLDIER

BEFORE THE

SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

AND

AIR AND LAND FORCES SUBCOMMITTEE

HOUSE ARMED SERVICES COMMITTEE

UNITED STATES HOUSE OF REPRESENTATIVES

ON FORCE PROTECTION PROGRAMS

SECOND SESSION, 111TH CONGRESS

March 17th, 2010

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
COMMITTEE ON ARMED SERVICES

Chairman Taylor, Chairman Smith, Ranking Member Akin, Ranking Member Bartlett, and distinguished members of the committees: Thank you for the opportunity to testify at this important hearing and discuss updates in Army Force Protection. Your support and the support of the American people continue to make a profound difference in the ability of the Army to fight the wars in Iraq and Afghanistan, assist our friends and allies, support civil authorities in the homeland, and deter or defeat emerging threats to our national security. With your support, the American Soldier is better equipped and better protected than at any time today in our nation's history.

The brave men and women serving today represent the best of our society, and they continue to perform magnificently against a determined enemy in a complex and dangerous operational environment. After more than eight years of continuous combat, we recognize the importance of keeping our deployed forces at the highest possible level of readiness and providing them the best capabilities available. Protection of our Soldiers and critical warfighting assets remains the Army's highest priority.

The persistent conflicts in Iraq and Afghanistan demonstrate the ability of terrorists, insurgents, and other armed factions to use unconventional strategies to inflict casualties and undermine the security of developing nations. The weapons, tactics, and motivation of today's adversaries vary widely. Therefore, the threats to the deployed force are constantly changing in scope, character, and intensity. Irregular warfare is not only complex and unpredictable; it presents dangers and asymmetric challenges that call for timely and innovative force protection measures. In response to the continued threat of improvised explosive devices (IEDs), suicide bombers, and other non-traditional threats, the Army has pursued numerous ground-breaking initiatives to enhance the mobility, lethality, and survivability of Soldiers and the formations in which they serve. These initiatives are contained in complementary and overlapping layers of protection, which include: continuous improvements in individual Soldier protection; new and enhanced armored wheel and tracked vehicles, active and passive base defense capabilities; improved battlefield situational awareness with better intelligence, surveillance, and reconnaissance systems; as well as advances in biometrics and robotics capabilities.

Just as Soldiers are the centerpiece of our formations, interceptor body armor is the centerpiece of individual Soldier protection. Army body armor is the best in the

world. Several items of individual protective gear are built around and integrated with this critical piece of equipment. The Improved Outer Tactical Vest (IOTV) is compatible with modular lightweight load-carrying equipment and represents a marked improvement over the body armor worn by earlier generations. This vest is three pounds lighter than its predecessor, provides better protection, and features Enhanced Small Arms Protective Inserts (ESAPI), Enhanced Side Ballistic Inserts (ESBI), and deltoid protectors. The IOTV's ballistic inserts provide protection against rifle-caliber rounds and fragmentation, and the vest itself, without inserts, will provide protection against some small caliber rounds and blast fragmentation.

To improve safety and Soldier confidence in the reliability of the ESAPI and ESBI plates, the Army has fielded Non-Destructive Test Equipment (NDTE) and implemented periodic testing of protective inserts. The NDTE program provides a scientific inspection process to identify deficiencies not detected by human inspection and will assist equipment developers in determining life expectancy of plates. A Soldier's protective and ballistic plates are scanned at the midpoint of their combat tour with the NDTE system and by the Soldier as part of their pre- and post-combat equipment checks.

In an effort to lighten the load of Soldiers operating in the mountainous terrain of Afghanistan, the Army began the procurement in October 2009 of 57,000 plate carriers. A medium-size plate carrier is more than five pounds lighter than a medium IOTV. The body armor plate carrier is not a replacement for the IOTV, but a lightweight alternative for commanders to consider when planning their missions. In February 2010 the Army began fielding plate carriers to units in Afghanistan and thus far has delivered almost 14,000 sets to Soldiers in the field.

In addition to the IOTV and armor plate carrier, today's Soldiers are equipped with the advanced combat helmet (ACH). The ACH is lighter, provides better protection, and offers a wider field of vision and hearing over the older Personnel Armor System Ground Troops (PASGT) helmet. In 2007 the Army launched two additional helmet-related initiatives. The first initiative was the development and fielding of an accessory Neck Armor Protective Enhancement (NAPE) pad that protects the neck from ballistic fragmentation, while at the same time increasing helmet stability. The second initiative featured the fielding of first generation helmet sensors in March 2008 to two

brigade combat teams (BCT). These helmet sensors recorded blast and impact data, and this information is being used to learn more about blast events that may cause Mild Traumatic Brain Injuries (mTBI). Later this year, the Army plans to field 30,000 Generation II helmet sensors. Generation II sensors are smaller, lighter, and have a longer battery life (one year versus six months in first generation sensors). The sensors will give equipment developers insight into the design of the next generation helmet and possibly aid the medical community in preventing, treating, and mitigating the effects of mTBI. We are actively participating with the Marines in the development of the Enhanced Combat Helmet to provide even further ballistic protection to the head.

Army efforts in individual protection also include enhancing the Soldier's ability to remain concealed. In February 2010, based on input from Soldiers in Theater, the Army made a decision to produce and field uniforms and associated Organizational Clothing and Individual Equipment (OCIE) with a new camouflage pattern to our Soldiers in Afghanistan. We determined that this pattern, called MultiCam, will provide a greater level of concealment than the current Universal Camouflage Pattern, or UCP, in Afghanistan's varied terrain and multiple regions. The Army plans to field combat uniforms and associated gear in the MultiCam pattern to units deploying in support of OEF in July of this year. In first quarter, FY11, we will develop a performance-based requirement for a future camouflage pattern. This requirement could result in either multiple camouflage patterns or a universal pattern for the Army Combat Uniform (ACU). The Army has made more than 26 improvements to the ACU since it was first fielded in June 2004. One of the most important changes was the development of a flame resistant fabric to help prevent or reduce burn injuries. Today, all deploying Soldiers are provided flame resistant uniforms.

Beyond the IOTV, advanced combat helmet, and associated accessories, the Army's Rapid Fielding Initiative (RFI) continues to build on lessons learned, explores promising technologies, and accelerates the delivery of new capabilities to the field. Program Executive Office (PEO) Soldier launched RFI in 2002 to streamline the process of distributing equipment to deploying units and to ensure all Soldiers are equipped with the most advanced individual and unit equipment available. To date, RFI has equipped nearly 1.5 million deploying Soldiers. Knee and elbow pads, an improved first aid kit, and advanced combat optics are just a few of the 73 RFI items that are

enhancing the capability, personal protection, and survivability of our Soldiers. Over the last year, we also made and fielded improvements to the mountaineering boot, Generation III Extended Cold Weather Clothing System, ballistic eye protection, and Fire Resistant Environmental Ensembles.

The Rapid Equipping Force (REF) complements the Army's RFI by equipping deployed and pre-deploying forces with primarily commercial and government off-the-shelf capabilities that reduce risk and increase combat effectiveness. The REF delivers state-of-the-art equipment by canvassing the military, industry, academia, and science communities for existing and emerging technologies. In Fiscal Year 2009 (FY09), the REF supported units in OEF and OIF with 168 projects, consisting of over 5,800 items. Of the 168 projects, 62 percent (104) were completed within six months of receiving the requirement. The REF transitioned 19 of the completed projects to the Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology) for consideration as programs of record, including a tamper-resistant culvert-denial device that helps prevent the enemy from hiding IEDs, a lightweight machine gun that retains the functionality of our heavier models, and a remotely operated camera mounted on route clearance vehicles that allows enhanced visual detection of threats from inside the vehicle. The REF and PEO Soldier led the Army's efforts to lighten the Soldier's load by introducing lightweight machine guns and plate carriers. These initiatives alone decreased the Soldier's fighting load by an average of 9.5 pounds. Other projects include the improved Unmanned Aircraft System (UAS), which fills the capability gap between existing or planned UAS platforms; Street View Immersive Mapping Programs, which provide units an enhanced view of the battlefield and better situational awareness; and the Tactical Wireless Audio Visual Emergency Public Address System, which is used at combat outposts (COP) and forward operating bases (FOBs).

In October 2008, the REF, in concert with PEO Soldier, fielded approximately 1,100 Individual Gunshot Detection (IGD) systems [also known as Soldier Wearable Acoustic Targeting System (SWATS)] for operational evaluation. The IGD provides forces in Afghanistan a portable, flexible, and accurate means of detecting the direction and distance of hostile fire. This capability enables Soldiers to return fire or execute appropriate maneuver actions. IGD technology was evaluated in 2009 for Army-wide application as a program of record. Though it was not deemed ready to transition to a

formal acquisition program at that time, the IGD requirement is scheduled for another review in the third quarter of FY10. Of the $50 million in Overseas Contingency Operations (OCO) funds allotted for IGD, the REF will spend up to $15 million to fill immediate needs, and the Army will use the rest in a full and open competition for one production contract. Thereafter, the Army will be in a better position to determine the future of this capability.

The Army has procured 4,623 vehicle-mounted Gunshot Detection (GSD) systems to meet immediate warfighter needs. We are reviewing and validating additional requirements for GSD to support the increase in units deploying to OEF. The basis of issue (BOI) for GSD in deployed units varies based upon the vehicle type and mission. The total procurement objective for GSD is 13,658 systems. The ratio for most vehicles in a Heavy/Stryker/Infantry BCT is one GSD for every vehicle. A small percentage of vehicles in these units have a ratio of one GSD for every two vehicles. As the Army finalizes its wheeled vehicle strategy these ratios may change.

The IED remains our adversary's weapon of choice and the most dangerous threat to our deployed Soldiers. With the extraordinary support of the Joint Improvised Explosive Device Defeat Organization (JIEDDO), the Army has fielded a wide range of technologies to improve vehicle protection and countermeasures against current and emerging IED threats. The enemy's pervasive use of roadside bombs prompted an intense counter-IED effort and propelled the development and growth of Counter Radio Controlled Electronic Warfare (CREW) jammers. These electronic jammers are government furnished equipment (GFE) on nearly every tactical vehicle operating outside the FOB in Iraq and Afghanistan. CREW systems prevent detonation of radio-controlled IEDs by disrupting radio signals from cellular phones, garage door openers, car alarms, and other wireless devices used to trigger IEDs.

A natural extension of our counter-IED strategy was to accelerate our efforts to up-armor vehicles in the field. Much of our progress in this area can be quantified by the sheer number of armored kits that have been applied to tactical vehicles since 2003. During the early years of the war, the Army's initial focus was on the development and production of add-on armor kits. To date, over 17,000 Up-Armored High Mobility Multipurpose Wheeled Vehicles (HMMWVs), 1,200 Armored Security Vehicles, and 29,000 medium and heavy tactical wheeled vehicles have been equipped with add-on

armor. Scalable armored platforms are now part of the normal production process for most tactical vehicles.

The Army recently made a decision to exercise an option with AM General to procure 2,620 HMMWVs by April 2010. This is anticipated to be the final buy for "Army only" needs. The decision to accelerate plans to stop procuring HMMWVs for "Army only" needs was not made lightly, and was based on two main factors, (1) the Army has met its acquisition objective for HMMWVs, and (2) current feedback from commanders in Theater suggests that HMMWVs are not the vehicle of choice when operating outside the FOB. For example, commanders in Afghanistan are relying more heavily on their fleets of Mine Resistant Ambush Protected (MRAP) vehicles and MRAP All Terrain Vehicles (M-ATVs) when operating outside their bases.

Since October 2007, the Army has delivered over 12,000 MRAPs to Iraq and Afghanistan. Commanders consistently report that MRAPs, with their V-shaped hulls and added armor protection, are saving lives and reducing casualties. While early generation MRAPs provided a much improved level of protection against IEDs, some of the variants were simply too large and heavy to operate in restricted terrain. Commanders in OEF requested a more mobile platform due to the poor infrastructure and rugged, mountainous terrain in Afghanistan. The Department of Defense (DoD) and the Army have responded to their needs by delivering over 700 Army M-ATVs, and we plan to deliver nearly 300 more by the end of March. The current Army total requirement for M-ATVs in Afghanistan and theater reserve is 5,250, and we anticipate this objective will be met by the end of September 2010.

We are also executing a training strategy that prepares Soldiers and units to effectively and safely use MRAP vehicles in a combat environment. Our strategy combines new equipment training in MRAPs and M-ATVs, driver training in simulators, rollover training in an egress trainer, and maintenance training for our logisticians. Soldiers continue to train on MRAPs and M-ATVs in Theater, but we are also shifting more assets to support pre-deployment training. To date, 477 MRAPs and 85 M-ATVs are being used at 23 locations to support pre-deployment training at home station, Mobilization Centers, and Combat Training Centers. We also have 20 driver simulators and 63 MRAP surrogate vehicles to train Soldiers.

The Army's long-term strategy places over 15,000 MRAPs and M-ATVs in its force structure. The current plan calls for 9,284 MRAPs in Task Organized Sets [11 Infantry BCTS, six Heavy BCTs, three Stryker BCTs (SBCTs), and several Multifunctional Support Brigade Sets]; 3,631 in Transportation, Explosive Ordnance Disposal, and echelons above brigade Medical units; 1,755 in training sets around the world; and 495 in Sustainment Stocks and War Reserve.

As of February 2010, the Army had produced over 1,500 Route Clearance Vehicles (Buffalo, Husky, Cougar, Joint Explosive Ordnance Disposal Rapid Response Vehicle, and RG-31). These vehicles were designed specifically for ground reconnaissance and urban operations and to protect Soldiers from hostile fire, mines, and IEDs. After meeting Theater requirements, we will send new production vehicles to Engineer and Explosive Ordnance Disposal units throughout the Army. Moreover, we will meet our acquisition objective by FY14 with new procurement and recapitalization of vehicles returning from Theater.

In addition to MRAPs and Route Clearance Equipment, the Stryker is providing battle proven capabilities to our forces in Afghanistan. The Stryker features organic combined arms lethality, tactical and operational mobility, and interoperability with other battlefield systems. The Army has seven SBCTs [six Active Component units and one Army National Guard unit]. These formations have already deployed a combined twelve times to OIF/OEF. An eighth SBCT is being formed and its vehicles are currently in production. Fielding to the new SBCT will begin later this year.

The Army has continually improved the survivability of the Stryker vehicle to meet evolving threats. Additional improvements include: the Drivers Enhancement Kit (DEK), Tire Fire Suppression Kit (TFSK), Hull Protection Kit (HPK), Mine Roller Adapter Kit (MRAK), a Blast Mitigation Kit (BMK), slat armor, Stryker Reactive Armor Tiles (SRAT), a Common Ballistic Shield (CBS), as well as small arms protection for gunners in the exposed "air guard" position. The Army continues to invest in research to improve the blast mitigation and fire suppression capabilities of the Stryker, while continuing to improve the vehicle's operational readiness and performance. We are exploring the accelerated development of a Stryker vehicle with a "V" shaped hull in coordination with industry to increase the IED protection provided by Stryker vehicles. This work is being

closely coordinated with the Office of the Secretary of Defense and our plan is to rapidly obtain vehicle prototypes and test them to assess their performance.

Recent advances in detection, surveillance, and target acquisition capabilities give commanders unprecedented situational awareness. This has contributed to the development of active and passive countermeasures that can detect or defeat threats with far more speed and far less risk to the force. To enhance security in and around FOBs, Joint Security Stations (JSS), and Combat Outposts (COPs), the Army is investing heavily in capabilities that provide early warning and detection of threats against our Soldiers and facilities. One of the newer capabilities, the Base Expeditionary Targeting and Surveillance System-Combined (BETSS-C) is a ground-based system that leverages the technology of multiple components and surveillance systems including towers, video cameras, aerostats, electro-optical and infrared sensors, radars, detection and assessment systems, monitors, and electronic security systems. These integrated systems enable our forces to maintain surveillance across the FOB and surrounding battle space. The various sensor systems gather video, images, and other information for display on Standard Ground Station (SGS) digital maps and dissemination through Distributed Common Ground Stations (DCGS). We have delivered BETSS-C capability to 81 locations in Iraq and 157 bases in Afghanistan. Currently, BETSS-C capability is planned for an additional 72 sites in Afghanistan. In a similar way, the Counter Rocket, Artillery, and Mortar (C-RAM) uses a system of systems approach (towers, radars, sensors, and other active/passive measures) to provide early warning and defense capabilities against indirect threats (e.g., incoming rocket, artillery, and mortar rounds). There are 15 C-RAM systems in Iraq and we plan to install 22 C-RAM systems in Afghanistan.

Since September 11, 2001, the Army's Intelligence, Surveillance, and Reconnaissance (ISR) assets have transformed from legacy capabilities to modern, modular applications. Leveraging OCO funding provided to the Army, support from the JIEDDO, and the Office of the Secretary of Defense (OSD) ISR Task Force, the Army continues to improve existing programs while developing quick reaction capabilities (QRC) to fill ISR requirements identified by forward deployed commanders. Over 68 distinct ISR QRC systems have been developed to support lethal and nonlethal operations. In addition to QRC systems, Task Force (TF) Observe, Detect, Identify, and

Neutralize (ODIN) employs manned and unmanned aircraft to help defeat IEDs, increase the survivability of units engaged in route clearance missions, and provide access to ISR assets to lower echelon commanders. Other ISR investments include Signals Intelligence, Geospatial Intelligence, Human Intelligence, document exploitation, and biometrics.

Our UASs such as Raven, Shadow, and the Sky Warrior Class UAS provide a substantial force protection edge by supporting intelligence, reconnaissance, and targeting missions; tracking convoy movements; and detecting IEDs. These systems have proven their value as a force multiplier in BCT and smaller formations. In 2003 the Army entered combat operations in Iraq with only one Hunter UAS consisting of eight aircraft. Since then, the Army has significantly increased the numbers and types of UASs deployed in the Central Command area of operations. Today every BCT in OIF and OEF has an organic Shadow Tactical UAS and 15 Raven UASs in addition to the Hunter and Warrior Alpha UAS located at Division and Corps level. We currently have 336 UAS systems deployed to the Theater with a total of 1,009 air vehicles.

The Army will continue to modernize the Shadow and provide this capability to all BCTs in the Active Army Component, the Army National Guard, and Army Special Operations Forces. We are upgrading the Shadow system with a Tactical Common Data Link, a Day/Night/Laser Designator payload, Universal Ground Control Stations, and an upgraded fuel system for improved endurance and reliability. To date, we have fielded 75 of 102 Shadow UASs. This capability provides BCT commanders an organic UAS with the ability to conduct tactical level reconnaissance, surveillance, target acquisition and battle damage assessment.

The Extended Range/Multi-Purpose (ER/MP) UAS provides greater situational awareness for tactical commanders, enhancing their ability to rapidly assess and respond to evolving threats. Commanders at the Division level will have an organic UAS with the ability to conduct reconnaissance, surveillance, target acquisition, communications relay, and attack missions. Current plans call for the integration of the Warfighter Information Network-Tactical (WIN-T) Communications Payload (WCP) into the ER/MP UAS when available. The WCP supports the WIN-T architecture by providing a dedicated, wide-band airborne communications relay. This payload will provide beyond line-of sight relay for battlefield communications, to include current

Army Common User Systems and Tactical Internet Systems. This payload will enable the WIN-T network to support current and future forces with extended battle space command and control and enable on-the-move capabilities.

Based on lessons learned after eight years of war, the Army has invested heavily in aircraft survivability equipment (ASE) to protect aircrews from man-portable missiles. With the exception of the OH58D reconnaissance helicopter, all deployed rotary wing and fixed wing aircraft (totaling over 600 aircraft) are now fully equipped with the Common Missile Warning System (CMWS). Since 2003, the Army has fielded nearly 1000 CMWS to the force, resulting in a sharp decline in the number of aircraft shot down with infrared missiles. The Advanced Threat Infrared Countermeasures (ATIRCM) Quick Reaction Capability (QRC) is the Army's latest ASE initiative to protect crews and aircraft from advanced Man Portable Air Defense System (MANPADS) threats. This system is being fielded on our deployed CH-47 fleet to provide the best protection available to our aircrews and Soldiers. The Common Infrared Countermeasure (CIRCM) is planned to replace ATIRCM with a proposed First Unit Equipped (FUE) in FY17. CIRCM will provide an improved capability with reduced weight and sustainment costs will facilitate fleet-wide integration at a considerably lower cost. Ballistic protection, armored crew seats, laser detection sets, and survival gear are just a few of the many components that are common on most aviation platforms.

Biometrics is another critical aspect of our intelligence and security efforts in the fight against terrorism. The ability to establish an individual's identity with confidence and link the individual to past aliases or activities gives us a decisive edge and aids other government organizations. In addition, biometrics adds a layer of security and a method of identity verification by automating the identification process. Since July 2000, the Secretary of the Army has served as the executive agent for DoD Biometrics. In late 2006, the Secretary established the Biometrics Task Force (BTF) to program, integrate, and synchronize biometric technologies and capabilities. The BTF will coordinate biometric science and technology and identity management initiatives across DoD while facilitating the sharing of information with other U.S. government departments and agencies. Over 2300 biometric systems are used today in Iraq and over 4500 systems were fielded to Afghanistan. By promoting long-term investment

and consistently enhancing biometrics functionality, we are institutionalizing biometrics as a core competency.

The Army is leveraging robotics to counter threats and support ISR and a wide range of other missions, including logistics-support missions. Man Transportable Robots (MTRS) are often used by Explosive Ordnance Disposal (EOD) teams when performing reconnaissance missions involving unexploded ordnance and IEDs. Our investment strategy includes assessing various systems that support the repair of MTRS and provide remote investigation and render-safe capabilities with standoff disruption devices. We have successfully fielded over 600 MTRS and 7,000 MTRS support components to deploying units. Between FY11 and FY13, we plan to deliver over 400 MTRS and 7,000 MTRS support components. The Army logistics community plans to use innovative robotic solutions to meet operational needs and expand sustainment and logistics support options.

Robotics capabilities are a force multiplier for the Army, freeing Soldiers to perform other high priority tasks while enhancing force protection. A modernized Advanced EOD Robotic System (AEODRS) Family of Systems (FoS) is under development, and fielding is planned for FY14. AEODRS is a Joint Service materiel acquisition program, and this capability will be used for dismounted, tactical, and base-support operations. Additionally, as a part of the Army's Brigade Combat Team Modernization Plan we will begin fielding the Small Unmanned Ground Vehicle (SUGV) in FY11. This program will field 37 SUGVs to every BCT.

The Army is using the Capabilities Development for Rapid Transition (CDRT) process to accelerate the delivery of force protection and other kinds of capabilities to the field. During the CDRT process, novel systems and capabilities are evaluated and senior Army leaders make a determination on which ones should be terminated, sustained, or transitioned to a formal acquisition program. The process has evolved since 2004 from an annual consideration of only materiel systems, to a quarterly process that considers both materiel systems and non-materiel capabilities. Senior Army leaders have used the CDRT process to consider 442 materiel systems and 11 non-materiel capabilities. The Army has assessed the viability of 39 systems for acquisition program status and 8 non-materiel capabilities as enduring programs. The IED route clearance package, Armored Security Vehicle (ASV), and the Common

Remote Operated Weapons System (CROWS) are just a few examples of systems that were transitioned to acquisition programs. Examples of non-materiel capabilities include the Weapons Intelligence Team (WIT), the Joint Trauma Analysis and Prevention of Injury in Combat (JTAPIC) program, and Company Intelligence Support Team (CoIST) training.

In conclusion, the Army's on-going commitment to provide Soldiers with the best equipment is just that—on-going. With the tremendous support of Congress, the American people, and the Office of the Secretary of Defense, the Army has made substantial improvements in individual Soldier protection, delivered more capable and survivable vehicle platforms, enhanced protection at FOBs and facilities, improved battlefield situational awareness, and provided more effective countermeasures against IEDs and emerging threats. Alone, these initiatives improve our protective posture at every echelon of our formations. Taken together, they ensure the protection afforded to our Soldiers, Army civilians, and contractors remains unsurpassed. As we look to the future, the Army remains fully committed to develop and provide the highest level of protection to our Soldiers, units, and installations. Thank you for this opportunity to discuss the Army Force Protection program.

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House Armed Services Committee

STATEMENT

OF

BRIGADIER GENERAL MICHAEL M. BROGAN
COMMANDER
MARINE CORPS SYSTEMS COMMAND

BEFORE THE

SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

AND

AIR AND LAND FORCES SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

MARINE CORPS FORCE PROTECTION EFFORTS

17 MARCH 2010

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Brigadier General Michael M. Brogan
Commander, Marine Corps Systems Command

Brigadier General Brogan is a native of Orrville, Ohio. In May 1980, he graduated from the University of Notre Dame with a Bachelor of Science degree in Chemical Engineering and was commissioned a Second Lieutenant. Following graduation from the Basic School, he completed Assault Amphibian Officers' Course as the Honor Graduate and was assigned as an Assault Amphibious Platoon Commander, Company D, 3d Assault Amphibian Battalion (3d AABn), 3d Marines, 1st Marine Brigade, Marine Corps Air Station, Kaneohe Bay, Hawaii. After returning from deployment to the Western Pacific in support of Battalion Landing Team 1/3, he was reassigned in August 1982 as the Maintenance Management Officer and Assistant Logistics Officer, 1st Battalion, 3d Marines and completed a second Western Pacific deployment.

In January 1984, Brigadier General Brogan reported to Marine Barracks, Naval Weapons Station, Yorktown, Virginia where he served consecutively as a Guard Platoon Commander, Operations Officer, Guard Officer, and Executive Officer. He transferred to Quantico, Virginia in July 1987 and attended the Advanced Communications Officer Course. Following graduation as an Honor Graduate in June 1988, General Brogan reported to 3d AABn, 1st Marine Division and became the Assistant Logistics Officer. In March 1989, he assumed command of Company A, 3d AABn. During Desert Shield and Desert Storm, the company supported 1st Battalion, 5th Marines and was a part of Task Force Ripper.

In June 1991, Brigadier General Brogan assumed duties as the Logistics Officer at the Amphibious Vehicle Test Branch (AVTB), Camp Pendleton, California. While at AVTB, he completed work on a Master of Arts Degree in Business and graduated with Distinction from Webster University. He also attended the 20-week Program Management Course at the Defense Systems Management College, Fort Belvoir, Virginia. General Brogan returned to Quantico, Virginia in July 1994 as a student. A Distinguished Graduate of the Marine Corps Command and Staff College, he reported to the Office of the Direct Reporting Program Manager, Advanced Amphibious Assault (DRPM AAA) in June 1995, to serve as the Survivability Project Officer. In June 1998, he became the Program Manager for the Advanced Amphibious Assault Vehicle Survivability Program.

Brigadier General Brogan reported to 1st Marine Division, Camp Pendleton, California in June 1999 and assumed command of 3d AABn. In July 2001, he transferred to the National Defense University, Fort McNair, Washington, DC as a student in the Industrial College of the Armed Forces (ICAF). General Brogan graduated from ICAF in June 2002 with a Master of Science Degree in National Resource Strategy. He reported to the Marine Corps Systems Command, Quantico, Virginia and was assigned as the Product Group Director, Infantry Weapons Systems. In February 2004, General Brogan reported to the Office of DRPM AAA for duty as the Expeditionary Fighting Vehicle Program Manager. In September 2006, Brigadier General Brogan became the Commander, Marine Corps Systems Command.

Brigadier General Brogan's personal decorations include: the Meritorious Service Medal with Gold Star, the Navy Commendation Medal with Gold Star, the Navy Achievement Medal and the Combat Action Ribbon.

Chairman Taylor, Chairman Smith, Congressman Akin, Congressman Bartlett, and distinguished members of the Subcommittees, I am honored to appear before you today and for this opportunity to discuss Marine Corps force protection systems. But first, on behalf of all Marines, their families and our civilian employees, I want to thank you for your continued generous support for our Marines in OPERATION ENDURING FREEDOM, OPERATION NEW DAWN, and other contingencies.

INTRODUCTION

Safeguarding Marines is one of our highest priorities and is one of our most challenging. Our adversaries rapidly change their tactics, techniques, and procedures. Our goal has been to field new or updated systems in response to these new threats and increase the effectiveness of our systems while reducing weight for both individual protection and vehicle armoring. The bottom line is that we remain faithful to our enduring and legislated mission – to be ready wherever, whenever our country needs us and to prevail over whatever challenges we face.

In this environment of irregular warfare, the Marine Corps must be able to adapt to broad strategic conditions and wide-ranging threats. We have done this, and will continue to do so. However, we do not accomplish this in a vacuum. As your United States Marine Corps Acquisition Command, we work closely and collaboratively with Joint Improvised Explosive Device Defeat Organization (JIEDDO) and our Army counterparts in Program Executive Officer (PEO) Soldier, PEO Combat Support & Combat Service Support, PEO Ground Combat Systems, PEO Missile and Space, and the US Army Research, Development and Engineering Command to name a few.

Together, we have developed acquisition practices for our equipment that will make it more modular and scalable and to

allow us to increase or decrease armor protection and its associated weight according to the commander's assessment of mission requirements and threat. Speed and maneuverability provide an inherently measure of protection. This means that there will be times when Marines and vehicles are armored significantly less than they are today; but, by removing some armor, mobility and speed will increase. These decisions are not taken lightly but they are absolutely necessary to accomplish our mission, especially in the current fight in Afghanistan. We have ensured that our commanders in the field down to the Lieutenant Colonel/Battalion Commander level have the flexibility and the ability to tailor equipment sets to match the threat, the operating environment, and demands of the mission.

Congressional support for our force protection efforts has been overwhelming. We have globally sourced equipment to our Marines in Afghanistan. They have all the gear that they require. Some of that gear came from home stations, but we continue to provide the requisite equipment that is needed for training by units in the Pre-deployment Training Program. We thank you and ask that Congress continue their life-saving support in the coming years.

FORCE PROTECTION SYSTEM PROCUREMENT METHODOLOGY

The Marine Corps is committed to providing force protection equipment to save Marines' lives, reduce Marine casualties, and limit the severity of our casualties. Another one of our goals is to ensure that all of our in-theater force protection requirements are quickly met with the best systems available. There are no commercially available force protection products more capable of saving our warfighters' lives and reducing

injuries in combat than the equipment and systems we are fielding today.

The protection of our Marines is paramount and while body and vehicle armor are life savers, other methods for protecting our Marines are equally as important. Success in combat depends upon leaders who can adapt and make sound, timely decisions on a constantly changing, fluid battlefield. A Joint Force Commander achieves success in his assigned mission based on the factors of mission, enemy, terrain and weather, troops and support available, and time available (METT-T). Therefore, our protection philosophy must also include training our leaders in personal protective measures that provide flexibility and protection scalability.

Our commanders have the flexibility to adjust protection levels as the situation dictates and provide scalability of personal protection equipment, both personal and vehicular, that provides levels of protection that reduce the burden on our Marines and equipment.

GROUND MOBILITY

The evolving threat environment requires proactive management of tactical wheeled vehicle programs in order to provide Marine warfighters with the most well-protected, safest vehicles possible given technological limitations. The Marine Corps continues to work together and with user representatives, our Sister services and industry to develop, test, and incorporate upgrades to the Medium Tactical Vehicle Replacement (MTVR), Logistics Vehicle System Replacement (LVSR), Mine Resistant Ambush Protected (MRAP), MRAP-All Terrain Vehicle (M-ATV) and other Marine tactical wheeled vehicles. The Marine Corps Systems Command and Program Executive Officer Land Systems are supporting the Marine Corps Combat Development Command as

they develop an armor strategy for the Marine Corps that will address both near and long term requirements for tactical vehicle armoring.

To this end, we have developed increased force protection upgrades to the MRAP vehicles and the Medium Tactical Vehicle Replacement Armor System, and developed improved armor for the Logistics Vehicle System Replacement. We will continue to work with the Science & Technology community and with our sister Services to develop and apply technology to address force protection requirements.

Mine Resistant Ambush Protected (MRAP) Family of Vehicles

The Mine Resistant Ambush Protected (MRAP) Family of Vehicles provide warfighters with multi-mission platforms capable of mitigating improvised explosive devices, underbody mines, and small arms fire threats, which are currently the greatest casualty producers in Overseas Contingency Operations.

The MRAP Family of Vehicles has grown from an initial program requirement of 1,185 in November 2006 to over 26,000 vehicles today. We have awarded contracts for a total of 25, 835 vehicles toward this joint requirement. The Marine Corps is executing this joint urgent requirement to provide as many highly survivable vehicles to theater as quickly as possible. On January 4, 2010, the Joint Requirements Oversight Council validated up to an additional 4,000 MRAP family of vehicles for a total potential requirement of up to 26,882 MRAP vehicles for all Services and Special Operations Command (SOCOM).

The current Marine Corps requirement of 4,115 vehicles is comprised of four different categories of vehicles (Category (CAT) I, II, III, and MRAP-All Terrain Vehicle (M-ATV)) to support our ongoing theater operations and home station training. Marine Corps CAT I and II vehicles are receiving

Independent Suspension System (ISS) and survivability upgrades to enhance durability, mobility and survivability on the rough, mountainous terrain of Afghanistan. As part of a responsible withdrawal, MRAP vehicles are being redeployed from Iraq to support other missions. Based on theater commanders' requirements, the Services have moved over 800 MRAP vehicles from Iraq to Afghanistan.

An M-ATV production delivery order was awarded to Oshkosh Corporation for 5,244 vehicles in June 2009 and the first M-ATVs were fielded in early December 2009. We currently have 8,104 vehicles on contract with Oshkosh. The M-ATV contract includes provisions for the acquisition of up to 10,000 vehicles. As of 10 March, the government has accepted 4,606 M-ATVs from Oshkosh, a number which increases daily. They remain ahead of schedule. To date, the Services have delivered to Afghanistan over 1,200 M-ATV's for theater operations and continue to deliver ahead of schedule. Unlike the original MRAP vehicles; this lighter, more agile, MRAP variant was designed for the rugged, mountainous environment in Afghanistan.

Testing of proposed solutions to the Explosively Formed Penetrator (EFP) and Rocket Propelled Grenade threats continues as the threat evolves and solutions are developed. Testing is complete for the MRAP Expedient Armor Program, designed to upgrade the LRIP 1-9 vehicles with limited EFP protection. The Army Evaluation Center is currently preparing the final report with completion planned 3rd quarter of Fiscal Year 2010. The MRAP Family of Vehicles can have various levels of protection based upon variant and/or location.

Medium Tactical Vehicle Replacement (MTVR) Armor System (MAS)

For our Medium Tactical Vehicle Replacement (MTVR) 7-ton trucks, we developed the MTVR Armor System (MAS). This armor

system is a permanent modification to our MTVR fleet. It is designed for the life of the vehicle (twenty-one years). The MTVR Armor System is capable of withstanding small arms fire, improvised explosive devices, and mines. It provides complete 360 degree protection, as well as overhead and underbody protection for the cab occupants, and includes upgraded suspension, an air conditioning system, removable armored personnel carrier (with ballistic glass), and machine gun mounts.

The MAS is installed in all MTVR variants in Afghanistan. We have continued to improve the MAS in response to Urgent Universal Needs Statements - adding increased underbody blast protection, fuel tank fire protection kits, and 300 amp alternator kits (for powering Counter Improvised Explosive Devices, etc.). Every MTVR that leaves the Forward Operating Base is equipped with the MAS. The latest upgrade to the MAS incorporates a removable cab roof to support Maritime Prepositioned Shipping requirements.

Logistics Vehicle System Replacement (LVSR)

The Logistics Vehicle System Replacement (LVSR) is replacing the currently fielded Marine Corps' aging heavy-tactical wheeled vehicle, the Logistics Vehicle System. As the Marine Corps' heavy-tactical distribution system, the LVSR Cargo variant will transport bulk liquids (fuel and water); ammunition; standardized containers; bulk, break bulk, palletized cargo, and bridging equipment. The LVSR Wrecker variant will perform heavy wrecker/recovery missions, while the LVSR Tractor variant will tow heavy engineer equipment and combat vehicles with the M870A2 40-ton Medium Heavy Equipment Trailer (MHET). All LVSR vehicles will include a base "A" armor kit, and can accept an add-on "B" armor kit. LVSR cargo

vehicles met or exceeded all survivability requirements in extensive live fire testing. LVSR cargo vehicles with armor kits began fielding in Fiscal Year 2009 to Afghanistan, as well as to CONUS and OCONUS Marine Expeditionary Force locations, training schools, and Maritime Prepositioned Shipping.

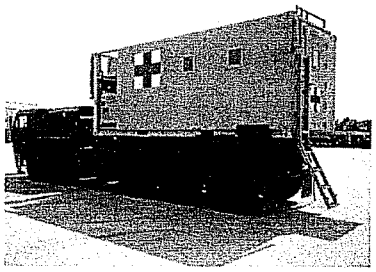
Mine Rollers

We continue to field mine rollers to our Marines. These systems are designed to defeat pressure-plate activated mines and victim initiated improvised explosive devices. They provide full-width protection coverage for the host vehicle. The mine roller system can be used while traveling at tactical convoy speeds.

The Mine Roller System can be mounted on a variety of vehicles, including HMMWV, MTVR, Light Armored Vehicles, MRAP vehicles and the M-ATV.

As a result of the growing need and success of these fielded systems, the requirement recently increased to 560 to support OPERATION ENDURING FREEDOM and home station training. We currently have approximately 200 rollers on order at the Marine Corps Maintenance Center, Albany Georgia, and ninety on order with L3 through the Naval Surface Warfare Center (NSWC) Panama City, FL.

Mobile Trauma Bay (MTB)



The Mobile Trauma Bay (MTB) is a modular, medical asset constructed in a 20 foot International Standards Organization (ISO) container frame, mounted on LVSR. The MTB was developed, fabricated, tested and initially fielded by a multi-disciplinary USMC medical, engineering and manufacturing team in 116 days. It provides doctors and corpsmen in a combat zone with everything, except a CAT scan machine, available in a stateside emergency room. The MTB enables the Shock Trauma Platoon to travel with combat units and conduct emergency resuscitative care at the forward edge of the battle area with a level of force protection and environmental control. The innovation has saved many lives and several limbs.

Ground Mobility in Closing

We have direct day-to-day communications with our U.S. Army counterparts to coordinate our force protection strategies for our ground vehicles. We are committed to aggressively evolving our equipment to changing threats. Our future tactical combat vehicles must provide the commander with balanced capabilities. These vehicles should be adequately protected, yet maneuverable and functional across the range of military operations. Where speed, tactical maneuverability, environmental and terrain considerations dictate the most important capabilities needed in our vehicles, we will carefully consider the tradeoffs in conventional heavy armor protection versus the operational requirements for performance. These tradeoffs are not taken lightly and they are done with full consideration that our Marines will be taking the vehicles into harm's way. Where possible, we are developing vehicles that include scalable protection, meaning that it will be possible, through kitted armor applications to adjust the level of protection as dictated

by the threat condition. We anticipate that as technology improves, we will be able to achieve greater degrees of ballistic and explosive protection with lighter materials. Our ability to rapidly modify our vehicle armoring systems on the MRAP and other ground vehicles is a testament to this commitment.

PERSONAL PROTECTION EQUIPMENT

The wartime environment in OPERATION ENDURING FREEDOM constantly changes and no one is better suited to determine the most effective personal protective equipment in any given situation than the warfighter. Therefore, we provide equipment that can be configured to meet varying levels of threat. The Marine Corps adopted policies that allow commanders - down to the Lieutenant Colonel/Battalion Commander level - the opportunity to assess risk within the environment, terrain, enemy situation, and mission and equip their Marines accordingly. Specifically, the policy of Armor Protection Levels (APL) was published to all Marines and provides an instant common understanding for specific components of body armor to be worn in a given situation. This further demonstrates that Marines on the ground will be provided the flexibility and authority to adjust the protection levels for a requisite mission while acknowledging the need to maintain superior mobility for survivability and lethality to our adversary.

In the case of body armor, we provide every Marine with a modular ballistic body armor system. All of our body armor systems accommodate the use of our existing Enhanced Small Arms Protective Inserts and our Enhanced Side Small Arms Protective Insert plates. These are the same armor plates used by the Army

and will continue to be used as we make improvements to the Modular Tactical Vest and Scalable Plate Carrier.

Modular Tactical Vest (MTV)

The Modular Tactical Vest (MTV) is a modular body armor system that provides load carriage capabilities in addition to indirect fire protection. In response to an Urgent Universal Needs Statement (UUNS), the Marine Corps developed and issued the MTV to satisfy OPERATION NEW DAWN AND OPERATIONA ENDURING FREEDOM requirements. The MTV currently fielded will be replaced by the Improved Modular Tactical Vest (IMTV).

Scalable Plate Carrier (SPC)

The Scalable Plate Carriers (SPC) is unlike any previous generation flack jacket. It provides a contoured area of coverage and lighter weight allowing our foot-mobile Marines to remain offensive and have a lethal, tactical advantage over their adversary. Coupled with the Modular Tactical Vest, the SPC provides commanders options to address various mission/threat requirements. We fielded approximately 63,500 Scalable Plate Carriers.

SPC feedback from Marine combat veterans has been clear and positive. Marines welcome protective equipment that provides identical ballistic protection at a lower weight, improving mobility in combat. The acquisition objective has been increased to approximately 65,000 plate carriers.

Improved Modular Tactical Vest (IMTV)

We have completed the government design for the development of an Improved Modular Tactical Vest (IMTV) and awarded a two production contracts for 108,000 vests. The IMTV uses the same soft and hard armor protective plates issued by the Marine Corps

and the Army and provides the same level of fragmentation and ballistic protection. In addition, the accoutrements (e.g., cummerbund, quad guard, groin protector, neck protector, deltoid protector, etc) from one vest can be exchanged with the plate carrier described below. All these piece parts can be attached to the other to allow the commander the ability to tailor his body armor solution for the situation at hand.

The Marine Corps teamed with engineers from the U. S. Army's Research, Development and Engineering Center in Natick, Massachusetts throughout the acquisition process and shares test and evaluation data with the Army's PEO Soldier. The acquisition objective for the IMTV is 108,000 systems. We expect fielding to begin in the 1st quarter of Fiscal Year 2011.

Plate Carrier (PC)

Through the overwhelming positive response to the Scalable Plate Carriers (SPC), the Marine Corps has developed a program of record for an alternative body armor option for Marines. We teamed with engineers from the U. S. Army's Research, Development and Engineering Center in Natick, Massachusetts to develop the Plate Carrier (PC). The PC improves the load bearing capabilities of the SPC, integrates primary components among the IMTV, and contours the product for comfort and wear. The acquisition objective for the PC is 108,000 systems. We expect fielding to begin in the 1st quarter of Fiscal Year 2011.

Enhanced Combat Helmet (ECH)

With a sense of urgency, we continue to develop an improved combat helmet for Marines and Soldiers that provides increased fragmentation and ballistic protection. We are working closely with our Army counterparts on this urgent and compelling need. While the first round of testing fell short of our expectations,

we have adjusted the program and developed a new schedule for another round of ballistic testing expected to being this Spring/Summer. This approach allows all of our vendors time to redesign their helmets to meet our requirements. Our goal is to complete successful testing as quickly as possible and begin production. The design we are working towards is to support Afghanistan with an initial Acquisition Objective of 200,000 helmets for the Army and 38,000 helmets for the Marine Corps.

Flame-Resistant Organization Gear (FROG)

Flame-Resistant Organization Gear (FROG) provides Marines with increased burn protection from flash fires which are unexpected, sudden intense fire caused by the ignition of flammable, liquids, vapors, gases, or dust. This system consists of an ensemble of clothing (gloves, balaclava, long sleeved flame retardant shirt, combat shirt, and combat trouser) to provide commanders with options that are modular and scalable. FROG is issued to all Marines deploying to Afghanistan. We continue to make improvements to FROG with optimal blends of Flame Resistant (FR) materials that balance durability and comfort while seeking to increase burn protection.

Personal Protection In Closing

It is very important to the Marine Corps that we provide robust personal protection solutions to our warfighters -- and provide these solutions immediately. Working with our nation's manufacturing base and our sister Services, the Marine Corps continues to provide the best possible levels of personal protection to known and anticipated threats; and we remain committed to aggressively matching our equipment to changing threats.

COUNTER-IED PROGRAMS

Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW)

Every Marine vehicle in theater that travels outside of operating bases is protected by a CREW system to counter the RCIED threat. To that end, since the fielding of these systems, injuries or deaths attributed to RCIEDs have been all but eliminated.

Our CREW systems will continue to evolve to meet or stay ahead of the threat.

Ground-Based Operational Surveillance System (G-BOSS)

The Ground-Based Operational Surveillance System (G-BOSS) is a persistent ground-based counter-IED surveillance system that provides constant and persistent display and tracking of items of interest through the use of 360° high-resolution day and night cameras with enhanced target recognition. We have three separate variants: 107'/80' Tower-mounted, 28' trailer-mounted system, and a man-portable tripod-mounted system. All three systems use color and infrared imagery, radar and Unattended Ground Sensors to accomplish their mission.

Towers are being constructed using sensors from OIF retrograde assets to fullest extent possible.

Counter Sniper Systems

In addition to emerging technologies and materiel solutions, the Marine Corps has emphasized improved training for individual Marines and sniper teams in order to counter the threat before a shot is fired. The Marine Corps Combat Hunter

program, developed in coordination with experienced big game hunters, teaches advanced profiling, tracking and employment of optics on the battlefield. This aggressive mindset, in combination with recently fielded improved tactical binoculars, rifle day optics, night vision and thermal devices, has enabled our Marines to become the hunter, rather than the hunted.

With respect to materiel solutions, Marine Corps Warfighting Lab has explored various technology initiatives to counter the threat posed by snipers. These technologies include laser optics detection systems, man portable and vehicle-mounted acoustic systems, muzzle flash detection systems, persistent surveillance camera systems, and integrated slew to cue remote weapon stations. We have evaluated nine types of countersniper detection systems, deployed 174 end items (such as the vehicle mounted Boomerang) to Iraq and Afghanistan for evaluation, and like the Army, we are assessing the Soldier Wearable Acoustic Targeting System (SWATS)/ Expendable Acoustic Remote Sensor (EARS) individual gunshot detection system for potential transition to a formal acquisition program in 2010.

Our combat developers at Quantico have remained actively engaged with their Army counterparts. We participated on the Sniper Defeat Integrated Product Team at Fort Benning and provided subject matter experts and operating forces to develop and evaluate the Joint Sniper Defeat Handbook published in August 2008. As the Army Requirements Oversight Committee evaluates the Individual Gunshot Detection Capability Production Document (CPD), our continued involvement will provide us the ability to leverage this requirement to meet our need if desired.

The Marine Corps has approached the countersniper challenge across the full Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF)

spectrum. We conducted the comprehensive Scout Sniper Capabilities Based Analysis in 2007-2008 which identified gaps associated with countersniper missions and incorporated them into the Scout Sniper Initial Capabilities Document (ICD) approved by the Marine Corps Requirements Oversight Committee in 2008. The Scout Sniper requirement supported the Marine Corps Rapid Engagement Precision Rifle (REPR) and the Precision Sniper Rifle (PSR) requirements documents, both of which will improve the sniper team's counter-sniper capabilities. While the Marine Corps is pursuing the Army's Semi Automatic Sniper System (SASS) to meet the REPR requirement, the Army has the lead. The PSR Capability Development Document is currently being drafted by the Army combat developer with Marine Corps and Special Operations Command support.

CLOSING

We know the future will be challenging—not only in the immediate conflict in Afghanistan, but in subsequent campaigns and Overseas Contingencies Operations. Our enemy constantly evolves and changes his tactics. As the Marine Corps combats our enemy's current capabilities, we also prepare for future adaptations. In this environment, the Marine Corps has been able to adapt to broad strategic conditions and wide-ranging threats. We continue to protect our Marines by developing and fielding more capable systems faster and more efficiently.

We work hard to ensure the safety of our Marines by providing them with the best and most effective force protection equipment. The lives of our Marines, Soldiers, Airmen and Sailors are a precious asset and protecting them with better and more capable equipment has been, and will always be, the highest priority of the Marine Corps. Your support with continued robust, timely funds will position Acquisition Organizations

throughout the Department of Defense proactively approach the challenges and ensure our warfighters' safety. Again, thank you for your continued support.

United States Government Accountability Office

GAO

Testimony

Before the Subcommittees on Air and Land Forces and Seapower and Expeditionary Forces, Committee on Armed Services, House of Representatives

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INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

Overarching Guidance Is Needed to Advance Information Sharing

Statement of Davi M. D'Agostino,
Director, Defense Capabilities and Management

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GAO-10-500T

March 17, 2010

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Highlights

Highlights of GAO-10-500T, a testimony before the the Subcommittees on Air and Land Forces and Seapower and Expeditionary Forces, Committee on Armed Services, House of Representatives

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

Overarching Guidance Is Needed to Advance Information Sharing

Why GAO Did This Study

The Department of Defense (DOD) has numerous intelligence, surveillance, and reconnaissance (ISR) systems—including manned and unmanned airborne, space-borne, maritime, and terrestrial systems—that play critical roles in support of current military operations. The demand for these capabilities has increased dramatically. Today's testimony addresses (1) the challenges the military services and defense agencies face processing, exploiting, and disseminating the information collected by ISR systems and (2) the extent to which the military services and defense agencies have developed the capabilities required to share ISR information. This testimony is based on GAO's January 2010 report on DOD's ISR data processing capabilities. GAO reviewed and analyzed documentation, guidance, and strategies of the military services and defense agencies in regard to processing, exploiting, and disseminating ISR data as well as information-sharing capabilities. GAO also visited numerous commands, military units, and locations in Iraq and the United States.

What GAO Recommends

In the January 2010 report, GAO recommended that DOD develop overarching guidance for sharing intelligence information and that the military services develop plans with timelines that prioritize and identify the types of ISR data they will share. DOD agreed with these recommendations.

View GAO-10-500T or key components. For more information, contact Davi M. D'Agostino at (202) 512-5431 or dagostinod@gao.gov.

What GAO Found

The military services and defense agencies face long-standing challenges with processing, exploiting, and disseminating ISR data, and DOD has recently begun some initiatives to address these challenges. First, since 2002, DOD has rapidly increased its ability to collect ISR data in Iraq and Afghanistan, although its capacity for processing, exploiting, and dissemination is limited. Second, transmitting data from ISR collection platforms to ground stations where analysts process, exploit, and then disseminate intelligence to users requires high-capacity communications bandwidth. However, bandwidth can be limited in a theater of operations by the satellite and ground-based communication capacity, and this in turn affects the ability to send, receive, and download intelligence products that contain large amounts of data. Third, shortages of analytical staff with the required skill sets hamper the services' and defense agencies' abilities to exploit all ISR information being collected, thus raising the risk that important information may not be available to commanders in a timely manner. DOD is developing and implementing initiatives to enhance its processing, exploitation, and dissemination capabilities, such as increasing personnel, but its initiatives are in the early stages of implementation and it is too soon to tell how effective they will be in addressing current challenges.

DOD is taking steps to improve the sharing of intelligence information across the department, but progress is uneven among the military services. DOD began plans for its Distributed Common Ground/Surface System (DCGS), an interoperable family of systems that will enable users to access shared ISR information in 1998. DOD subsequently directed the military services to transition their service-unique intelligence data processing systems into DCGS and each of the military services is at a different stage. While the Air Force and the Navy each plan to have a fully functional version of DCGS by the end of fiscal years 2010 and 2013, respectively, the Army does not expect to have a fully functional system until 2016. The Marine Corps has not yet established a completion date for the full operational capability of its DCGS. To facilitate the sharing of ISR data on this system, DOD developed the DCGS Integration Backbone, which provides common information standards and protocols. Although the services are responsible for managing their DCGS programs and conforming to information-sharing standards, according to the Office of the Under Secretary of Defense for Intelligence and military service officials, DOD has not developed overarching guidance, such as a concept of operations that provides direction and priorities for sharing intelligence information within the defense intelligence community. Without this overarching guidance, the services lack direction to set their own goals and objectives for prioritizing and sharing ISR information and therefore have not developed service-specific implementation plans that describe the prioritization and types of ISR data they intend to share. Moreover, the inability of users to fully access existing information contributes to the increasing demand for additional ISR collection assets.

Mr. Chairmen and Members of the Subcommittees:

Thank you for the opportunity to discuss GAO's recently issued report on the Department of Defense's (DOD) intelligence, surveillance, and reconnaissance (ISR) data processing capabilities.[1] DOD's numerous ISR systems—including manned and unmanned airborne, space-borne, maritime, and terrestrial systems—play critical roles in supporting military operations as well as commanders' force protection requirements. In Iraq and Afghanistan, commanders at all levels depend on timely and accurate ISR information on their adversaries' tactics, capabilities, and vulnerabilities to plan military operations. The success of ISR systems has led to a dramatic increase in demand for more ISR systems to collect data, and DOD continues to invest in ISR assets, requesting approximately $6.1 billion in fiscal year 2010 for new unmanned aircraft system capabilities alone. However, a November 2008 Joint Defense Science Board/Intelligence Science Board Task Force report on integrating sensor-collected intelligence[2] concluded that the rapid increase in collected information overwhelms current ISR capabilities and much of the collected data is never analyzed.

We have previously reported on DOD's challenges associated with ISR integration, requirements, tasking, and governance. For example, in December 2005, we reported that some sensors, communications equipment, and weapons associated with one type of unmanned aircraft were not always compatible with other unmanned aircraft.[3] In April 2007, we testified that although DOD had initiatives under way to improve integration of ISR assets, it had not comprehensively identified future ISR requirements, set funding priorities, or established mechanisms to

[1]GAO, *Intelligence, Surveillance, and Reconnaissance: Establishing Guidance, Timelines, and Accountability for Integrating Intelligence Data Would Improve Information Sharing*, GAO-10-265NI (Washington, D.C.: Jan. 22, 2010). This report is not available through GAO's Web site. Copies of this report are available upon request by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

[2]Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, *Report of the Joint Defense Science Board/Intelligence Science Board Task Force on Integrating Sensor-Collected Intelligence* (Washington, D.C., November 2008).

[3]GAO, *Unmanned Aircraft Systems: DOD Needs to More Effectively Promote Interoperability and Improve Performance Assessments*, GAO-06-49 (Washington, D.C.: Dec. 13, 2005).

measure ISR integration progress.[4] In July 2007, we reported that DOD had not been able to fully optimize the use of its unmanned aircraft system assets because it lacked an approach to allocating and tasking them that considered the availability of all assets in determining how best to meet warfighter needs and that DOD lacked metrics to fully evaluate the success of its unmanned aircraft system missions.[5] Moreover, in March 2008, we reported that DOD's ISR Integration Roadmap did not include a long-term view of what capabilities were required to achieve strategic goals and did not provide detailed information that would make it useful as a basis for deciding alternative investments.[6] In July 2009, we reported that while several unmanned aircraft programs had achieved airframe commonality, most were pursuing service-unique subsystems, sensors, communications equipment, and weapons and ground control stations.[7] Further, we are also evaluating DOD's efforts to support its increasing inventory of unmanned aircraft systems, including whether it has sufficient plans and strategies for providing the necessary personnel, facilities, communications infrastructure, training, and other elements.

My testimony today is based on our January 2010 report on ISR processing capabilities[8] and will discuss (1) the challenges the military services and defense agencies face processing, exploiting, and disseminating the information collected by ISR systems and (2) the extent to which the military services and defense agencies have developed the capabilities required to share ISR information. I will conclude with some observations regarding our recommendations and DOD's response to our recommendations.

[4]GAO, *Intelligence, Surveillance, and Reconnaissance: Preliminary Observations on DOD's Approach to Managing Requirements for New Systems, Existing Assets, and Systems Development*, GAO-07-596T (Washington, D.C.: Apr. 19, 2007).

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

[6]GAO, *Intelligence, Surveillance, and Reconnaissance: DOD Can Better Assess and Integrate ISR Capabilities and Oversee Development of Future ISR Requirements*, GAO-08-374 (Washington, D.C.: Mar. 24, 2008).

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

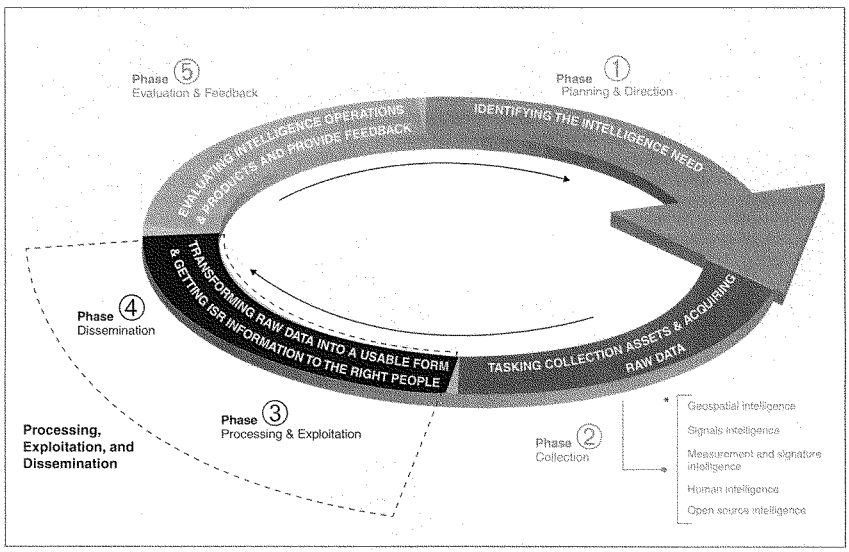
[8]GAO-10-265NI.

In conducting our audit work to support our January 2010 report, we reviewed and analyzed policies, guidance, strategies, and assessments of the military services and defense agencies in regard to processing, exploiting, and disseminating ISR data as well as their information sharing capabilities. We also interviewed officials at the Office of the Under Secretary of Defense for Intelligence; the Joint Staff; all four military services; the National Security Agency; the National Geospatial-Intelligence Agency; and numerous commands, military units, and locations in Iraq and the United States. Our work on that report was conducted from September 2008 to December 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

To be most useful to the warfighter, intelligence data must be collected, analyzed, and shared appropriately in a timely manner.[9] The intelligence data processing cycle is commonly described in five phases: (1) planning and direction, (2) collection, (3) processing and exploitation, (4) dissemination, and (5) evaluation and feedback. However, in implementation the cycle is tailored to mission needs, so the phases may not always be performed in order. For example, information collected from an unmanned aircraft system may be disseminated directly to the user, without undergoing detailed processing and exploitation. Figure 1 depicts the intelligence data processing cycle. My testimony today focuses on the processing, exploitation, and dissemination of ISR information, shown in figure 1 as steps 3 and 4 of the intelligence data processing cycle.

[9]The process of converting data into usable intelligence and disseminating it to users in a suitable format is commonly referred to as processing, exploitation, and dissemination.

Figure 1: The Intelligence Data Processing Cycle



Source: GAO analysis of the intelligence process.

Analysts who are responsible for processing, exploiting, and disseminating ISR data can only use collected intelligence data if data are visible to them. Making ISR data discoverable in this way can be accomplished through meta-data tagging—a process in which data are described through other data (meta-data) that are usually produced at the time the data of interest are created. For example, a camera may create meta-data for a photograph, such as date, time, and lens settings. The photographer may add further meta-data, such as the names of the subjects. The process by which information is meta-data tagged depends on the technical capabilities of the systems collecting the information. Most ISR systems do not automatically meta-data tag the ISR data when they are transferred from the sensor to the ground station for processing and exploitation

because most of these systems were developed prior to DOD's emphasis on enforcing meta-data standards. Since the sensors on these legacy systems are not able to meta-data tag automatically, it is up to each of the military services to prioritize the cataloging of the ISR data manually after collection.

Military Services and Defense Agencies Face Long-standing Challenges with Using ISR Data and Recognize the Need to Address These Challenges

The military services and defense agencies face three long-standing challenges with processing, exploiting, and disseminating ISR data. First, since 2002, DOD has rapidly increased its ability to collect ISR data in Iraq and Afghanistan; however, its capacity for processing, exploiting, and dissemination is limited and has not kept pace with the increase in collection platforms and combat air patrols. For example, the Air Force has substantially increased the number of combat air patrols that ISR collection platforms are performing in the U.S. Central Command theater of operations. Specifically, the number of combat air patrols flown by the Air Force's Predator and Reaper unmanned aircraft systems has increased from 13 to 36 since 2007. Moreover, in the 2010 Quadrennial Defense Review Report,[10] DOD stated that it will continue to expand the Predator and Reaper combat air patrols to 65 by fiscal year 2015. This increase in data collection will also increase the burden on the Air Force's ground processing system, which processes, exploits, and disseminates the ISR information collected by these platforms.

Second, transmitting data from ISR collection platforms to ground stations where analysts process, exploit, and then disseminate intelligence to users requires high-capacity communications bandwidth. However, bandwidth can be limited in a theater of operations by the satellite and ground-based communication capacity. An insufficient amount of bandwidth affects the ability to send, receive, and download intelligence products that contain large amounts of data. For example, intelligence products derived from ISR geospatial data have high bandwidth requirements—the higher the resolution of the product, the longer the transmission time via a given bandwidth. DOD officials have acknowledged that limited bandwidth is a continual challenge in Iraq because of the warfighter's reliance on

[10]Department of Defense, *Quadrennial Defense Review Report* (Washington, D.C., Feb. 1, 2010).

geospatial data. GAO and others have reported that DOD continues to face a growing need for communications bandwidth in combat operations.[11]

Third, the military services and defense agencies are challenged by shortages in the numbers of analytical staff available to exploit all of the electronic signals[12] and geospatial ISR information being collected, raising the risk that important information may not be analyzed and made available to commanders in a timely manner. For example, according to U.S. Central Command officials, the command exploits less than one-half of the electronic signals intercepts collected from the Predator. According to DOD officials, finding native speakers of the collected languages to successfully translate and exploit data collected in those foreign languages is difficult, and training language analysts takes time and is difficult to manage with the deployment schedule. In addition, language analysts who translate and exploit electronic signals intelligence data must qualify for security clearances that require rigorous background examinations. The National Security Agency has experienced difficulties in hiring language analysts who can obtain clearances and have the appropriate skill levels in both English and the language for translation.

DOD has recognized the need to enhance its processing, exploitation, and dissemination capabilities and is developing and implementing initiatives to do so, but its initiatives are in the early stages of implementation and it is too soon to tell how effective they will be in addressing current challenges. For example, in the short term, DOD has placed its priority for processing, exploitation, and disseminating electronic signals intelligence on the information collected in Afghanistan because the Commander of U.S. Central Command has designated those missions as a high priority. In the long term, DOD has taken several actions intended to sustain, expand, and improve processing, exploitation, and dissemination capabilities. For example, DOD has studies, such as an ISR force-sizing study, under way

[11]GAO, *Department of Defense Actions to Modify its Commercial Communications Satellite Services Procurement Process*, GAO-06-480R (Washington, D.C.: Apr. 17, 2006), and *Space Acquisitions: Actions Needed to Expand and Sustain Use of Best Practices*, GAO-07-730T (Washington, D.C.: Apr. 19, 2007). Congressional Research Service, *Defense Program Issue: Global Information Grid, Bandwidth Expansion (GIG-BE)* (Washington, D.C., Jan. 9, 2006), and Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, *Report of the Joint Defense Science Board/Intelligence Science Board Task Force on Integrating Sensor-Collected Intelligence.*

[12]Signals intelligence is information derived from intercepted communications and electronic and data transmissions.

which include examining how to improve the management of its processing, exploitation, and dissemination capabilities. However, DOD has not set dates for when all of these studies will be complete and it is too soon to know whether they will lead to the desired effect of increased support to the warfighter for current operations. The Air Force and the National Security Agency also have plans to increase analyst personnel in response to the increase in ISR collection. The Air Force, reacting to scheduled increases in Predator and Reaper combat air patrols, is planning to add personnel who process, exploit, and disseminate ISR data. The National Security Agency also has taken steps to address shortages in language analyst personnel. For example, to better target its hiring effort for language analysts the agency is using U.S. Census Bureau data to locate centers of populations that contain the language skills needed to translate and exploit the foreign languages that are collected. According to National Security Agency officials, these efforts have helped increase the number of language analysts available to process and exploit collected signals intelligence data. DOD is also working on developing technical solutions to improve processing, movement, and storage of data. For example, files from wide-area sensors have to be saved to a computer disk and flown back to the United States for exploitation and dissemination because current networks in the theater of operations cannot handle the large amounts of data these sensors collect. U.S. Joint Forces Command is currently designing and testing technology already in use by the commercial entertainment industry to improve storage, movement, and access to full motion video data from wide-area sensors.

DOD Is Taking Steps to Improve Intelligence Information Sharing, but Progress Is Uneven

Although DOD has recognized the need for maximizing the efficiency and effectiveness of the information it collects and has been taking steps to increase information sharing across the defense intelligence community, progress has been uneven among the military services. DOD began plans for its Distributed Common Ground/Surface System (DCGS), an interoperable family of systems that will enable users to access shared ISR information, in 1998. DOD subsequently directed the military services to transition their service-unique intelligence data processing systems into DCGS and each of the military services is at a different stage. As shown in table 1, the Air Force and the Navy each plan to have a fully functional version of DCGS by the end of fiscal years 2010 and 2013, respectively, and the Army does not expect to have a fully functional system until 2016. The Marine Corps has not yet established a completion date for the full operational capability of its DCGS.

Table 1: Status of Military Services' DCGS Programs

Military service	Reached milestone B[a]	Full operational capability date
Air Force	Yes	2010
Navy	Yes	2013
Army	Yes	2016
Marine Corps	No	Undetermined

Source: GAO analysis of military services' data.

[a]Milestone B is the second major decision point in the acquisition process and comes after the technology development phase.

DOD has developed a system of standards and protocols, called the DCGS Integration Backbone (DIB), which serves as the foundation for interoperability between each of the four military services' DCGS programs. However, the services have not completed the process of prioritizing and tagging the data they want to share in accordance with these standards and protocols or developed timelines to do so. As a result, the services are not sharing all of their collected ISR data.

- Although the Air Force has the capability to share some Air Force-generated ISR information with other DOD users through the DIB standards and protocols, it has not developed timelines or taken steps to prioritize the types of additional data that should be shared with the defense intelligence community.
- The Army also has the capability to share some of its intelligence data with other users, but has experienced difficulties tagging all of its data because of its large inventory of legacy ISR systems. Moreover, the Army has not established timelines for sharing data.
- The Navy and Marine Corps are not currently tagging all of the ISR data they intend to share and have neither developed timelines nor taken steps to prioritize the types of data that should be shared with the defense intelligence community.

The Under Secretary of Defense for Intelligence has responsibility for ensuring implementation of DOD intelligence policy, including monitoring the services' progress toward interoperability. Although the services are responsible for managing their DCGS programs and conforming to information-sharing standards, according to Office of the Under Secretary of Defense for Intelligence and military service officials, DOD has not developed overarching guidance, such as a concept of operations that provides needed direction and priorities for sharing intelligence information within the defense intelligence community. Without this overarching guidance, the services lack direction to set their own goals

and objectives for prioritizing and sharing ISR information and therefore have not developed service-specific implementation plans that describe the prioritization and types of ISR data they intend to share with the defense intelligence community. For example, a concept of operations could provide direction to the military services and defense agencies to select data to prioritize for meta-data tagging and sharing, such as electronic signals intelligence data. As a result, it is not clear how much of the collected data are not being shared. Until DOD identifies what types of ISR information should be shared and assigns priorities for sharing data, it is unclear whether mission-critical information will be available to the warfighter. In addition, the inability of users to fully access existing information in a timely manner is a contributing factor to the increasing demand for additional ISR collection assets.

Therefore, in our January 2010 report, we recommended that the Secretary of Defense take the following two actions:

- Direct the Under Secretary of Defense for Intelligence, in coordination with the Chairman of the Joint Chiefs of Staff and the Secretaries of the Army, Navy, and Air Force, to develop guidance, such as a concept of operations that provides overarching direction and priorities for sharing intelligence information across the defense intelligence community.
- Direct the Secretaries of the Army, Navy, and Air Force to develop service-specific implementation plans, consistent with the concept of operations, which set timelines and outline the prioritization and types of ISR data they will share with the defense intelligence community through the DIB.

In written comments on our report, DOD agreed with our recommendations overall and stated that there is guidance either issued or in development to address our recommendations. However, this guidance does not fully address the intent of our recommendations, and we believe additional guidance is necessary.

Concluding Remarks

DOD officials cite ISR as vital to mission success in Iraq and Afghanistan, and Congress has responded by funding additional ISR assets. However, until all participants in the defense enterprise successfully share ISR information, inefficiencies will hamper the effectiveness of efforts to support the warfighter, and ISR data collection efforts may be unnecessarily duplicative. While the focus of my testimony has been on the processing, exploiting, and disseminating of ISR data, our prior work has also shown that collection taskings are fragmented in theater and

visibility into how ISR assets are being used is lacking. These challenges increase the risk that operational commanders may not be receiving mission-critical ISR information, which can create the perception that additional collection assets are needed to fill gaps.

Mr. Chairmen and members of the subcommittees, this concludes my prepared statement. I would be happy to answer any questions that you may have at this time.

Contacts and Acknowledgments

For further information regarding this testimony, please contact Davi M. D'Agostino at (202) 512-5431 or dagostinod@gao.gov. In addition, contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals who made key contributions to this testimony are Margaret G. Morgan and Marc J. Schwartz, Assistant Directors; Grace A. Coleman; Gregory A. Marchand; Erika A. Prochaska; Kimberly C. Seay; and Walter K. Vance. In addition, Amy E. Brown; Amy D. Higgins; Timothy M. Persons; and Robert Robinson made significant contributions to the January 2010 report that supported this testimony.

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