

121117 Missile Defense Advocacy Alliance (MDAA) Capitol Hill Forum with Brigadier General Clement Coward Jr., Director of the Joint Integrated Air and Missile Defense Organization; and Riki Ellison, Chairman of MDAA, on “Layered Missile Defense Against North Korea.”

MR. RIKI ELLISON: I’m Riki Ellison. I’m the founder and chairman of the Missile Defense Advocacy Alliance. We founded the Alliance in 2003 right after our country made the decision to withdraw from the ABM Treaty.

We were founded to publicly advocate for missile defense. We believe it makes our world a safer place, and we’ve been in place since then. I’ve been involved with missile defense since the 1980 and was a young student with Governor Ronald Reagan and the introduction of SDI going way back.

We’re a non-profit. We don’t push for any specific system. We are about making our world safer through the deployment of missile defenses around the world.

I have just come back from a 12 day missile defense tour in Korea, in Japan, in Guam, and flew in from Hawaii last night. We were there to recognize over 80 missile defense soldiers and airmen that are in place today in those very regions in defending against a North Korean threat. This is something that we’ve done over the years in bringing forth recognition of excellence of leadership to them.

We started in Yanson (ph) Army Garrison in Seoul on the day of the HS-15 launch. We were in Korea on that day. Our recognition event was during that day of their launch.

We had the opportunity to bring forward representatives of the Patriot crews of South Korea, the 2nd Brigade and the 3rd Brigade, as well as their brigade commander. We have for the first time in the United States our most integrated missile defense land-based crews that we had ever done before, so we had a THAAD crew that is deployed today, and members of them. We had the Avenger and (several ?) radars that are protecting THAAD in South Korea and we had our Patriot soldiers there as well.

We then went to Japan and Okinawa and did the 1-1, which is our Patriot battalion that is there protecting that island, and recognized them along with the Japanese. They have both their air forces and their Patriots used in Okinawa, and also their army short range missile defense capabilities which are the Tan and Sun (ph), a version probably with a greater range than the Avengers that we have.

We went to Tokyo and had an opportunity to meet with the general of the Air Force for Tokyo, General Sugiama (ph). Then we went over to Guam. While we were there the B-1s left to do the exercise last week. We were there with our THAAD unit and recognized our THAAD unit that in deployment there.

We then finished off in Hawaii. On December 7th we had our 94th (WMAAC ?) command which oversees all the missile defenses in the Pacific. They brought their team and we recognized some of the excellence that was there.

A couple of quick viewpoints on what we've seen. I'll start with my perspective, a layman's perspective, from the outside. We know that the Korean Peninsula is where the cutting edge of integrated air and missile defense is in the world. It's the first time place that we've had a THAAD battery having to operate with the Patriot radar. It has far better discrimination capabilities and targeting than the Patriot radars.

This is the only brigade in the world that has a PDB-8 (ph), the most modernized brigade with the MSC missile. So the MSC missiles, which have a greater range than the Patriot IIIs, are all in place in Korea. That integration is absolutely critical. That's the layered piece that Clement will talk to you about.

After the North Korean test, there isn't a shot, there isn't a change. That economy and that city is thriving. They are not affecting the economy or the life of the South Koreans and what's going on in North Korea leader and those testing aspects of it.

You should know that South Korea has 11 divisions on the DMZ, very, very confident. They're all super hot. Their ability to defend -- there's not a legitimate threat by the North Koreans to beat that force that's up there. They're not going to invade South Korea.

In Japan the 1-1 battalion there supported the modernization in Korea. They sent their Patriots over there to help while they modernize the Patriots in Korea. They are the next ones getting the MSC missiles and getting the PDB-8s. Obviously the weather there is very difficult for our maintenance and so forth because of the tropical situations that are there.

The layered aspect for Japan and for the Japanese, is really based on their Aegis ships which have the first generation SM-3 Block 1A missiles on their first shot, and their Patriots have six or seven Patriot battalions. That's the layered defense that they rely on. They are obviously very concerned with the HS-15 with the ICBM.

They are creating a layered defense there, really looking into Aegis Ashore based in Japan to create an IAD as well as a BMD capability. They are looking at Korea and THAAD because the Olympics are going to be in Korea next year. Watch how that is going to work when they look at hosting the Olympics in 2020 on that aspect of it.

Moving back to Guam, we know that for the first time our Navy is with their baseline 9 ships and their ships are helping to defend a territory for the first time. The Navy's ships are a part of our BMD architecture of the U.S. homeland in helping with the center part of it. But now, for the first time, they've had to be out front. It's our first shot opportunity against North Korea on the island of Guam. So they are working that process through.

Behind that, obviously, is our THAAD system. That is in place today defending Guam, and certainly defending our ability to push that offense out there, as you saw with the B-1s and the B-52s that go back and forth. With Guam, I spent some time with the lieutenant governor, and there has been a dramatic economic effect from the threat that was stated by the North Koreans on Guam. They've had a 40 percent decrease in tourism, mostly Japanese this last month, so they are very concerned about that part of it.

Moving to Hawaii, Hawaii and the Pacific are all watching how the Navy is able to defend and island from their ship platforms. We know we've got 44 GBIs, a limited number. We're going to have to wait a couple of years before the next RKV comes in, so there is a vulnerability there or a gap. We're seeing the North Koreans continue to produce the HS-15 and others, but there's room to look at another layer of defense, which is the SM-3 Block IIA, which they're looking at possibly testing against ICBM speeds.

So that's sort of just a broad perspective, my perspective. I want to now introduce our keynote speaker. I apologize for Rear Admiral John Hill. He had other obligations today. He let me know on Friday, so we apologize for that.

But Clem is the number one guy. He is the number one flag officer in the Pentagon on IAD and missile defense. He is the guy. There's nobody higher ranking than him on that.

I got to know Clem way back at college in Carlyle. He got the opportunity to command the world's biggest air defense brigade, the 11th Air Brigade, before he got this position that he's in today. He's an up and comer.

GEN. CLEMENT COWARD JR.: Thanks, Rikki. I appreciate you guys taking time on Monday morning to come here. I know it's not the easiest thing to do.

Rear Admiral John Hill, my partner in the Missile Defense Agency, is a really great team mate. He couldn't be here because of the loss we took this weekend. Army had a great weekend and Navy did not, but he really extends his regards.

As Riki said, I kind of grew up doing this in the field. I've got several team mates in the back right there, which I met several years ago when I was a battalion commander. (Inaudible) -- she kind of moves through into her new transition. But I really do love serving the troops. I love serving in the field. I had the opportunity to serve at the platoon leader level in Desert Storm where 42 Scuds came into Israel to steady conditions in Israel as a battalion executive officer and operations officer to commanding forces in the CENTCOM area of operations overseas as we set the globe over there.

So I have done a little bit of this stuff at the tactical level, but the hard part is what I'm doing right now. That's when you're working the requirements and the programming and the resource business, because there's just too many levers out there to pull on. You think, okay, we have a need out there, we have a requirement here and then

we field a capability and we should be good to go.

At the end of the day, there's always competing demands for policy. There's never enough. There's different spikes in the globe that certainly require an air defense capacity. Really on a month to month basis it could change.

I came into the brigade command in 2012 and it was all things with the Iranian threat. And for obvious reasons it's all things about U.S. Forces Korea right now. That's what my team, kind of represented back here with Mica Lese (ph) and Ron Crowder (ph), help me do on a daily basis.

What I do in the Pentagon as part of the J8, kind of a resource and requirements business. I do have the integrated missile defense hat, and that's what I'm here today for. But I also have what's called the protection hat, which these days deals with counter unmanned aerial systems, which is something that's near and dear to our hearts as we look at the air domain. The other piece is the Joint Requirements Office, which deals with chemical and biological defense.

I say those three things because they kind of vex on each other, if you did a VEN (ph) diagram. Ballistic missiles can deliver weapons of mass destruction, counter UAS is still an air threat and an air challenge in the air domain that we deal with, and certainly integrating that -- that's the integrated air and missile defense hat that I wear here -- that has to bring all that together. So it's kind of good having that whole portfolio, because I kind of look over the fence and they see each other really on a daily basis.

In the war fighter requirement and look at this in war fighter requirements, some urgent and emerging needs. Riki stated we had two major Army air defense platforms over on the peninsula right now, a Patriot and a THAAD system. So one of our challenges right now and one of our urgencies right now is to make sure that those two systems can really work seamlessly with each other. The U.S. forces commander, General Vince Brooks (ph) and Admiral Harris have stated that as one of their high priorities. So that's important that we look at that in the building, make sure that the funding is there and the research and development is there and the modernization is taking that direction.

The other thing to look at is we study from analysis. You have to understand that you can't just look at the threat as of yesterday or the next 48 or 72 hours, you've got to look and see where this thing is going to be in the next five to seven years. And you've got to look hard at yourself.

You've got to look at, what are the peer competitors out there that we are faced with, whether it's China, whether it's Russia, whether it's Iran, whether it's North Korea, and then violent extremists at the same time? So we have to keep pace of not only the "we fight tonight" mentality out there, but it's how do you start looking at what are we going to need for the future as we kind of start determining what those requirements are? A lot of them have long lead times.

These things don't develop overnight. It's amazing what our men and women do in the labs and the scientists do to really keep pace with what is going on out there. I've had to take a crash course over the last six months on space.

I just kind of figured, okay, I'm going to get a sensor (prompt ?) and do some of the capability that I need for my Patriot and my THAAD systems. It's going to come from certain satellite feeds. But I've had to really kind of peel the onion in that area that I'm really not familiar with and I'm still kind of learning in progress. So you kind of go to where your weaknesses are and build up your strength in areas that you have to understand is just as important.

It really is the next frontier. It is the fight up there just as it is the fight on the ground that our combat instruments are dealing with on a daily basis. So to keep pace with that threat is important.

You also have the competing demand of modernization versus readiness. You hear our chief of staff of the Army and the chief of staff of the Air Force, and really all the service chiefs and commandant, talk about that. It's really their number one priority.

It's how do you fight tonight? How do we increase and build the readiness that may have taken a hit over the last several years because of the constant grind of the rotations into the campaign that we've been dealing with? Once again, that's juxtaposed to how do we balance that with modernization? That's a tough fight.

I only can speak from the Army's (side ?). The Army's budget is 50-plus percent for personnel. We're not a platform-centric service. We pay our soldiers entitlements. You name it was it is.

First, it's 50 to 52 percent or whatever the time is. Then you've got to put about 30 percent or so into readiness. That's our constant operations and maintenance grind of refueling and ensuring that we're maintaining our troops out there, etcetera.

And then the last one, really the last sliver of the pie, which isn't all that, it's probably less than 20 percent, is modernization. So you can kind of see where that can get out of balance. That's a challenge. Every service chief has to look at that and say okay, where do I mortgage today's capability against what we need in the future? So we look at that as well in the hats that we wear in the building as you look out into the out-years.

We do want to focus on fat. You can read in the open source press that this administration, the president, we have strong concurrent (support ?) to increase our funding for missile defense. So what does that really mean?

Do you put that all into R&D or do you put that into capacity? Do you buy more missiles? Do you buy more sensors? Do you buy things that might improve today's fight

over the next couple of years, or do you look once again about five to 10 years?

And we go back and forth, depending on who's arguing this or making a statement on either side. That can be challenging. Policy is going to look at it and make it look different than scientists and technologists. The military is going to look at it may be different than a think tank out there. But we want to bring all of these different competing thoughts together, and it's important to have that professional friction out there in understanding these challenges.

The last thing I'll say before we take any questions, because I think that's the most important part, is working, as Riki said, on host nation integration, host nation partnership. What does that really mean? It's not a one size shoe fits all for any country out there. The things that we do with our partners in the Middle East may be different than what we're doing in the Asia-Pacific, may be different than what we're doing in Europe, depending on the relationship, depending on the current policy with that country, depending on what they had purchased.

We are learning a lot, frankly speaking, the U.S. is, from the Emirates and Saudi Arabia as they prosecute a campaign against the Houthis in Yemen. I say that because at the same time you ask yourself, they're shooting very expensive missiles at a very cheap adversary or threat out there. But it goes back to, will we engage a nickel with \$1,000 to save a life? Absolutely.

You'll do the forensics and you'll play Monday morning quarterback afterwards and say, okay, we're shooting at these very cheap quad-copters or whatever it is, the inexpensive threat capabilities that our adversary is using, but we're using million dollar missiles -- I'm just kind of using that hypothetically because we know they're a lot more expensive than that -- in order to counter that. So once again, we have to get back to the building and what's left of that problem. Once again, what can we do maybe to thwart or mitigate that threat out there prior to us having to actually deal with it in a kinetic fashion?

So those are kind of -- that's my in-box, if I can kind of share that with you on a daily basis, and a little bit of my background. Certainly, Riki, thanks for doing this and giving me the opportunity to speak.

MR. ELLISON: Thank you. This is a very open forum where we want you to express your opinions and your thoughts and be able to take advantage of Clem to be able to understand the picture in Korea and the layered defenses that our country has and where we're going. So I want to open it up to you to ask any question you would like.

MR. : In the recent budget supplemental of \$4 billion -- (off mic)-- left of launch capability and cyber capability. Can you discuss it a little bit, if you can, what that looks like?

GEN. COWARD JR.: I think it's a little bit how you define left of launch. It can

get -- it's a complex statement. I think we're kind of used to saying left of launch, but if you have somebody in policy or you may ask an ambassador, he or she may say be careful because does that come across as pre-emptive? So you've got to kind of put yourself in a box and say, what do we mean by left of launch? Are you talking about pre-launch, etcetera?

So what I call the grunt on the ground that can get to a TEL or a strike that can affect that capability before it can launch -- as you said, whether it be a cyber beam or certain electronic capability. The same can be done to us. That's certainly (relevant from both ends ?).

But it goes back to my previous statement of, do we sit back with a catcher's mitt and continue just to wait for wave after wave of a potential threat to come to U.S. protected assets, or can we potentially look at putting some research and development and capability ahead of that launch? I know it sounds just very basic and primitive, but that's sort of the overarching concept.

MR. : That reminds me about the story of the microwave emitting missiles having that capability. (Off mic).

GEN. COWARD JR.: I can't, that's the first time I saw it. I saw it on CBS News or something like that about a week ago. There are things behind the curtain. But I would tell you, that's the first open source type capability -- my hunch is these things are being presented in that fashion, frankly speaking, I think to galvanize some of the expertise that we have out in America that may not understand the technology that invites them into the labs to start looking at this. That's just, I think, a way of looking at that. But it goes back to your point, we're looking at how do we come up with those complex and (scientific ?) ways to deal with it? Thanks.

MR. : (Off mic).

MR. ELLISON: I think we right now are limited with a number that we can't change. By the time we change it, the RKV is coming forward, the MOKV and so forth are coming forward, so you have a window of a gap opportunity. You had a demonstrated ICBM launch two days ago.

So those regions right now in Korea and Japan and Guam don't have a defense against that specific ICBM speed because those systems aren't required or proven to deal with that. So there is urgency to try and find a move forward because the SM-3 Block 2A -- and Jim Syring the former MDA director in testimony said it had capability to defeat ICBM speeds -- that missile is co-developed with Japan and Japan is right at the front line wanting a capability as soon as possible. So I think you'll see a lot of drive to get that system tested to see if it can do it, and proven.

And then if you have that ability in low rate production today, then you're able to produce another layer with our ships that can carry those systems today. The baseline

Navy ships can carry those systems today to be able to better defend and give you another shot. Frankly, if you've got 44 the NORTHCOM combatant commander is now in a much more challenging position because before the whole United States was not threatened by the technology. It was just the West Coast and maybe Hawaii.

Now the choice is she's got to defend all (the ships?). So having an under-layer would help if they could do that. Guam has got -- the other regions have it. There's some politics here because NORTHCOM and PACOM are different on that. NORTHCOM has got that responsibility, but Hawaii is a regional defense (center?). So I think you'll see language in Congress going forward for funding for that, but they've got to prove that technology as soon as possible. I think Japan, a big partner, is behind that.

GEN. COWARD JR.: Your point is correct. The more you can have redundancy, that's always a great thing. The other piece is that the length of time that it takes to just develop one missile from the factory isn't as robust as we would like it to be. So the sooner we can start moving in that direction for that capability -- for something that can have capability against an ICBM, would be a tremendous boost for the joint force.

MS. : (Off mic).

MR. ELLISON: I just got a text that said Victor Chiles (ph) was just nominated by the president to be the U.S. Ambassador to South Korea. I think that's a tremendous step right there. General Vince Brooks (ph) is probably one of the best senior leaders that we have out there. He's the U.S. Force commander, but he's really been doing two hats. He's been wearing both the -- he's also been kind of an ambassador when it comes to working both the policy and the capability.

I think your question is really at the heart of, will we ever have enough capacity whether it be in the region to really avert the threat or combat the threat of the North Koreans? The answer goes back to defense. There are so many other elements of combat power that would be utilized.

It's not just going to be this missile defense against missiles that come over, missiles get engaged and then we're going to see this for an extended period of time. I mean, there's an air campaign, there's a ground campaign, there's a fires campaign at the same time going on. And then there's the political domain that's happening at the same time.

So I think exercises are always great things. I say think, I'm not the commander over there, but I do know the commanders over there and they spend more time -- I go back to my last point that I said in my opening comments -- on building host nation integration and partnership. Some things don't always just plug and play. So if I want to have a system that I'm working with the Japanese, I'm working with the South Koreans, we don't just plug them together and they're going to work automatically.

I mean, there's certain things you've got to get through in today's environment so when the time comes and you need to integrate that, we can see what they're looking at and they can see what we're looking at. We're not just all firing at the same threat out there. We can create, potentially, a layered defense out there -- the better. That's why these exercises are really good things. And that's not just for the Pacific region, that's certainly for the Middle East region that we've operated in, and even from back in the Cold War region when we were in Europe. So I hope that answers your question.

MS. : (Off mic).

MR. ELLISON: I think it's a (live ?) threat. I would tell you that all threats right there are taken very serious. I mean, that's really all I can tell you. I mean, we don't say one is not serious and one is.

I think once a country or an adversary, however you want to categorize it, has the capability to do that, they're always going to attempt to get better. And the more they do it, they learn from their own mistakes, just like we learned from our test mistakes. You always gain something from that. So I would submit that the threat has to be taken very seriously by the folks on the peninsula, as well as (on this end ?).

GEN. COWARD JR.: I would just add that we don't live in -- 20 years ago or 10 years ago, we used missile defense as a strategic deterrent on its own. We now are playing with their offense. It's an offense-defense deterrent, and certainly we're not ever going to match exactly or even close to their inventory of capability to strike us. We have that mixed deterrent, and you're seeing that with those exercises.

Because the threat is continuing to increase, those exercise are very important. That offensive exercise over the last two weeks, we had 150-plus sorties in there demonstrating that that offense is with this. So it's really a concern to the populations that you have to have something in place to defend against an accidental or premature launch, that the populations are comfortable and the economies are comfortable.

You're seeing both Japan and Korea still moving very strongly in that because they have defensive capabilities. That was huge. That is the only thing on the peninsula that could defeat a ballistic missile at the magnitude that they're going. So I think you're going to see more and more of a mesh between the offense and the defense, which we haven't really been plasticizing, as we're going to be doing in the future.

MR. : You mentioned the length of time it takes to field -- (off mic).'

GEN. COWARD JR.: My answer is no. It goes back to our government will set what our course (jabs ?) will look like, so on the Army active duty side we're 480,000 Congressionally approved individuals in active duty in various branches, etcetera. So we have in the Army air defense pool 15 Patriot battalions and five-plus THAAD batteries

being developed at Fort Hood. So you can say six, but it's in the testing and fielding phase right now.

But to give us more systems it doesn't necessarily mean that we actually have to man those system too. So it's sort of like a physics problem at the same time of, how do you keep up with not only we have more airplanes and more ships or whatever, than we have men and women to man them? We have to kind of keep those things in balance. And we have to maintain with whatever our strategy is going to be, our national defense strategy, our national military strategy, ultimately our national security strategy.

How are we going to posture our forces abroad? I was going to say at the end of the last question, but when you do send a missile defense capability anywhere in the world, since Desert Storm it has clearly sent a message, whether it be positively or negatively depending on which side of the country you're on. So again, I had the fortunate opportunity to send the first THAAD battery into Guam. We knew that was coming about a week out, and then when it hit the news it was huge. It really was.

And certainly we watched the challenge about, what's so hard about bringing just 95 men and women, a radar, a few pieces of equipment, just push them into South Korea and put them in an open space here and they're ready to fight? It's like we do at White Sands Missile Range in New Mexico. It comes with political ramifications. What is seen by us as defensive may be seen as offensive by another country.

So I will tell you this too, war plans certainly exceed the capacity that we currently have. We know we have force in the Middle East. We know we have forces in the Pacific. We know we have very little capability in Europe.

But I will guarantee you that each of those competing combatant commands probably has that number or more needed for the capability that they need if something was to happen in their theater of operations. So decisions have to be made, whether we move capability or recommit them elsewhere. It goes back to my point that the challenge of who's modernizing now, who's doing testing and research and development?

And we do it, we figure it out. We always have. It comes with the cost of personnel capital. I mean, soldiers and airmen, whoever it is, deploying constantly, coming back and forth, being away from home, etcetera. It's what they signed up for, we need the capability out there, but the grind takes its toll and so you start talking about the second and third order effects of who is going to reenlist with this constant pace out there?

Ten years or seven years in and you're on your seventh or eighth deployment, and you have more (hash stripes ?) all the way up to here, and it becomes very challenging. That's something that we certainly have to look at too, is the human element. It's not always just about the science of putting forces and troops, etcetera, on the ground with capability. You've got to reset, and it takes a lot to train an individual in this very highly skilled area. I know I kind of rambled on about the question, but I think it's important.

MR. : (Off mic).

MR. ELLISON: I would just say there's this great example of what just happened in Europe, where we took soldiers that were not ADA trained from the second CR and the 173rd, and trained them in six weeks and they got out and did Stinger intercepts. They were in Crete intercepting (right off the range ?) with our ADA soldiers. They were able to force change by having other soldiers with other missions incorporated into that mission. That was considerable.

I think what they're going to do in integration with the Patriot (battery ?), which has never been done before, is really going to set where we're going, whether it's modular brigades or battalions and how we fight, because we've never had to fight like this ever before. But we'll have to have all those capabilities in one area. So it's probably premature to go forward until you figure out exactly what this is and whether that's going into IVCS (ph) or going into being able to use your best launcher with the best sensor, and getting that figured out. I think this has sped up the development and the operations of our IAD tremendously.

MR. : (Off mic) -- the integration of all of the sensors for your fusing a common operating picture, and then using -- (off mic). How do you see lasers and rail guns and other advanced technologies (playing a role)?

GEN. COWARD JR.: I'm only going off of what I've heard my senior air defense officer say, Lieutenant General Jim Dickinson at Space and Missile Defense Command, they are investing a lot of effort into this capability. They've had some shoot offs and some capability demonstrations out at White Sands Missile Range. Where they can increase the kilowatt of using laser technology, putting it on potentially a ground-based system. But at the same time, how high can they go without risking the airspace and potentially shooting a friendly -- or doing more harm out there than good. So it's definitely heading in that direction, I mean it really is. I don't think we're the only service looking at that. The Navy is as well. But I do see that as certainly the wave of the future.

MR. : (Off mic) -- firing a laser to provide defense less threatening to an enemy than firing missiles?

GEN. COWARD JR.: I'm not sure it's less threatening. I think it gives us more options and potentially cost-effective options at the same time. That is why it's being looked at, I'd say not in a super aggressive manner, but certainly in a very programmed approach right now.

MR. : (Off mic).

GEN. COWARD JR.: I wish John Hill was here. But I would tell you that it's being looked at hard. It is. I think we have to. I think we have to look at -- it goes back

to (how to launch in the ?) intercept phase.

All those different layered approaches can and have to be considered in our continued approach to missile defense. I think we'll get there. I feel confident about the men and women of this country that are going to figure that out.

And I think we have to figure it out, too. It's just a matter of how are we going to do it, when are we going to do it, and we can field it? And then once you have that capability, how do we incorporate that to the joint force commander's effort?

MR. ELLISON: One of the most promising technologies is the UAV above the clouds at standoff range with a directed energy weapon, solid state. I think the requirements are 500 kilowatt to do that, and that's a heavy piece of equipment. I think at 150 we can do this where you need to be standing off at a couple of hundred miles.

To be able to shoot a laser beam within a second and burn through a half inch of steel through the plume of the rocket as it goes up, that's a game changer. That's going to require policy to enable that aspect of it, because you're now looking at opening that up to anything that flies. So it's a policy challenge and it's a technical challenge that I think is one of many options that the country is looking at developing.

But it would seem to be the game changer with cost and capability. You don't have to deal with the (defractions ?) underneath the cloud layer where (it's clean ?) and further up in the atmosphere. That first 300 seconds of a ballistic missile's flight is vulnerable, and we don't have anything right now to deal with that. We talked about the AMRAAMS on the F-35. That's still being discussed and seeing if that's even technically possible.

MR. : (Off mic).

GEN. COWARD JR.: You're asking about the Saudi Arabian threat?

MR. : (Off mic).

GEN. COWARD JR.: I don't have the fact, I'll be honest with you. I've seen a couple of reports in the building, in the Pentagon. What I will share with you is that that threat isn't being independently researched and developed by just Yemen.

More than likely, it's coming from proxy near-peer competing countries, giving the Houthis that capability to fire ballistic missiles against Saudi Arabia. My point is that it is not the Houthis that are doing the research and development. It is a larger country with more expertise and science and technology that has given them that capability to engage that threat against the Saudis.

Certainly they extended their reach in the attack further into Riyadh. I think Saudi Arabia has a defense design that is set up well enough to defend key and critical

assets as they deem necessary. If they did not engage, they might have had reason not to engage in a certain area of their country, based on the defense design that the Saudi Arabian government has established for their country.

MR. : (Off mic).

GEN. COWARD JR.: I don't know. I think they're still at the PAC-2 level. To be honest with you, I'm not into foreign military sales and understanding if they have made a purchase and if that purchase has been delivered to Saudi Arabia. I'm just thinking, I think it's PAC-2 because the PAC-3 capability hasn't extended across to several countries yet.

MR. ELLISON: I had the opportunity to host the Gulf GCC Missile Defender of the Year with our partners. At that point in September they had said since 2015 they had intercepted over 160 missiles. I don't know of any other combat -- even in Israel -- that has intercepted that many during that time period.

So they're effective with it. They might have missed one or two, but that's where they're going and it's very solid. We'd like to get them more integrated, but I think what we're doing in North Korea, what the U.S. government is doing in Korea with that fusing of THAAD and Patriot is what is going to be the formula, once it's established to go into CENTCOM as well as into other areas around the world.

MR. : (Off mic) -- look at additional layers -- (Off mic) -- has there been an intensification of efforts to add additional layers?

GEN. COWARD JR.: There has been an intensification on the urgency of how do we best spend the money that the president wants to give us. I go back to my earlier point. We have to offer the best military advice, working with our civilian leadership in the Office of the Secretary of Defense and others, and in OMB, to make sure where we put the right investments.

If the investment is best suited on immediate concerns, then that's where some or a portion of the investment will go. If we have confidence that we can hedge with time, then we will still continue to put that investment, or a portion of that investment, into research and technology. So it really kind of goes back to we have to look at this in time and space and current events and the social and political climate that's going to be (advised ?) from outside, and then we apply that to our leadership within the building.

So the good news on where our missile defense is at is that it's good when you have a few extra bucks to spend. And it's always where you spend -- if you add one more dollar, where do you want to commit that one dollar? Is it always going to be in interceptors or is it going to be in sensors, or is it going to be in missiles or research and technology? Or potentially, is it going to assist the space program that provides us missile defense early warning?

That's why I go back to I had to get smart on my understanding of the space community and the space environment because of the missile defense warning that that layer provides as well. It's always not just the layer that you provide, the sensors that you have at your disposal. It's the external feed and the joint architecture that you have access to.

MR. : (Off mic).

GEN. COWARD JR.: Yeah, it's still being discussed. The Missile Defense Agency -- I wish John was here -- they do tremendous, tremendous research and development. In their charter, once they have completed the test and evaluation of a weapons system, it is supposed to get handed off to a service.

But it's not always that clean. THAAD is a perfect example of that right now. THAAD has been with MDA for, I want to say decades, but it's been decade-plus. By law, or by charter, it is supposed to get transferred into the Army.

The challenge is that there's still some R&D that's always going to be associated with the THAAD program. We always want to improve it, we want to make it better. You give that entire portfolio to the Army and the Army gets the entire program.

So right now there's just a moderate impasse of how that is going to proceed. It's not as easy as you think it is because the language is stated in there and it's to do it for the right reasons. You can have somebody from MDA say we need to hand it off, but another person in MDA would say no, we need to keep it for those reasons.

And then the Army will say the same thing. Give me the full kit; or no, I don't want it yet because there's still some tails to that bill that we want to keep over here in the Missile Defense Agency. So we figure it out and the good news is that system is out there and it's being operated and served by our men and women in uniform. It's just trying to get those in the right pipes.

MR. ELLISON: Clem, do you want to make a closing statement?

GEN. COWARD JR.: Thanks a lot. I think we can't, whether it's 20 people or 50 or 100 people, talk about this enough. Certainly your interest this morning is always humbling and I appreciate each and every one of you coming here. Hopefully you'll continue to carry the message and read things that are happening within the missile defense portfolio.

The missile defense domain is certainly part of a larger and combined operation. It's not just we're going to see 20 ballistic missiles come and we're going to fire 40 and then go back in three to five days or 30 days and fight. There's going to be, certainly, activities and other things happening.

What I have learned in my 28 years of service is that when we position missile defense forces in the military abroad, it sends a message. It send a message, certainly, of

deterrence. But it also sends a message of host nation partnership building with the countries that we are serving in -- integration.

When I used to serve in the CENTCOM AOR I got rid of the term steady state operations, because nothing is steady state. The term I like to use is we're doing what's called shaping operations. We're shaping the environment. We're shaping the options that our senior leadership has from the president all the way down to our combatant commanders, certainly to our war fighting commanders on the ground.

That's what is very important about the capability that we're privileged to serve with when we're not here in Washington, D.C. So thanks again, I appreciate it, and I look forward to seeing you guys again.

MR. ELLISON: Thanks Clem.

(Applause).

Thanks for taking the time to visit with us. We are excited about the future of this mission. We look forward to seeing you at our next Congressional roundtable on this issue.

Thank you very much.