

The Missile Defense of Israel Under Attack

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Mr. Riki Ellison, Chairman and Founder of MDAA

Good morning, ladies and gentlemen welcome to a beautiful day here, a fall day in Alexandria. First off we want to send our support and prayers to [the people impacted by] hurricane Milton and the government agencies working especially NORTHCOM and 82nd we got a little biased there but that obviously is a national concern for all of us. I'm Riki Ellison I'm the founder and chairman of the Missile Defense Advocacy Alliance. Our whole sole purpose for the 20 years of existence is to make our nation and make the world a safer place through the development and deployment of missile defenses. This is our 62nd virtual on the missile defense of Israel.

41 years ago, I can say I was in a kibbutz in Northern Israel and witnessed that rocket attack 41 years ago there have. I have worked through President Reagan's Administration and President Bush senior's Administration where the mou from the Space Defense Initiative for our allies was with UK, Japan, and Israel; and out of those three Israel has been the foremost dominant, foremost developer, foremost active partner and Ally for our nation our missile defense and clearly say that they are the best in the world at it and obviously you don't want to be the best in the world at because you're getting all the shots at you but they've had to become the best in the world and they are the best in the world at a layered missile defense capability.

We have visited there with some of our guests with Shachar and Tal for the past 20 years. We were out there when we put out our Tippy 2 radar near the Sinai desert, we've been there at sedat when we first developed the Iron Dome 20 years ago, the Arrow, the David sling the Green Pine, and the MDA Israel test bed, and the development of these systems have been spectacular on it. The capabilities are all there, the capabilities are all there to be able to intercept whatever Iran is throwing at them. We're here to discuss what happened last Tuesday and the relevance of that to the world not only to Israel but to the world because that looks like the way real combat is happening and it's happening in a way of overmatch. It's not happening that we don't have the right capabilities, we have the right capabilities, we just don't have the capacity, and we are using capacity that we're unable to produce as quickly as possible. This is where Israel leads the world at on this because they are judicious they understand that and they're they take more risk than any other nation in the world to let missiles go that aren't targeted specifically on infrastructures or on people and that was developed with the Iron Dome system so they could be judicious with that aspect of it. We're not that judicious, as we look at this thing that happened on Tuesday you have the Israeli defenses in the back but in front of that is CENTCOM and its allies that Israel is part of that that do the capabilities of sensing warning tracking and intercepting prior to them getting to Israel. We're using some of our best stuff such as the SM-3 Block 1B off our ships to specifically hit systems, but this is the wrong end of the cost curve. That is a you know 10:1 cost ratio that we can't afford we're doing this, this was only a couple hours of attack and the amount of money spent on one side versus the other is completely lopsided and you've got our government that's stopped the development and deployment or production of the SM-3 Block 1B that they're using so it is a really interesting place that from our perspective this is not being addressed correctly. We are not being addressed correctly, this threat the capacity limitations that we put on Israel put on ourselves because of this.

Today's discussion is going to give you a very personal perspective from Israel with two great leaders there. Tal Inbar has been with us for 20 years, probably the leading expert in the world on Iranian missile threats, nobody better than him on that then he's in Israel. Then we have Shachar, former Brigadier General of the Defense Forces. I knew him when he was in charge of the Arrow, he's with Rafael with a lot of the critical systems that are in play today and he's here speaking from that perspective. Then we will back off after that and we go into the US role in CENTCOM and the US capabilities that are used to support that attack and shoot down what they can.

I want to start off the discussion with the reality check of what exactly happened and no better person to do that than Tal Inbar who is our academic fellow and an MDA Board of advisor. Tal, all yours.

Mr. Tal Inbar, Missile Defense Advocacy Alliance Research Fellow and Board Advisor

Thank you Riki and the wonderful team for this event and I can just hope to have such an event in the future with no regard to a missile attack in Israel. I want to show you a little bit of what happened last week so hopefully you could see some of my slides and we're talking about a missile attack on Israel the second time that Iran directly attacked Israel. The first was on April 14th and April 14th was a combined attack by UAV's, Cruise missiles, and ballistic missiles.

The second strike on October 1st, the Iranian side just used ballistic missiles. Roughly 200 missiles or something in that vicinity of a number were fired on Israel at 7:31 PM. This was called by Iran, True Promise 2. The attack was some kind of retaliation from Iran for the assassination of the Hezbollah leader in Beirut and the death of IRGC General from the Quds Force. Roughly 200 ballistic missiles were launched by IRGC against several Targets in Israel. 181 missiles reached their targets or at least where some of them or most of them were engaged. We know from official sources in the US that at least 12 SM-3 interceptors were used by two Sixth Fleet [guided] missile destroyers, the USS Cole (DDG 67) and the USS Bulkeley (DDG 84). The Nevatim Air Force Base, for the second time, was the main focus of the attack together with two other Air Force bases and according to Iranian sources and international media the Mossad HQ north of Tel Aviv.

Like in the April attack it seems that all of the missiles were prepared underground but they were launched above the ground from transporter erector launchers meaning that with sufficient intelligence, the US for example, could detect the preparation for such an attack several hours in advance. The missiles used were mostly the same as the first strike. We can see the Emad, which has roughly a 1,700 km range, it is liquid propelled. Another liquid propulsion system for another missile is the Ghader which is an improved version of the Shahab-3. Khyber Shekan, which is solid propelled roughly 1400 kilometers range were also used. This is very interesting to note that in April none of those missiles was able to penetrate the Israeli airspace and this time this was not the case. According to Iranian sources they used also the Fattah-1 which you can see now. Which is an Iranian first generation of hypersonic missile, I could rather call it aero-ballistic re-entry vehicle missile, so perhaps some of those missiles were used as well in this attack.

We can see some damage at least to Nevatim and no Israeli was hit during this attack no casualties in Israel. But we can see some damage, you can see the F-35 shelters and one of them got a direct hit and some buildings were damaged in Nevatim and the same is true for the another Air Force Base, Tel Nof AFB, and one of the missiles of Iran missed the base completely and it landed inside a school in the city of Gedera again no casualties but nevertheless it was quite a quite an impact. The actual effect on the performance of the Israeli air force is minimal if at all, we can talk about it, minimal damage.

Iran learned a lot as we did from the first attack and in instead of launching the first wave of attackers very slow flying the UAVs; they coordinated and orchestrated two salvos of missiles so basically in less than half an hour more than 200 ballistic missiles made their way to Israel. And per Iranian point of view the saturation of ballistic missile defense is their way of coping with countries with active defense. Not only Israel but in the region at all. So we can see large volume of missiles in the short time, successful penetration of several missiles at least to Nevatim region, and dramatic improvement of Khibersheqan ability to penetrate the Israeli airspace. We don't know exactly from open sources the reason for that but nevertheless Shachar will elaborate a little bit as the best he can.

We can see here this is the actual Iranian footage from the preparations of the attack. You can see an Emad missile underground and people are now preparing the re-entry vehicles and the warheads and then they put it on the on the transporters and left the underground tunnels. Dozens of such missiles were used and you can see this tunnel is also used for storage of second wave or third wave of ballistic missiles. But you can see also that the missiles near the walls of the tunnels are not ready for launch. Iran has a lot of other missiles, and they have multiple sites like the one we can see here.

This is the Ghader missile, less accurate with a CP of several 100 meters, but nevertheless more than 500 kilograms of high explosives in the warhead of these missiles again liquid propulsion. You can see of course the propaganda side of this attack with posters of the IRGC General and Hassan Nasrallah from the Hezbollah and some quotes from the Quran handwritten on the missiles prior to the launch. So you can see here at least two missiles now one is already launched and the other one is about to be launched and you can note also small fins on the reentry Vehicles because this is a more accurate version of the Ghader missile this is not the Emad this is an improved Ghader, nevertheless the successful interceptor interceptions of most of those missiles is proof that the missile defense works as we all know. This is the Khyber Shekan. I just want to show you the skies over Tel Aviv, actually I was in Tel Aviv that night and I was a personal eyewitness to this attack. You can see here intercepted missiles, so those are missiles that were already hit by some interceptors probably Arrow missiles or could be also SM-3 from the sea. You can see for example another angle, and this is the last slide that I want to share with you because I think it is an amazing documentation of the attack from Jordan. So someone from Jordan caught on camera a lot of incoming missiles from Iran heading to Nevatim basically, so the view is from east to west. So all in all we can see that the attack was more heavily coordinated by Iran than the April attack only ballistic missiles and only military Targets in Israel. So we also have to remember that the outcomes of the

this type of attack could be quite different if Iran will choose to fire a large barrage of ballistic missiles on a civilian Target or a large city like Tel Aviv but I leave you with this introduction.

Mr. Riki Ellison, Chairman and Founder of MDAA

Great presentation I have two questions for you. What is the estimated cost of these Iranian attack and why are they not using the Russian tactics of combining all their ballistics and all their all their drones all their cruises together? Why are they simplifying this defense to expose because they could do a far more complex attack they've chosen not to do that just out of curiosity?

Mr. Tal Inbar, Missile Defense Advocacy Alliance Research Fellow and Board Advisor

Yeah so unfortunately Iranian authorities don't give me some inside information but I can estimate that they learned from the April attack that almost all of the UAV's and cruise missiles could easily be intercepted as we saw on this attack because you can intercept incoming UAVs and cruise missiles far from Israel airspace using air to air missiles not just the Israeli Air Forces were coping with that threat and this is one aspect. The other one is that if you want to coordinate the attack using at least three different systems with different speed relatively slow speed UAV's a little bit faster cruise and then ballistic missiles. So you give the Israeli side and the US side a notice of 8 to 9 hours before the first wave of UAVs will come so it is not effective.

About the cost, we don't know the official number of how much is one ballistic missile let's say liquid propelled missile but a missile is a missile everywhere, so you have the cost of materials and the work hours and guidance control and so on. So I believe that a large ballistic missile from Iran is at least one or \$1.5 million if I will be very conservative in my estimation. So it is costly even to Iran but we know that Iran invested decades of producing those missiles. They have a large quantity underground and they could be kept indefinitely because the conditions are very convenient for the missiles and if you just keep the missiles not ready for use you can cover it like a cocoon so it could be saved for decades. But it's not a cheap missile.

Mr. Riki Ellison, Chairman and Founder of MDAA

So you're talking about 200 to 300 million basically loose on something like that. Good to note and I appreciate your thoughts. Ladies and gentlemen retired Brigadier General Shachar Shohat. Welcome and the floor is yours.

Brigadier General (Ret.) Shachar Shohat, Former Commander, Israel Air Defense Forces

Hello from Israel, thank you for having me. I would like to raise a few points from the strategic level up to the operational level regarding this specific conflict and referring to the other conflicts that we've seen in the last decade. first of all, I would like to refer to the deterrence or the loss of deterrence that we can see.

Deterrence is gained by having, let's say, attack capabilities or attack means. As a wise President once said, "speak softly and carry a big stick", but it's not enough to carry the big stick you have to show your willingness to use it if it's necessary. What we've seen in the last decade and in the entire world and here in the region is the loss of deterrence and that drives the conflict. We saw it in Europe, we see it here now in the Mediterranean. Though it's a vague thing, the deterrence, I think when the president of United States is trying to ask Iran not to do something and they are still taking the care to attack Israel like we saw few days ago I think it has to ring a bell. So, Israel, for the first time in the last 50 Years or ever, is attacking simultaneously from seven fronts. It started by the Hamas, moving forward to Hezbollah from the north, the Houthis from Yemen, the Iraqi militia from Iraq/Iran, some Syrian and Lebanon fronts that having issues inside the territories, and that also emphasize the need of 360 degrees coverage to the state we saw it in the attack in Saudi Arabia. You have to defend 360 degrees. The next thing I would like to emphasize is the need to defend the defender. We saw it in Ukraine how they attack the air defense system, and we saw it unfortunately here in our last conversation, we were talking about elevated sensor. Unfortunately, Israel lost its elevated sensor and that was a crucial tool for us. Of course, we can regain power and tools, but you must defend the defender, you have to put effort on that in order to use your tools correctly.

Moving on to the length of the conflict no swift victory anymore. Wars are taking time, we so more than two years in the Russian Ukraine war. We are now here more than a year in a war we never dreamed about it, we thought that we can finish [this] war with within a few weeks and the data reflects the stock of ammunition that every country needs the independent capability to produce during war more ammunition. This is not an off the shelf product, sometimes it takes a year for items that you have to bring. So it emphasize the needs of the stock of Interceptor or ammunition and of course create some partnership with the other countries, alliances, like you can push or ask or borrow munition from an ally in order to maintain a very long time of the war.

Speaking about alliances I mentioned in our last meeting, I don't remember when it was maybe a year ago or so, and I said that here in the Middle East we need something equivalent to NATO. I call it METO, Middle East Treaty Organization. I think the Middle East arena, and we kind of demonstrated it in this conflict, need to cooperate in order to mitigate the challenge that we are having from Iran and its proxies and I think this is a good time for Saudi and Kuwait and the Emirates and some other countries to join together in a defensive alliance in order to face the challenge that Tal just described very clearly. The 300 [element] in April and a few days ago 200 tactical ballistic missiles, in one salvo, in less than an hour trying to saturate the defender.

Fortunately, what we [have] worked on the last few decades on the combined exercise of the Juniper Cobra, on building cohesion, rules of engagement, tactics, doctrine, practice with the US Armed Forces was improving itself. The efficiency of the AEGIS ship's that was mentioned by Tal was very important to mitigate this intense salvo that we face. Of course, no 100% of success but we are pretty satisfied with the success and with the minimum damage that it created, almost no loss of life from this attack. Of course, damage of infrastructure but all the capability of the Israel forces, the offensive means the Air Force were kept [in the air] during the entire night and the entire war here. Though, we kind of prevent most of the damage that we could prevent even though it was maybe the most intense salvo that world ever so in the same time.

Having said that, interoperability. Interoperability, you have to be able to plug and fight within the alliance of course the technology provided now but if you are doing it and prepare it and plan for in advance so you can work as a team and that's what happened I think this conflict. Maybe last but not least, I'm referring to Tal's excellent presentation that the hypersonic threat is on the step door. We have to take it seriously and accelerate our capability to mitigate that challenge.

Overall, even though it was a very intense conflict and I'm talking about seven fronts more than one year. I think we are also very proud of the fact that the Ben Gurion International Airport was not shut down for the entire world even though a few of the commercial airplanes stopped flying to Israel. But the Israeli companies like El Al, Arkia, and the Emirates were still flying most of the time and that I think also demonstrate our capability to keep our sky safe and to avoid the friendly fire despite the massive attack that Israel was meeting. So I think I will stop at that point and answer any questions

Mr. Riki Ellison, Chairman and Founder of MDAA

You brought up some great points; I think the loss of deterrence is a great point. How from your perspective is that a balance between offense and defense, what is the solution with that big stick and how you display it because it's obviously not working in Ukraine or Israel. If you can speak to that a little bit what your thought is; is there is there a special formula of more defense or more offense or what is that or policy to allow you to strike ahead before these guys when you know they've got it and they're coming at you?

Brigadier General (Ret.) Shachar Shohat, Former Commander, Israel Air Defense Forces

I can share my own perspective. I think Corky and JD maybe will do a better job than me. I can say that you have to show your readiness to project deterrence. I call it cut the grass. From time to time, you have to demonstrate the capability and your intent, honest intent, use it. But if you try to avoid any conflict and they are dragging you from a small element of shooting near the border, then kidnapping someone, and you still don't retaliate strongly that's the way you are going to lose deterrence. The Western world is eager for peace they want quiet, wants to have good life, everybody wants to go to vacation in Hawaii; but in order to keep the world safe you need to project your capability from time to time and not let, especially non-State organizations to grow. So you have, from time to time, to cut the grass.

Mr. Riki Ellison, Chairman and Founder of MDAA

That's the edge where on the other side of it you brim to a world war or nuclear war on that back end. That's that edge you've got to play when you do that, correct? That's the chess game that's going on.

Brigadier General (Ret.) Shachar Shohat, Former Commander, Israel Air Defense Forces

I think if you'll do it on conventional means from time to time maybe you will avoid in the future unconventional needs to use of weapon system. But I think I'll let Corky take it from here.

Mr. Riki Ellison, Chairman and Founder of MDAA

To and then on your other point the METO, it's good name, but I think we're doing that. I think CENTCOM's got six nations there that your Arab neighbors that you're in and certainly we know those missiles fly over Saudi they fly over Jordan and there is capability or opportunity there to engage. But that seems to be moving in a positive place. I know it's going to take some time to do that. Is that correct is CENTCOM leading this with the

six nations or are you included with that in terms of the overall regional security? You think that needs to be progressed faster?

Brigadier General (Ret.) Shachar Shohat, Former Commander, Israel Air Defense Forces

First of all, I have to personally admire and thank General Kurilla and the good job that he's doing in the entire region. I think CENTCOM is showing the projection of the US in the region. But I can bring Yemen and the Houthis as an example. This is a state or non-State organization that terrorizes the entire region. That prevents the liberty of sale in the Gulf and causes a lot of damage to the economy of the entire region. I think he should be more aggressive in the beginning and of course now not to terrorize the entire region and Israeli. Especially Israel, of course Israel had no issues with the Yemen's Houthis and still they have the capability of attacking us on weekly basis and project their deterrence entire and damage the entire world economy. So when I'm talking about cutting the grass this is maybe the best example that I can give you. That is maybe out of the scope but you have to take care of these blooming threats.

Mr. Riki Ellison, Chairman and Founder of MDAA

There should be some credit given to Saudi Arabia and Jordan for their partake in what happened on Tuesday. I think they helped, and they're not being acknowledged. Obviously, there's some sensitivities here; but there is a team starting to develop for the defense, and it shouldn't just be for Israel for all those countries need to work together on that. So I think that's underground a little bit it's getting some support, maybe they're not publicly acknowledging it but it seems to be real.

Brigadier General (Ret.) Shachar Shohat, Former Commander, Israel Air Defense Forces

Totally agree, I mentioned the need of the alliance, I mentioned the other countries support, which I cannot refer to directly, but it was not only the US forces. There were some other European forces and some other Regional forces that I cannot refer specifically and I think this is very important. The few of the things that I referred, I think we should be more aggressive than what we demonstrate so far in order to finish this conflict.

Mr. Riki Ellison, Chairman and Founder of MDAA

I think that's positive Shachar, I mean this didn't happen 10 years ago or 5 years ago you've got active participation in in a team effort. That's growing, I hate to see the only way it grows is you get struck by 200 missiles. I mean that's not the way to grow this but that's what's happening because that's the necessity of what we're going and I think it's also got to be on both sides if one of them one of them gets hit that your support it's a team game. So, thank you for just a great discussion. I appreciate it Shachar, thank you.

Now we're going shift over to the CENTCOM, the side the American side of it. In our country the command of missile defense in each region of the world is under the Air Force. The Air Force controls that and commands that. So, it's great to have the former deputy, the J3 of Air Force operations, Corky the best F-22 pilot I know. Just a gifted individual and for him to give us perspective from the air picture and his perspective as the command of this Mission from the United States on the Air Force perspective. Corky it's all yours.

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

Thanks, Riki, apparently you only know one F-22 pilot.

Mr. Riki Ellison, Chairman and Founder of MDAA

I know a couple haha.

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

Hey, thank you for the work you continue to do at MDAA and for your entire team for putting on the event today. Thanks to my fellow panelist Tal, Shachar and JD for being here. Great comment so far and I know JD is going to continue that he gets his turn here in a minute. Riki you said it up front we live in a dangerous world and it's becoming more dangerous and I just want to highlight a couple of things that you know everybody's well aware of but let's go ahead and state them up front.

Russia, China, Iran, North Korea, and the Houthis are all working together. It's quite maddening to see and we have to figure out, as was mentioned numerous times now, how do we restore deterrence. But just as of today we're seeing reports that North Korean soldiers are now fighting in Ukraine and dying along with North Koreans providing weapons to Russia. The Russians are cooperating with the Houthis to provide their munitions. Iran is providing munitions to Hezbollah, Hamas, the Houthis, and Russia. China supporting all them behind the scenes. China by the way tried to make a deal with the Houthis, I don't know if our audience or everyone on the panel here saw this, but China was invited to be part of the Joint multinational team to protect shipping lanes

going through the straits there and they decided no they're not going to do that. They tried to make their own deal with the Houthis to allow Chinese ships to go through safely but everybody else to continue to attack. Funny enough the Houthis didn't agree to that, and they have attacked Chinese ships. But anyway you see this this group of malign actors continue to line against the western world and we've got to figure out how to push back against them and restore deterrence where it is not holding. It is holding in a few places it's still holding in South Korea; it's still holding in NATO proper, you know China is escalating in the south China sea but we're still holding tight there.

So, the perspective you told me to bring to this, what's the US role there as far as defending Israel and how we pull all that together and I thought I'd approach this by talking a little bit you know the football analogy we've used in the past. Your 49ers aren't going to show up to the game tonight and figure out what to do then, the game was won well before they got there. You look at that the missile defense lens, it requires us to have an exquisite knowledge of the threat, to build and field systems, and to train to those systems, to be ready to use them, and then to execute when the kickoff happens and when the game happens.

So, you know walking through that Tal gave us a really great rundown of the threat, but Israel is facing everything from small UAS to cruise missiles to ballistic missiles to Hypersonic missiles. I guess the good news is primarily coming from Iran, the only way they can get that far is these ballistic and some hypersonic. They do have some long-range one-way drones but those aren't as tough to deal with as say rockets or drones coming from Hamas and Hezbollah and so what we saw here in this strike particularly was these ballistic and hypersonics. But drilling down that a little bit more to defend ourselves properly we need to have an exquisite understanding of the material, the systems themselves, and also the humans. That has taken, as was mentioned, decades of hard work to pull that together we know the types of missiles, like we just saw briefed by Tal, we know what their capabilities are, we know where they're stored, we know what their weaknesses are, their strengths are, we know where they're launched from. All these kinds of things have been built up over time right. And then on the human side we're looking at what kind of operators do they have, where do their operators live and work and how do they communicate and what are their tactics, techniques, and procedures for launching these things. Then there's the leadership too of Iran; what are they saying, what are the indications and warnings they give up before they actually decide to attack. All those things allow us that knowledge of the threat to put in place our own to build and field our own system to give us the indications and warnings we need to put the forces out there we need in place to train them and then when and if an attack happens to execute.

So you think about the early warning architecture that we put in place to monitor all those things that Tal talked about all those all those manufacturing places, all the storage places, all the practiced launches. So, we got eyes on whether it's from space, whether it's humans, whether it's radars, you know listening to coms, looking at things and that is a tremendous benefit to us. It only works though if we share it across the team right. So, it's not us only we share it with Israel, we share with our like-minded partners over there who are consistently threatened by Iran. We got to place sensors you know around the area over there and that again requires the willingness of partners to participate in this so again hats off to all those partners. Then our troops, our Joint Forces, you said the Air Force three star over there has command and control, but he doesn't own any of the systems. The Navy organizes, trains, and equips; the Army organizes, trains, and equips; then the Air Force provides the C2 for the US piece. Then we have to interact with the air-to-air defense forces of all those other partners we talked about and then primarily Israel which is the nation that's getting shot at. That requires training like what was mentioned, Juniper Cobra, numerous other exercises that are ongoing practice, practice, practice. So, when and if the attack happens, you're ready to go and then it's just on the individuals to execute.

Execution requires all those systems of work, resilient redundancies, C2, Etc. But when those systems don't work the really asymmetric advantage, we have with the Western way of war the way the US fights the way Israel fights way many of our partners are is we trust our operators at the lowest level. What we call mission command. They fall back on their training bottom line just like you did as a middle linebacker you go and you get the job done you're trusted to do it right. And so I think we saw all that work about as well as it could with this large volley that we recently saw come at Israel; but, as has been mentioned here, at the end of the day deterrent failed. We cannot sit back, Israel cannot sit back, the Western World cannot sit back, and continue to take it on the chin. It's unaffordable and it's unacceptable. On the unaffordable side, you mentioned some math a little bit ago we estimated in the comments here that Iran spent you know a few hundred million on this strike potentially right, well on the on the MDAA website there's a list of how much it costs for every effector that we have in in the US inventory and some of our some partners and if you look at just the SM-3's we fired 12 SM-3's. So, that's somewhere between \$100 million and \$325 million. For the cost of the 12 SM-3's that's what it cost for their entire strike. So great that stuff worked as well as it did but we can't keep doing it we can't afford it

and we have great systems but we can't afford the capacity needed to continue to just take it on the chin like that and try to shoot everything down.

On the unacceptable side, it's not acceptable for our morale, for our populace for that we're defending, and it's not acceptable within international norms and standards. We have to figure out how to restore deterrence. You asked about deterrence a bit ago it's a really simple equation; Iran's going to attack if they believe the benefits outweigh the costs. Right now, apparently, they believe the benefits outweigh the costs. So, how do you get them to believe that the costs are more than the benefits and therefore the next time their leaders start thinking about this they think twice, and they don't do it. The way I think you're going to see that unfold is, all those wonderful pictures we saw earlier of where they store things and where they can launch things from, I think that's going to be taken away from them.

Look at what just happened in Ukraine last night. Ukraine took out a storage area that holds 400 to 500 drones that came in from North Korea and Iran. They took that out rather than waiting for those 400 things to get launched at them and they got to shoot them one by one. Three weeks ago, they took out an Armory in Russia where Glide bombs and other missiles are stored. You know they're taking out factories where these things are put together. So, all that is how you use strike to take out this stuff before it's shot at you so you don't need the endgame effectors and it also shows the adversary your willingness to take the fight to them if they continue this. Now on the nuclear piece, I'll just end with this, we do have to have this balance of how do we hit but not ,you know, force them down the path to World War 3. Well again that would come back to you know the supreme leader in Iran, or Putin if you're talking the Russian scenario, that comes down to them believing that again the benefits of going nuclear outweigh the costs of going nuclear. That's a big gamble to take but I just don't see how taking out Iran's ballistic missile launch capability or how taking out Russia's Glide bombs or one-way attack drone launch capability is going to push them to launching nuclear weapons against the Free World. That's a big decision, it's a tough decision for our leaders to take but that's one they're going to have to make. I'll stop there Riki, thanks.

Mr. Riki Ellison, Chairman and Founder of MDAA

Okay Corky, just on your point Russia has claimed production of 1.3 million drones this past year, that overmatch is off the charts and they're working together. But I want to get right to the meat of this if 200 missiles were fired at the United States and they knew we knew it was going to happen we probably knew pretty damn close to when it was going to happen, why didn't we take the shot, why didn't Israel take the shot when's that going to happen before they even launch or when they're launching and punish. So, it looks like we accept it. How is the country accepting someone to fire 200 missiles on them and just rely on their defensive capabilities?

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

Well, go back to go back to the seven fronts that were mentioned earlier. I think you're seeing a very methodical approach by Israel because if you take out Iran's ballistic missiles before you take out Hezbollah's ability to get at you Hamas's ability to get at you then how's Iran going to strike back, they're going to use those proxies. So, what I think you're seeing is the cutting the grass with Hezbollah, cutting the grass with Hamas, and now you're going to take out Iran's capability to launch. If you take out Iran's capability to launch their ballistic and hypersonic they've got nothing left if you've already taken out Hamas's big Arsenal and Hamas's leadership along with Hezbollah and their leadership. So, I think you're seeing a very methodical approach at taking out the proxies first and then taking out the big dog, that's my opinion.

Mr. Riki Ellison, Chairman and Founder of MDAA

They would have obviously. Corky they would have known that 200 of those things were going into Jerusalem and whatever. I mean I just don't understand, we're still accepting the strike, we're accepting it.

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

These are policy choices Riki you're right. These policy choices.

Mr. Riki Ellison, Chairman and Founder of MDAA

Okay getting a little emotional about this but it's real and this is the form of warfare that's going to happen right now, that's around the world, this is what's going to happen. We just got to figure out how to deal with it and it doesn't look like we're doing that very well by accepting,

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

Again you got to stop the production, you got to take out the storage, Etc. There's a long piece this morning about the Russians are hiring basically slave labor out of South Africa and South Asian Nations to come work in factories. These people don't know what they're getting pulled up there to do. So you got to take out that supply chain you got to take out the factories, you don't sit back and let them build a couple.

Mr. Riki Ellison, Chairman and Founder of MDAA

I got you but we're not doing that, I understand. Let me shift over because we're running a little short in time but I'm going get over to JD. JD is our newest member, was the senior analyst for the INDOPACOM commander and JD's got the expertise in the US Navy system being captain of the hopper ship. Obviously, JD I'm just going to start off with you before you get going, why in the heck did we, the Department of Defense, stop SM-3 block 1B, completely stop it and we're using 12 of those things as Corky said today. But anyways I don't want to get tied into that but go big give us your thoughts from the Navy perspective and the US CENTCOM perspective as a COCOM on how this went last week.

Mr. JD Gainey, MDAA Board of Directors Member

Right on. Thanks, Riki, General, Tal, pleasure to be on the panel with you all, Aloha everybody watching this. A couple comments, we're going to keep this kind of kind of direct just based on time. You know my exposure to this, even though I'm a primarily INDOPACOM biased person, my actually first exposure to this problem set was in 2001 when the newest ship in the Navy, USS Porter, was doing tipping and cueing with our one delta radar to Patriots at a station in Israel. So this information sharing, this queuing, this giving the heads up of point defense, has been going on for almost 30 years right. So, you know as we look upon how we're sharing information what type of information we're sharing I would even offer, I don't think we've matured or evolved, to be able to start addressing the capacity and the saturation that we're starting to seeing the adversaries throw at us right. I mean we mentioned a few times in this conversation you know 200 missiles within about within about 60-60 plus minutes, time of flight 10-15 minutes. We have to start relying on this next generation of technology. I'm not talking about AI, I'm just talking about taking the way that we look at the world, passing information, the mechanism which we do it, and we need to start evolving that to be able to start addressing the saturation point.

I will just say from a Navy perspective that INDOPACOM is unique with respect to how it uses the AEGIS weapon system. As we're seeing here in CENTCOM, EUCOM, operations in the Red Sea, in the Mediterranean, the Navy and the AEGIS are pretty much on the periphery, right. They're not in the middle of the fight, so this is an army centric, or air centric effort and the Navy is supporting on the sidelines either with tipping and cueing because you got ships in the Red Sea, you got ships in the northern Arabian Gulf, all of that network as Corky was talking about. That all contributes to a focused engagement effort for the point defense, that information is being fed. So, when we started talking about SM-31B or SM-3 engagements whatsoever you have to pitch the geography, right. The ships are in the Eastern Mediterranean, the Red Sea and most of these engagements, the SM-3 engagements, the system is saying whether or not it can hit it. So you're seeing some lobs you're some long range shots that are happening and having practiced the defense of Israel from B&B platforms if the system says you can engage it and you have the authorities to engage it you're going to light that roman candle off and that that weapon is going to go do what it's supposed to do. So you know why do we shoot so few, I've seen some questions pop in ahead of time, from the SM-3 perspective it's geography. You're kind of a slave to the geography of it. There's advancements that are happening, you know we're putting VLS capabilities in into mobile launchers you know we've seen some roman candles being lit off through those containers. So we, holistically, as a combined effort we're starting to move those remote launch capabilities further to where they need to be. I just kind of want to put that out there that the lessons learned that that we see especially from a Navy perspective and the support on the periphery, you know how can we change that right. How can take some really cool components of existing systems put them into a different mesh and have a more lethal outcome if we change the actual operating geography. I'll also add to, when we start talking about regional integrated air missile defense we've hit it you know a few times in this conversation, but our allies have credible content and they have they have the means of which to provide early warning tipping and cueing and even actively contributing to the fight.

What we have to do is integrate, not coordinate right, we have to truly integrate with their scene, the data that they're producing, into the means of delivering effects. That could be an Israeli system, that could be a US Navy system, that could be an army system, it doesn't matter, right. The point is to make engagements agnostic of the sensor. So, a lot of this policy, a little bit is the mechanism, how we share that data; but we need to sit there and have an honest conversation about you know how can we evolve the mechanisms of which we can take stuff sensing piece and actually turn to something that's a contributing to the defense design, right. Defense in depth

is real, defense in depth provides deterrence as we've seen, if we don't demonstrate defense in depth, multi-tier engagements, then we're just talking about it and that reputational deterrence only last so long. So, we have to go out there and demonstrate the ability to go out and touch somebody and reach somebody.

Most people forget that integrated air missile defense has multiple disciplines in it. One discipline, the very first discipline, is offensive counter air or the ability to strike left of launch and Corky mentioned it, right. We know we have the ability to go out and hurt people's feelings well left of launch, but where does that fit in the big mechanism of entire defense design. You know the way that we're organized, the way that we coordinate, we have to start streamlining that process. There's some initiatives that are happening in OSD R&E that are trying to chip away at that, but I would offer the one mission area, the integrated air missile defense area, can do all that under one umbrella. So I just kind of put that out there, I know we're running low on time I'll just you pause right there for any more questions.

Mr. Riki Ellison, Chairman and Founder of MDAA

JD we'll go over [the time] a little bit so we're good I just want to make sure we get a quality conversation here. But I'd like you to talk about the depletion of our capabilities with a low production rate of the capability yet we're using US missiles or you're going to ask Saudi or Jordan to use their capability, yet they've got to be very conscious of keeping some stuff for themselves. It's all great to talk about the team game here but we need increase the capacity, we have lack of capacity across the board and you can go right to SM-3 1B or you can go to others but that seems to be an issue and is it getting cheaper stuff, some the expensive stuff you have to have. Cheaper stuff can't do what some of that stuff can do but you shouldn't be putting your expensive stuff on cheap stuff.

Mr. JD Gainey, MDAA Board of Directors Member

Two comments to that, one is energizing the industry base..

Mr. Riki Ellison, Chairman and Founder of MDAA

Why is it not energized with all the stuff that's been going on?

Mr. JD Gainey, MDAA Board of Directors Member

Well, Riki we are a budget informed resourcing entity right. Money drives a lot of decisions we make. That's just the way we're set up. But our industrial base can be energized with competition, we're seeing up and coming companies, like Anduril, just put on contract for some limited anti-air capability. What do you think's going to happen whenever a company uses modern tech, 3D printing, and disperses the supply chain input; it's going to start giving the big industry folks a run for their money, and they should right. So that's a way we can keep rewarding that type of behavior for up and comings. The other part of that is we have to be smart with the way we engage. You call it engagement discipline. We can't just sit there and if we have the ability to shoot something just go ahead and shoot it because that's the way we do coordinated air defense right now. If you have the ability to knock it out take the threat out, we'll take the threat out and we'll keep working our way down to the defended area but we need mechanisms and we need compute to tell us you know what SM-3 can shoot it but you have a higher chance of a probably successful kill if you wait. The way we calculate and compute has to evolve as well and incorporate engagement discipline. Now you start talking about emotions right, you're really going to let a missile fly by from an engagement platform when you have a higher probability kill when it gets closer to the target. The answer is yeah, I mean you're going to have to do that but that's going to take time and some methodology to demonstrate.

Mr. Riki Ellison, Chairman and Founder of MDAA

Okay thank you let's open it up for some questions. Let me just start with Tal or Corky, you have any discussion points you want to hit with everybody before we open up to the public?

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

I'm good Riki thanks.

Mr. Tal Inbar, Missile Defense Advocacy Alliance Research Fellow and Board Advisor

Just a short comment Riki. When we held such an event after the April attack on Israel, I said that this is just the first type of direct attack from Iran. And I completely agreed with Shachar that there is a problem of deterrence because eventually the deterrence didn't work. And we also agreed that the second time would be different from the first time and this was demonstrated last week and a retaliatory strike from Israel is on the table as we all know and aware and it is also delivered by the heads of our government so a counter strike on Iran, the third strike on Israel is just something that we have to expect and it will be different as well. I also want to further

emphasize that we are in the beginning of a new era in ballistic missiles, regional ballistic missiles, short range hypersonic missiles, which are not theoretical threat anymore they are here and they are here to stay so we have to cope with them with adequate defense.

Mr. Riki Ellison, Chairman and Founder of MDAA

Tal what's your best professional opinion on what that third strike will be from Iran, just throw it out there.

Mr. Tal Inbar, Missile Defense Advocacy Alliance Research Fellow and Board Advisor

I don't want to give some operational ideas to Iran but I just want to all of us to remember that we saw only a tiny fraction of the Iranian arsenal not just in terms of quantities but in terms of the types of missiles that Iran possesses at the moment. So, there are heavy, very heavy missiles like the Khoramshahr which is actually derivative from the HS-10 from North Korea with several tons of capabilities to carry out more than one reentry vehicle in in one missile. And we didn't see any use of what Iran is claiming to be also Hypersonic but just in terms of speed not in maneuverability but the Haj Qasem with a range of something like 1400 to 1500 kilometers but a re-entry speed of Mach 15 so it is a very capable weapon, at least in my view, and there are some more.

So speaking about the quantities, I just want all of us to remember that Iran launched all the missiles above the ground but they also have some launching capabilities beneath the ground so the time for getting all the intelligence needed to understand that attack is coming might be much shortened in the future. Unless, as a preemptive measure, those underground missile cities like Iran is calling them will be mitigated.

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

I guess I will pile on that there. We absolutely have to be ready for a third strike but what our hope is that the strike, if it eventually happens from Israel, is such a deterrent that Iran will stop, and you see right now in open press Iran is trying to deter the other regional actors from supporting Israel. You've probably seen their reports telling the Gulf States "you will pay" you know "the costs will outweigh the benefits if you allow Israel to use your airspace" for example or you cooperate in any way in Israeli strike. So, they're trying to deter, Iran is trying to deter the other Gulf States from supporting a strike from Israel. So it will be very interesting to see all this plays out but the end of the day Iran has to be put back in a box. Right now they are not deterred, deterrence needs to be restored.

Mr. Riki Ellison, Chairman and Founder of MDAA

So, we can safely assume the third strike's going to be overmatch whatever that is. But I do want to comment, Tal, it's just interesting because the overmatch is one way of deterrence from their perspective. But let's just look at China who threw an ICBM for the first time in 40 years, nobody's talking about that; that was two weeks ago. That went longer than any of our ICBM tests ever they did that but it's hush hush on the reaction to that. But going back to this, that 9 Mach 10 Mach missile a couple weeks ago that flew right through everybody's defenses the hyper that landed can anybody comment on that? Anybody want to comment on that?

Mr. Tal Inbar, Missile Defense Advocacy Alliance Research Fellow and Board Advisor

There was one claim of a Hypersonic missile coming from Yemen and it was not a totally successful interception lets state it like this. But I recall Riki, when we were in Berlin in 2018 we spoke about the dangerous threats from Yemen at a briefing for NATO and some people thought we are just speaking about something like science fiction but it's now reality. So the proxies of Iran is also an issue. In that regard we saw a very resolute Israeli decision to strike Yemen twice, at least for now, but I think Yemen is not deterred yet because just last night we saw actually a very interesting interception of UAV coming from Yemen to Iraq and we saw another type of missile defense or aerial defense carried out by an Israeli Navy ship. So, we have to invest more in the defense capabilities and there is no such thing as 100% successful and hermetic defense this is a fact of life.

Mr. Riki Ellison, Chairman and Founder of MDAA

Hey JD if you can just take a couple questions from the public to pass around and then we'll close.

Mr. JD Gainey, MDAA Board of Directors Member

There's a couple that are focused really on the policy piece of it. I think we've touched around it but the policy implications to how we respond from a US perspective and our treaty ally requirements, are these going to change in the near term or have any type of policy implications. I've seen about three or four of those questions come through.

Mr. Riki Ellison, Chairman and Founder of MDAA

Go ahead Corky.

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

Well we we're speculating alright but very interesting that we find all this happening right in the middle of a US presidential election in the home stretch right. I think that's, whether it should be or not, is probably weighing heavily on the Biden Harris Administration. I don't honestly, I don't know that the Trump Administration would be acting any differently as far as the decisions they're weighing because the end of the day when these folks get into office, they're all facing the same world whether they're Republican or Democrat. And at the end of the day I think if we do not stand strong and steady with not only Israel but the rest of our of our partners in that region this Pandora's box is only going to open. So I think right now is the time to be as tough as we can possibly be towards Iran.

Mr. Riki Ellison, Chairman and Founder of MDAA

I would just add on to that, JD that we've made a mistake in policy in Ukraine. We have limited abilities or whatever nations that donate weapons into Ukraine to strike into Russia where Russia's shooting from and we slowly open that up but we always get threatened by Putin's nuclear threat and he bluffs and we've seen this for the last two years. That's got to change, you got to change the policy to allow yourself or allow any country including Israel to be able to strike where that strike's coming from into their country. It just seems absurd that we don't allow that. We don't allow that, it's crazy.

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

Couldn't agree more Riki. And you think a nuclear strike by Putin is going to cause the Western, you know the NATO alliance, to come apart? Or you think it's going to further galvanize it. I would say it would Galvanize, right. Not only NATO, but the rest of the world who was hush hush, didn't condemn him in the first place. I think a nuclear strike by Putin will be the end of Putin's regime and I think he knows that. We need to stand up to him we need to stand up to the Iranians.

Mr. JD Gainey, MDAA Board of Directors Member

All right, another question about capacity and logistics. The overall theme is do we believe that the defense and supporting the defense Ukraine and also Israel is going to deplete what capacity the US has for future endeavors. So that's a pretty consistent one, I'll take a swing at it if you don't mind. We know how to make the missiles we know how to make the interceptors it comes down to are there other options to include operating constructs that we should go and revisit and challenge to make the interceptors, especially the kinetic, more affordable right. There's different operating geographies that we probably assumed away that we should no longer assume away. There's been discussions about operationalizing the stratosphere as an example for using that type of platform mechanism. But yeah, you know until either tragedy or failure happens from a United States perspective I don't think you'll see any motivation to increase that capacity. I'll turn it over to my panelists.

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

Yeah, I think it would be borderline criminal to withhold weapons, to withhold effectors from either Israel or Ukraine because of our capacity issues. We need to build more, and we need to rethink how we're using them like you just said JD and we need to restore deterrence. We need to go on the offense, but we can't sit back and not defend Israel or Ukraine or try to make a choice between the two and try to kid ourselves that that's going to make the world a safer place. These aggressors got to be stopped and it's better to stop them in Ukraine and over there where they're trying to attack Israel than to sit back and wait for them to attack the United States or some other Ally.

Mr. JD Gainey, MDAA Board of Directors Member

You know from a questions perspective I think we've hit them, all the rest of them. So I think from the audience we're in a good place so Riki I'll hand it over to you.

Mr. Riki Ellison, Chairman and Founder of MDAA

Let's do closing remarks, it's been a really good discussion. Let's start with Tal

Mr. Tal Inbar, Missile Defense Advocacy Alliance Research Fellow and Board Advisor

So I think like we said we have to improve the defense, we saw that regional defense worked for the second time in in the region. So another round will be requiring more coordination know if it should be some kind of an

official signing ceremony for this regional defense but it sure does work. I don't know if it's optimistic or realistic but I'm sure that we will meet again discussing Israeli retaliatory action and the counter strike by Iran should Iran retain its capabilities in terms of launching capabilities and more missiles in the future. And just I want to also mention that we saw some news from Iranian sources that the members of the Iranian Parliament urge the leadership to reconsider their posture on the nuclear weapons so if this will be the case we are talking about a whole new game in the region.

Major General (Ret.) Charles Corcoran, MDAA Board of Directors Member

Thanks again for hosting Riki, thanks JD Tal and Shachar for your outstanding comments today. Thanks to the audience for tuning in. Teamwork makes the dream work and the team did well here once again you know as a strike unfolded and as we discussed it took years to get to where we're able to do that right. Lots of trust, training, and teamwork, field the systems, training the systems, gaining exquisite Intel; we need to debrief ourselves we need to keep trying to get better. We need more capacity like you said on defense Riki and it needs to be more affordable capacity. That's the only way we're going to get to more of it. We also need to really look hard at our policy choices because we not we cannot allow these bad actors to keep lashing, out we must restore deterrence. Thanks.

Mr. JD Gainey, MDAA Board of Directors Member

Thank you for this opportunity, it was enlightening for me. I'll also offer that as we see missile defense missile, defense in action, with the videos and the pictures, you know we need to go back and kind of challenge some assumptions that we made; examples post intercept debris is real right. I've sat through the briefs where industry would come in and will say hey our effectors will just vaporize the threat, well no we're seeing that's not the case. If we're not honest about what post intercept debris looks like or regional IMD integrated missile defense looks like or mechanisms to share data and support each other then we're wasting this opportunity we're not using as a learning mechanism. It's a privilege to be here and an honor to support this panel.

Mr. Riki Ellison, Chairman and Founder of MDAA

Thank you, JD. Thank you for each of you and Shachar to enlighten and educate on this very delicate issue that's not really been out there in the public. I mean they shape it in different directions, and this is some pure candor and honesty the facts are that this is a victory from our perspective because the defense worked. But that's the problem here, everybody else is watching this and we have to be able to do better than what we just did, and we have to do it combined and not be afraid of being a combined team wherever you're at versus the four countries that are threatening everybody. This has to develop and evolve quickly in creating a coalition of the willing that's unacceptable to do this and yes you have to get capacity up there's no question that that is absolutely necessary because they're attacking infrastructures and they're going to continue attack infrastructure. This has to be a lesson we have to do it because guess what it's coming to our country, it's coming to the United States, and we are not even close to what Ukraine has what Israel has, not even close to defend our population defend, our infrastructure across our entire country, in Hawaii, in Guam. We're not there because we don't spend money on missile defense at all. We spend less than one to one and a half percent of our budget, it's the department of offense, and the populations of every one of these nations deserve their tax dollars, their governments to defend them first and foremost and that's going to have to be addressed across this world because it's common and we'll see. So thank you for the discussion ladies and gentlemen thank you for listening have a great day and God bless, thank you.