Transcript: FAS Podcast "A Conversation With An Expert," Featuring Charles Blair, Director of the Terrorism Analysis Project

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Introduction

James: Welcome everyone to another edition of the FAS podcast: A Conversation with an Expert. I am your host, James Wright, Manager of Development, here at the Federation of American Scientists.

My special guest today is Charles Blair, Director of the new FAS Terrorism Analysis Project. The Terrorism Analysis Project focuses on the nexus of violent non-state actors and weapons of mass destruction. Prior to joining FAS, Charles was a research associate with the National Consortium for the Study of Terrorism and Responses to Terrorism where, among other projects, he managed the Global Terrorism Database, the largest open-source compilation of terrorist events in the world. Charles is an expert in radiological and nuclear weapons.

Welcome Charles.

Charles: Hey James, thanks for having me.

Interview

James: Let's begin, I would like to start off with a question about the FAS Terrorism Analysis Project. Can you tell us briefly about the new program, what the goal of the program is, and give us some details on the flagship project?

Charles: Sure, let me start off by just saying that right now we just have one project in the program. So, although it will develop into a program, the definition of the program is pretty much defined by that project right now. Obviously we'll get into what that specific project is in a minute. Let me talk a little bit about what I hope the goals are of the program as a whole now that we've got that caveat out of the way.

First off, right now in this country, the primary focus when you look at violent non-state actors – and I use that term as opposed to terrorists because I don't want to get caught up in the discussion of who is a terrorist and who isn't a terrorist – we're concerned with violent non-state actors in this case. For example, the Afghan Taliban is not considered a terrorist group by the U.S. State Department. They're not a "foreign designated terrorist organization" but they are a

violent non-state actor and so we want to make sure we address those types of violent non-state actors. But right now the primary focus in this country is on jihadists – violent Islamists with international goals. There are people that are looking at other violent non-state actors and I want to make sure that at FAS we don't lose sight of other actors that are out there that are potential threats to the United States like ethno-nationalist groups, secular right wing and left wing groups, and of course, with jihadists, they are part of the religious milieu but you also have Christian, Hindu and Jewish violent groups as well. And the most important groups in the religious rubric, to me, are cults. I think those are the groups you probably have to worry the most about especially as you are talking about the adaptation and use of dangerous new technologies. I think the one thing we've learned in the past especially with a specific Japanese cult was that they are more prone to adopt dangerous, new technologies than other groups. So that's one focus of the new program – to make sure we don't just look at violent Islamists. We look at the entire spectrum of dangerous non-state actors vis-à-vis the United States and its security.

The second aspect of the program is the use of technologies. Essentially because this is a FAS program, I want to make sure we are focusing on weapons of mass destruction and weapons of mass disruption, and so in this sense, chemical, biological, radiological, nuclear weapons, and also any sort of new technological adaptation that would be taking place. So that would include improvised explosive devices and the types of adaptations that groups are doing in terms of bringing those new types of weapons into their arsenal. So that will be another focus because it is a FAS type project; there will be a real heavy technological aspect. That isn't to say that we'll only examine groups that utilize new technologies. The flip side of that is that we will look at groups that don't utilize technologies and try to answer the question as to, why not? One example that I was thinking of just the other day was the 2007 attack that occurred in Scotland when the airport was attacked there, you might remember that attack. That was a terrorist attack and was one of the only attacks that's ever occurred in Scotland. And essentially, there were two perpetrators – they drove a flaming Jeep into one of the terminals. And one of them ended up dying. If there hadn't been injuries and death, it would be a hilarious attack but the really surprising element of the attack was that one of the attackers was an aeronautical engineer and the other attacker was a medical doctor. And so you think to yourself – well clearly they could have adopted certain technologies and potentially perpetrated a different type of attack. But they chose not to, they chose to do a very traditional, vehicle-born IED attack. And so I'd like to address those sorts of questions as well – why do certain groups not adopt technologies? That's the second phase of how I envision the program going.

The third and final phase then is to focus on timely and relevant issues. And I think a lot of people want to do that or at least they claim to want to do that. But our concern here is solely where the rubber hits the road – in a sense, what is really going to help policy makers and the intelligence community as a whole really understand and be able to respond to acts of terrorism and violent non-state actors. So although academic exercises can be useful – you know determining high jacking techniques of the 1970s, while that might be a good exercise, that will

never be a strict project here. We're going to try to keep our eye focused very much on relevant happenings.

So, let's see. Now you had wanted me to get into a little more detail on the current project now. Let me just say a couple things – well I'm sure that we'll return to it – but the current project right now deals with radiological and nuclear non-state actors. And as opposed to typical analyses that focus on detection, post-attack, and civil responses, like continuity of government in the event of acts of nuclear radiological terrorism, this project deals with radiological or nuclear war fighting styles that specific non-state actors are likely to employ against the United States.

So this means two things: first of all, what is their view of radiological or nuclear weapons? Most people in that sense assume that a radiological or nuclear attack begins or ends at the moment the terrorist group gets a radiological or nuclear weapon and uses it – that's most people's conception of what is going to happen. But the actual use of a radiological device or the employment of a nuclear weapon—a yield bearing detonation— is really only one of a dozen options that terrorist have when dealing with these types of weapons. There are a lot of other useful things you can do with these weapons and it's important that when we try to predict how non-state actors are going to act when they possess these weapons that we understand that it's their perception of the utility of the weapons that's important, not our perception because we're not the ones that we're worried about. So you could look at potential scenarios that might seem really absurd to us but are very rational for a specific group to take. For example, take a separatist group that is trying to get independence or trying to get some sort of national territory. They may view the possession of a nuclear weapon as a means towards statehood. They might think that the international community might be more prone to accept them as a member of the international community if they possessed a nuclear weapon. Now, we might think that's crazy but that is a possible course of action that they might take. Another one might be that they would view the weapon solely in terms of deterrence to deter U.S. actions or to compel action by a state government. So there are other options available to groups that you need to understand when examining them as opposed to just using the weapon.

The second part deals with the actual command and control of the weapons. Would the leaders seek total control of the weapons or devices or would they allow subordinates the ability to control them in the event that the central leadership was wiped out? As we'll discuss later, these really are critical questions in terms of central security.

James: Now some of our listeners may be wondering why there is a new Terrorism Analysis Project at the Federation of American Scientists. How does terrorism analysis fit with the FAS mission, in your opinion?

Charles: I think that's a good question. I think that if 65 years ago, if you had told the Manhattan Project veterans that there was going to be a terrorist analysis project, they may have

looked at you a little puzzled. I think some people at that time, Oppenheimer for example, was a decade or two ahead of the curve in terms of understanding that there was a threat of clandestine use of both radiological and nuclear weapons against the United States. But the actual view that terrorists could form a threat as specifically linked to technology would have puzzled a lot of people back then. But as we know now, the diffusion of technology has occurred simultaneous with the rise of mass casualty terrorism. So they're now intertwined. I think the technological aspects of terrorism is one of the links that is has to the FAS and its traditional mission in dealing with technologies. I think that there are three other areas in which it dovetails nicely with what it has traditionally done.

First of all, I think it's topical and relevant. My understanding, having used FAS as a resource for over a decade, is that the material I get from FAS – the studies they do and what they make available to the public is always relevant and topical.

The second aspect is the transparency of FAS. The sections of the studies that we make public here will be well rooted in research and you can actually trace defining of what we discover. So if you want to challenge the conclusions we come up with, it will be easy enough to do because you can look at the sources we've used, the footnotes that we've used, and those sorts of things. So, whereas you may not agree with the ultimate conclusion that we may draw, you can specifically challenge how we got there. So I think, in that sense, it's very transparent and it falls into what FAS typically does.

The third area, and in many ways the most important area, is that it's not partisan as much as it can be. People will always accuse you that you're going one way or another but in this case there really isn't a political agenda. We're simply trying to answer certain questions that we're funded to answer. We don't have partisan pressures to come up with certain types of answers. So I think that those four areas are really the key areas that dovetail well with the FAS mission.

James: Prior to joining FAS, you worked on a study that focused on which violent non-state actors or NSAs were the most likely to use nuclear or radiological devices and target the U.S. This study produced a list of the top 20 most threatening non-state actors. Can you tell us about your previous study and how you developed the top 20 list?

Charles: Sure – let me say two things: one is that the list is actually a lot longer than 20, so you could make it top 5, top 10, top 20. I think we went down to 30 or 40 and actually ranked them. The other thing was that the funders of the study itself gave parameters that were put on. For example, it addressed attacks against the United States within the next five years. It didn't look at U.S. foreign interests or U.S. allies; it looked at strictly at attacks against the United States. So there were some parameters and I want to make sure your listeners understand that.

So it had three essential components. It was a two years study – it was long and had a lot of different attributes to it. But if you broke it down there were about three different ways that we came up with the list. The first was looking at conventional wisdom of who the most threatening

groups were. The second was a quantitative analysis and I'll talk about that using a database. And the third was an expert elicitation vis-à-vis a conference with experts.

Using the first way, we did literature reviews of all open-source available literature that had been written since the dawn of the nuclear age until today dealing with violent non-state actors and the use of radiological and nuclear weapons. And from that we looked at the writings on capability, on opportunity, and in a very important sense, we looked at motivation of different groups to use those. Typically people cover capability and opportunity, but it's rare to find studies that look at motivation and that's one of the hallmarks of the study. So you can imagine the literature from the 1940s and 50s, at least open-source, is virtually non-existent. There are a few articles out there but not much. In the 1960s, you begin to pick up steam a little bit. There was a study by the JASON that eventually was declassified and it looked at the Vietcong and tactical nuclear weapons. So it begins to pick up in terms of the open sources. Of course in the 1970s, you had the real breakthrough pieces that were done. Former Los Alamos weaponeers begin to get published. Ted Taylor was one of them. You begin to see books that are actually dedicated to nuclear terrorism. But there's still not a lot out there until the 1990s, when there was an attack that everyone's familiar with using chemical – in Tokyo in 1995,the Sarin gas attack by Aum Shinrikyo. And you begin to see with that the rise of mass casualty terrorism. You begin to see an exponential rise in the amount of open literature dedicated to exploring radiological and nuclear terrorism. And of course after 9/11, you get a tremendous amount of literature out there. Based on all that literature, you distill it all down and spend a lot of time going through it all to find out who are the most threatening actors out there. This is the conventional wisdom; this is just one way of determining who the threatening actors are. We're not saying it's the right way but we're saying this is how to do it if you had to strictly base it on open sources and what people are talking about. That was one of the three methods.

The second aspect of the study was a quantitative analysis. To do that, we used a large database called Big Allied And Dangerous (BAAD). BAAD is a database that's located at the State University of New York at Albany (SUNY at Albany) and that database contains data on several hundred different terrorist groups. For each group it has 40 or so different group variables – it has group size, leadership style, finances, operational objectives, previous attacks, predominant gender – a lot of different variables. From that, you look at the groups that had been involved primarily in radiological events because there have not been a lot of groups that have been involved in nuclear events, although there have been a few. But you look at the groups that are associated with radiological and nuclear attempts and look at the attributes those groups have. Take those attributes and apply them to all the groups. Essentially, you're defining what a group interested in radiological and nuclear terrorism looks like and you ask – what other groups look like this in the database? Based on that, you get another list and that's the second method we use. None of these in and of themselves are going to give you the answer but each one of them gives you a piece of the answer and you can use it and compare it against the other lists and see if there are some similarities. In this case, there are a lot of similarities.

The third and final method we used is what we called an expert elicitation – in this case it was about a dozen subject matter experts (SMEs) and you go through a very structured and thought out form of exercises and elicit from them certain answers. You do this in a way that you doesn't"lead the witness" and give them the answers beforehand. You try as much as possible to take into account their biases before you do the actual analysis. Based on these exercises, you get a list as well. Each one of these methods gives us a list of the most likely non-state actors to threaten the United States.

James: Now is this database through SUNY at Albany available to the public?

Charles: I don't believe so. In fact, I'm pretty sure not. It's not classified in the sense that it has classified information but I think it's used solely by researchers.

James: What were the top 5 most threatening non-state actors on the list?

Charles: It depended on which list you looked at – whether it was the conventional wisdom, the database, or what the experts had to say. So there are three possibilities there but also there were different lists for radiological and nuclear. So although it could get complicated, in reality it wasn't that complicated because the lists were actually very similar. So there was a real consensus of what the most threatening actors are out there.

Now your listeners won't be surprised with the lists. In radiological and nuclear, the most perceived threatening actor are jihadists, violent Islamists, and that's obviously going to be the case. On every list, with the exception of one for nuclear and radiological with all three studies, it was al-Qaeda. So you can pretty much understand why that is. And as you move down, you have other jihadist groups like Lashkar-e-Taiba, which is Army of the Pure, they're an international jihadist Salafist group who were most likely responsible for the Mumbai attacks and are very closely linked to the Pakistani Taliban and to al-Qaeda. They're also close in link to the Pakistani government. They're a common group that a lot of people know about.

Of course in the nuclear, you have the more sophisticated groups showing up. FARC, the Revolutionary Armed Forces of Colombia, showed up. And different incarnations of al-Qaeda – for example, al-Qaeda in the Land of Two Rivers shows up, as well as Chechen jihadists, so the forces mainly fighting Russian forces show up. It's no surprise that the Chechens showed up. They were involved in the first incident of nuclear terrorism ever when they planted some caesium-137 in the Izmailovsky Park in Moscow in 1995. Nobody got injured. It was just small amount and they called a television station because it was mostly a publicity stunt, but they've been involved in radiological materials in, I guess, a decade and a half now.

Then if you look at the radiological, and when I say radiological I'm talking about a dirty bomb essentially, a radiological dispersal device or radiological emission device, that's the type where there is not an explosive attached. Those are much easier to make and the materials are much easier to get if you simply want to do some low level contamination. For those top five, you get

groups that are not necessarily quite as sophisticated in terms of their resources and operational style. In those types of groups, you get the fringe U.S. militia groups and the homegrown right-wing U.S. individuals but all of the jihadist groups show up as well, such as Lashkar-e-Taibaand al-Qaeda.

I will mention one interesting study in the nuclear – for the elicitation, when we got together the experts, where everybody predicted al-Qaeda of course, but the number one group for the elicitation that was brought out was disgruntled U.S. scientists with access to nuclear weapons or materials. It's a significant finding but at the same time its only one finding of one of the studies. So I don't think the conclusion of the study should be to be on the lookout for U.S. scientists – I don't think that's what that is telling us. I think that it happened for two reasons. Let s keep in mind that that was the top identified threat for nuclear weapons. I think that this finding may be speaking to how difficult the experts perceive building a nuclear weapon is and namely the finding might say – look, this is such a tough and impossible task and the only way it's going to happen is with someone with access already. So that is how difficult it is – you will essentially have to go to the experts, which is what I think some of the physicists in the elicitation were thinking. The other reason I think some of the social scientists involved in the elicitation may have thought that is because of what happened with Bruce Ivins who was the bio weaponeer who was working on US bio defenses and is thought to be responsible for the anthrax letters and of course committed suicide two years ago. And I think that reminded a lot of people that it could have been someone who was in the US government who had a lot of clearance and access to certain agents and who essentially, for one reason or another, went rogue.

James: Now from the list of 20, your study picked the non-state actors to profile in detail. You personally profiled the Pakistan Neo-Taliban. Can you tell us about the Pakistan Neo-Taliban and why they are a threat?

Charles: Sure, let me just point out at the beginning here that it's easy to forget that Pakistan used to be a fairly tranquil country. Obviously it was born in violence and I think it's been punctuated by violence ever since. But really from the 1970s until 2001, you had a couple of dozen terrorist attacks per year. Pardon me, in 2001, there were 30 recorded attacks. Over the next 8 or 9 years, there was a radical increase in the amount of attacks until the point in 2009 alone you had 2,300 attacks. That's almost a 100 fold increase in the incidence of terrorism. You also see that reflected in suicide attacks. Today, it seems like every week there's a suicide attack in Pakistan, but in 2002, there were only two. In 2009, there were 73. So it's easy to forget that this level of violence is new for Pakistan and all of this violence – the suicide attacks, the over 2,000 attacks per year--the overwhelming driver of this violence is the Pakistani Taliban. Most people conflate the Pakistani Taliban with the Afghan Taliban as just "the Taliban," but it's my view that they are very distinct and quite different. Their goals and allegiances might dovetail at times but they are two distinct entities that are struggling in general for two distinct things. Although as I said, their goals may dovetail, they may join forces at times and clearly they're ethnically and ideologically quite similar to one another, but the Pakistani Taliban is composed

of essentially three different types of groups. You have first of all the Pakistani tribal people who primarily live in the federally administered tribal areas, and that's the region in the northwest of Pakistan that borders Afghanistan. And in that area there's North and South Waziristan and some other territories that your listeners are probably most familiar with. However you have indigenous tribal people there that have never really been a part of Pakistan, they've been semi-autonomous. From that you have fairly sophisticated terrorist groups, like Lashkar-e-Taiba, and a whole range of other groups that former or current terrorist groups that were active in Kashmir, primarily, that are a part of Pakistani Taliban. And then you have foreign jihadists which are a big part of that too. You have a lot of folks that were in Central Asia, Uzbekistan as one example, and then were in Afghanistan. After the U.S. was in Afghanistan in 2001, they relocated to the tribal areas. A significant part of the Pakistani Taliban are those fighters that got haven in Afghanistan during the time that the Afghan Taliban ruled Afghanistan. Obviously that includes al-Qaeda. Al-Qaeda and the Pakistani Taliban have a very interesting relationship. They're obviously both quite autonomous but they work together at times. And frankly I don't think anybody, at least in the open sources, really knows how deep those relationships go. Regarding the CIA forwarding base that was attacked in December of last year, some sources say that al-Qaeda was behind that, but also in the suicide video that was made by the attacker beforehand, the attacker appears with Hakimullah Mehsud, who was the leader of one of the predominant groups within the Pakistani neo-Taliban. I think in the West, we sort of want clear distinctions between groups but I think it's much more fluid in this area and I think a lot of groups work together. But it's a lot of different groups coming together at the same time.

Now you asked why they are a threat and I think that it's good to ask in what respect they're a threat to U.S. interest? First of all they're a geopolitical threat. I went over the terrorist attack numbers and suicide attack numbers in Pakistan and they're primarily active in Pakistan. Although, Lashkar-e-Taiba has been active in India and they now think it has links to some of the U.S. based jihadists as well. But the threat they have regionally in a geopolitical sense is the destabilization of Pakistan and the de-factor destabilization of India's lack of confidence that Pakistan can effectively govern its borders, control non-state actors within its territories, and ultimately control its nuclear arsenal. So it has an effect on India and that in effect has an effect on China. You could continue to go out to other countries.

Obviously it has a really big effect on the U.S. war in Afghanistan because the Afghan Taliban is able to maintain supply lines and do a lot of recruitment and essentially hide out in the Federally Administered Tribal Areas (FATA) in Pakistan. And that of course stretches up into Central Asia as well, which we now know from recent events is a little less stable than I think most people had assumed. I think it was really no surprise to people who had been following it for a long time. But you can see how all these areas are sort of linked. In a geopolitical sense, there are very threatening group. In a more topical sense, in terms of radiological and nuclear terrorism, a lot of people talk about the risks of nuclear weapons in Pakistan falling into the wrong hands. But it's rare that you have people going beyond that and doing analyses of whose hands will those

weapons fall into. It might be a group that is linked to the Pakistani neo-Taliban like al-Qaeda but not part of it but it might be the Pakistani neo-Taliban. But in the event that the weapons were out of the custodial range of the Pakistani government or military, if you had to choose the specific groups, it would be these Pakistani neo-Taliban that would get the weapons. So that, to me, is the most threatening aspect of the Pakistani neo-Taliban.

You have to take everything with a grain of salt, but there have been a number of links between captured U.S. citizens, even the recent Times Square bombing, there were links between the Pakistani neo-Taliban. You can see that they're beginning to make links with radicalized neo-Islamists here in the United States.

James: Now Charles, you mentioned earlier on that one of the hallmarks of part of your study was motivation. What would be the motivation for the Pakistani neo-Taliban wanting to use a radiological or nuclear weapon device on the U.S.?

Charles: That is a great question. One of the reasons why I think that's a great question is because it's rarely asked why would somebody want to do that because it's just presumed that they would simply want to do that. There are a lot of real costs, and I don't mean just financial, that a group incurs when they decide to go through a radiological or nuclear route and they really have to balance those out. I think that part of their motivation has to say that something is not being met through your conventional attacks. Something is not meeting a need that you have with an organization that you think you can meet with a radiological or nuclear device. So your motivation is always to meet your needs as a group, whatever those needs are – whether you want to do more recruitment, you want to do more fundraising, you want to get revenge, or you want to deter or compel certain actions, you would be motivated to go a radiological or nuclear route if you thought that you had greater odds depending on how you handle risk – what your risk assessment was or how comfortable you were with risk – you would meet those goals through unconventional methods. I would say that they might perceive it to be militarily effective and they might think it would help them in terms of recruitment or just prestige. They might plain just want revenge. We saw previously in the video that was shot prior to the Camp Chapman attack, the CIA forwarding base, the operative there that Hakimullah Mehsud essentially said it was revenge for the killing of Hakimullah Mehsud's predecessor, Baitullah Mehsud, who was the first head of the TTP, which is the main group within Pakistani neo-Taliban. So it could be just sheer revenge. The other area that I should probably mention in terms of motivation, and you don't find this as much with the Pakistani neo Taliban but there are elements of what is called millenarianism in these types of groups. You don't find this within the Sunni Islamic strain as you do, opposed to the Shiite strain but you also find millenarianism in Aum Shinrikyo, you find it in U.S. Christian identity groups. Essentially it's the belief that the world right now is corrupt and that you can hasten or bring on a cleansing apocalypse, an Armageddon if you will, through the use of nuclear weapons or radiological devices. The Harvard psychologist Robert Jay Lifton, has called this "nuclearism," the belief that nuclear weapons and fissile materials sort of have cleansing properties and associated with them if you

use them, you can usher the world into a new, clean phase. So, this is kind of out there. You find this in a lot of different groups and that isn't in itself an aspect of millenarianism. Millenarianism is simply the belief that you can bring on the apocalypse by doing certain actions and that out of that apocalypse will come the people that righteously should lead the world. But you do see elements of that sort of apocalyptic thought in some of the strains of the Pakistani neo Taliban although I don't think it's a predominant strain. But you could theoretically get a leadership there that thought that the world was on the verge of an apocalypse and that they could hasten it through the use of nuclear weapons and come out on top. But that would probably be less of a motivation than the other ones that I listed.

James: As you mentioned earlier, the name of the current Terrorism Analysis Project study is Nuclear and Radiological Command and Control for Non-State Adversaries. I know you've already touched on this, but can you give more details on the two parts of the study, and what will be the end product of the study?

Charles: As I mentioned earlier, the project broadly revolves around the likely command and control arrangement that non-state actors have for their radiological or nuclear devices or weapons before, during, and after an attack on the United States. So part one of the study will identify what factors identify those arrangements. Namely, what are the factors that are likely to influence a group to pre-delegate the use of radiological or nuclear weapons? And in contrast, what factors influence a group's top leadership to maintain negative or authoritative control. After we've come up with a draft model that at least theoretically answers these questions, we'll conduct an elicitation with about a dozen subject matter experts to get their feedback on how that model looks. Essentially, we'll be testing the different factors that influence the command and control factors and whether the experts think they're relevant. And, there are different ways to test that.

Once we finalize the model, step two, using the model, will determine the likely command and control for about six different non-state actors, either specific groups or types of groups.

James: What is the difference between pre-delegation command and control versus negative or authoritative control?

Charles: That's a great question. Your listeners that are familiar with it will understand that it is sort of difficult to explain to people but it's actually quite simple. The pre-delegation command and control is simply giving the authority to authorize or use nuclear weapons or radiological weapons to those people that are not either the top leadership or within the cadre of top leadership. So, in a state sense—if you were to look at state actors like the U.S. or the Soviet Union—it would be if the President of the United States had given, say a general, in a theatre, the authority on their own to use nuclear weapons. And as we see, typically, most people think it was only up to the President to use nuclear weapons but we now know that in past history, we

did pre-delegate the use of nuclear weapons to other people. Later if we get to it, if we have time, I'll talk about why it is so critical to have pre-delegation or not.

The flip side of that is what you can call negative or authoritative control, where control of radiological or nuclear weapons is only in the hands of one person or that control devolves. For example, if the President dies, then you have the Vice President, and then you go through the Cabinet, and so on. But you always know that in one point in time, there will always be one person that is solely in charge of those nuclear weapons. There are a lot of advantages to either one of those. But any state that develops nuclear weapons, regardless of their ideology, whether it is the United States or North Korea, has to confront these issues. That's the nature of nuclear weapons. And the same goes for non-state actors. That's one of the real important aspects of the study – we're applying an inherent problem faced by all possessors of nuclear weapons to a group that, in my understanding, this type of analysis has never been done to. But we know simply by the inherent way that nuclear weapons make people think and the risks that are associated with them, that we're going to have to face.

James: Let's talk about the methodology of your study a little more. I understand you plan on looking at different paradigms of command and control as a way to apply this information to violent non-state actors with radiological or nuclear devices and the consequences of an attack on the U.S. Can you tell us more about these different paradigms?

Charles: Generally, it falls into three different brackets. The first is just looking at the idea of command and control and in any type of environment you might have –whether it's a business environment or sociological or even anthropological. When do humans delegate, when do they not, and how do they handle these sorts of things? In this part of the study, we'll look at the evolution of the decision to delegate – how have humans changed over time and what are the factors that influence that? In that sense, it's just a broad sense of what is human nature in terms of the delegation of anything that is deemed of relevance. And that is to get a baseline. Within the search, you're looking for different elements that tell you – for example, that, I would think, that leadership style and ideology has a lot to do with the way they handle delegating and command and control in general. So you're pulling out these elements.

The second aspect is to then look at state actors and specifically look at how they've handled weapons of mass destructions. So you could go as far back as WWI, and look at the use of chemical weapons during WWI and look at how state actors handled it then – did they pre-delegate the use of them or was it only in the top echelons did they handle the use of those. Then look at the historical evolution in different countries of how that was handled. And in that respect, my plan in that portion of the study is to really examine how emerging technologies within states, for example Germany in 1915, or the United States in 1945, how they first began to handle the issue of command and control. I think that will most closely resemble the conflicts inherent to a non state actor group. Because, although the command and control arrangements the United States has 65 years after WWII are going to be relevant, they're not going to be as

relevant because we've had all this time to think about them and we've possessed nuclear weapons for all this time. There's been an enormous amount of ink spilled on the topics of deterrence, command and control already in terms of state actors. But that's the second part of it – to look at how state actors have handled the inherent difficulties of pre-delegation of command and control of nuclear weapons.

The final part of it, which is equally as important if not more so, is to examine how non-state actors, how terrorists groups have handled command and control in general during some of the more spectacular attacks. Obvious candidates include 9/11 and the Mumbai attacks of 2008– how were the attackers controlled, how were orders given, how was delegation given, those sorts of things. So you look at the more spectacular attacks, and groups and their ideologies and you begin to bring out certain facets of command and control that you think can form how they may act in the future. You're essentially looking at those three different types of aspects. Those are the three primary methodologies that we're going to utilize. We're also going to have an elicitation with subject matter experts and we're just beginning this two year study so as we move along, we'll develop, hopefully, new methodologies. We have not made up our mind at all of how we're going to handle this because we want to be very flexible in coming up with an answer that is useful.

James: Now you plan on applying this methodology to six different violent non-state actors. Have you decided which six you plan on studying?

Charles: That is up to the funder of the study and it's a governmental funder. So, what we'll do is come to them with our essential model. Based on that model, they'll give us feedback and they will determine the six that they want us to examine. And it's the same funder that did the previous study we discussed, where I looked at the Pakistani neo-Taliban. So, ostensibly, they have a lot more information and they're going to choose groups that, for whatever reason, they want us to look at. I could guess that al-Qaeda will be on the list, but I don't know who the other groups will be.

James: What do you hope comes out of this study? In what ways will your study help make the U.S. and the world more secure?

Charles: Well, the over arching goal with the project is to help the U.S. funders identify those groups. So it's essentially to help the U.S. intelligence community. Beyond that, in terms of what is released to the public, that is where my hopes come in – in terms of what it gives to the people.

First off, I think it could really help inform the U.S. policymakers of the best options before an attack occurs on the United States. If you find out that a group has radiological or nuclear weapons and if you think that pre-emption is a good role to take, obviously that's going to be one of the considerations you're going to have – whether or not they pre-delegate authority of the use of those weapons is going to be paramount because if you attack a leadership center of nuclear weapons, which has already pre-delegated the authority to use the nuclear weapons to a

subordinate center, your pre-emptive attack may have triggered the nuclear attack to take place. In terms of pre-attack, it could help us in terms of pre-empting.

In terms of post-attack, which is the other aspect of this – how does the U.S. respond to an attack? Most people assume that a terrorist organization is going to use one weapon. I don't think that's the case. I think there is a good argument to be made that a group will have more than one weapon so if an attack occurs there's going to be an enormous amount of pressure on policymakers to respond. And let's just say that we think it's an element of the Pakistani neo-Taliban. There's going to be an enormous pressure for us to respond on their leadership centers in Waziristan or wherever they are at the time. However, before we do that, we want to make sure that by attacking those leadership centers, by eliminating the top leadership, we don't inadvertently trigger another attack to a group of subordinates that possess a weapon and are simply waiting to use it if they lose contact with the centralized leadership.

So these are very tricky areas. It's really where the rubber hits the road I think in terms of analysis because these are questions you can't definitively answer but that you know are going to be asked in the event of an actual attack. So my hopes are that the study will help inform whether or not you want to successfully pre-empt and if that's possible.

And secondly, if we are unfortunate enough to have a radiological or nuclear attack, in those incredibly stressful hours after the attack, I hope that policymakers are able to look at what we've done, specifically with the group profiles we've done, and have a sober look at how those groups are structured before they decide on how they retaliate. That would be my hope in the long term. And in terms of how to make the U.S. and world more secure, I think it's pretty obvious how that could fall in the two categories.

James: Let's end with a personal question if I may. Why did you decide to pursue a career in nuclear and radiological weapons studies?

Charles: Well, two reasons primarily. I'm from Los Alamos, New Mexico, and so I think I'm sort of hard wired – my father worked at the lab and if any of your listeners have had experiences with Los Alamos, they'll know that everyone in the community essentially works there and so I think that nuclear weapons and fissile materials was always in the back of my mind and it was a big interest of mine. What really keeps me going in the field is the fact that it's so interdisciplinary for me. Here, I get to deal with not only physicists but cultural anthropologists, historians, terrorist experts, and you get to rub elbows with a lot of different people and a lot of types of expertise. To me, that's the main driver – you're constantly exposed to new ideas. Furthermore, the field is very topical right now and I think we all need to fight the good fight in the best way we individually can. And for me, the best way is by examining terrorism and nuclear weapons and materials.

Conclusion

James: Thank you so much Charles for spending time with us today. This has been quite informative.

Again, to those of you listening, if you would like to learn more about what Charles discussed here today, please visit the FAS website, www.fas.org.

This concludes the FAS podcast. Thank you for listening in today. Please tune in next month for another edition of A Conversation with an Expert.