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"Sum of All Fears"
Crossing the Threshold of Nuclear Conflict in the 21st Century

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Purpose of the Workshop

The Advanced Systems and Concepts Office of the Defense Threat Reduction Agency sponsored a two-day workshop in August 2005, hosted by the Air Force Institute for National Security Studies in Doolittle Hall at the U.S. Air Force Academy, Colorado. The purpose of the workshop was to consider the next first use of a nuclear weapon and how the United States might respond to that attack—both in the immediate sense, as well as in revising our strategy the day after an attack occurred.

The evening before the formal agenda began the sponsors offered an optional movie showing in Arnold Hall at the Academy. The movie, "Sum of All Fears," was based on a Tom Clancy novel of the same name and showed the chaos in the government decision-making process we could anticipate following the first use of a nuclear weapon in 60 years. The movie posited a terrorist group finding a lost Israeli warhead that they were able to smuggle into Baltimore's harbor and detonate while the U.S. president was attending a football game in that city. The conference participants watched the film while keeping in mind a big question which often goes unanswered in government or military workshops of this type: "what happens *after* a nuclear event?" The movie brought some of that to the fore, but failed to address a number of crucial questions: What were other countries thinking? Was an adversary trying to determine how to exploit the situation? How did America's allies react? How would the United States deal with a domestic

emergency on such a scale? We can expect that a great deal of attention would be devoted to domestic emergency response, Congressional reaction, and international repercussions.

This year's conference was preceded by a similar workshop held at the Air Force Academy in August 2004. The purpose of the 2004 workshop was to focus on the "day after" a nuclear event occurred, but the participants actually spent most of the workshop focusing on how and why a nuclear event would occur. Expert reaction showed the sponsors that it is very challenging to think beyond the event itself.

For several decades, the DoD Office of Net Assessment has focused on preventing a nuclear detonation on U.S. soil. The Advanced Systems and Concepts Office at DTRA sponsored this year's workshop to support the same objective. DTRA hopes to sponsor a similar conference next year with the United States and Russia that focuses on nuclear terrorism.

The workshop began with a review of previous work in this field. We focused on a nuclear detonation on U.S. soil. Following a series of scenarios we shifted our focus to deterring and preventing such an event from taking place.

Previous Studies

Black Dawn Scenario Exercise

"Black Dawn" was an exercise hosted by SAIC in Brussels, Belgium in May 2004. Its purpose was to develop actionable recommendations for the European Union and NATO to prevent terrorists from acquiring or using WMD. Sponsors included the Center for Strategic and International Studies, the Nuclear Threat Initiative, and the German Marshall Fund. This was a multinational workshop. Although invited, Russia chose not to participate.

The key finding of the Black Dawn exercise was the vital importance of preventing terrorists from getting their hands on nuclear material, because as hard as that step is, it is easier than dealing with WMD-armed terrorists. There are few good options for detecting and interdicting a terrorist organization once it has the fissile material to

make a rudimentary atomic weapon. Black Dawn revealed that states must be lucky to stop nuclear terrorism. Terrorists must make mistakes. If they don't, then they will be nearly impossible to stop. Technical expertise poses less of a problem to bomb construction every year. Black Dawn concluded that a group like al Qaida could build a simple gun-type atomic bomb in the 10 kiloton yield within three or four weeks of acquiring the necessary fissile material. (This is a controversial finding that not all agree with.)

The Black Dawn scenario assumed that a small weapon was exploded outside the front gate of NATO headquarters. The probable damage from such an explosion: 40,000 killed and 300,000 injured. The participants quickly concluded that Europe is ill-equipped to deal with this type of attack.

Efforts by the workshop participants were bogged down in bureaucratic complexities. One option in the study's conclusions was that more must be done to secure and eliminate tactical nuclear arsenals. Other suggestions to reduce the chances of a terrorist group getting their hands on fissile materials included: cleaning out reactors that use highly enriched uranium; improving the security of fissile material storage sites; providing alternative employment for Russian scientists; consolidating Russia's nuclear weapons stockpile; increasing funding for the elimination of chemical weapons; enhancing biological safety and security; and creating a global partnership on bioterrorism. In addition, some of the participants suggested more traditional arms control related approaches, including creating nonproliferation regimes, applying export controls, and developing WMD detection devices.

Despite a consensus at the workshop that the threat was real, and a Black Dawn incident could easily happen, since then there has been little progress by concerned states. There have been two G-8 summits, the bombings in London, and the release of a movie on such an event by NTI. The conclusion to be drawn from the lack of progress is that Europe needs to take the lead in some of the suggested areas of prevention rather than relying on the superpowers. The NATO-Russia Council is beginning some discussions in the nuclear arena.

Discussion. One hopeful sign emerged at the DTRA conference. Optimism that we might yet avoid such a horrible future event revolves around three separate *fatwas* that have been released in Europe and the United States over the past year by Islamic clerics, each of them decrying terrorism. Furthermore, while al Qaida may be difficult to deter, it is not impossible—we must figure out what they value most, and then threaten it. Perhaps what they value most is the global jihadist movement. We must get inside terrorist groups' decision calculus to convince them that anything they do will be counterproductive, and will not serve their larger purpose. We also need to galvanize the world into helping us combat the problem.

Al Qaida's Strategic Personality

An SAIC study on al Qaida and its strategic personality attempted to uncover its operational code. The study looked at targeting preferences, operational preparations, and attack profiles for the entity we call al Qaida. That organization is not a single hierarchical unit, however; it is made up of multiple local cells under a loose confederation. This adds to the difficulty of trying to deter it from using WMD.

Al Qaida's operational code is one means by which we can assess the likelihood of future attacks. In the past, for example, al Qaida has preferred to carry out multiple attacks simultaneously, emphasizing highly visible targets and flashy weapons that will make an impression through the media on their target audience. These attacks are usually carried out by men of Middle Eastern descent. The group continues to claim to have an interest in procuring some type of WMD, including nuclear weapons, and their *fatwas* justify the use of any weapon against the West. The key questions this presentation raised included whether nuclear use against the United states would serve to help or hurt bin Laden's goal of creating a new Caliphate; whether a nuclear weapon would prove too valuable to use; and whether the development of a deterrence and nuclear blackmail policy on al Qaida's part would require at least one nuclear detonation to prove intent and capability. Whether this group can be deterred in the usual sense is uncertain.

Discussion. Regarding nuclear weapons, there are several bottom line questions bin Laden must answer: Would using a nuclear weapon hurt or help his cause? Would a nuclear weapon be too valuable to use? Would it be better to keep a single weapon to deter U.S. or Western retaliation? How would that thinking change if he had more than one weapon? Would a single nuclear use enhance his deterrence and blackmail strategies? Al Qaida's goal would probably be to procure and detonate two weapons simultaneously, thereby showing the ability to get weapons and coordinating their use, creating a powerful symbol for the Islamic world.

It is possible that a single use of a nuclear weapon in an isolated location could rally Muslim support to al Qaida's cause. This would potentially show that bin Laden has incredible power, and yet shows restraint in using that strength. On the other hand, there is disagreement over whether al Qaida can be deterred, or whether it is even an organization with the ability to garner the necessary resources or organizational skills to acquire or use a nuclear weapon. Even if it is a robust organization, we need to figure out where it falls on the life cycle of organizations. Its position on that line will determine whether it is likely to be deterrable in its current phase. Better information sharing is necessary between Western intelligence agencies in order to determine where it falls. We need to understand a state's strategic personality and its internal infrastructure.

Big Bang Scenario

Another recent study that examined the international ramifications of a nuclear terrorist event was conducted by SAIC and the U.S. State Department. In this scenario, Chechyan rebels detonated a 10 kiloton atomic weapon in Moscow.

The value of this exercise was in the questions it raised, rather than any specific answers. For example, why would the Chechyans do this? How would Russia respond? What effect would such a detonation have on the nuclear taboo? Would there still exist a nuclear threshold following the next first use?

By raising these questions the organizers hoped to force states to plan how to respond when and if such an event actually takes place. Many Russian policy makers, for

instance, think that the United States would use nuclear weapons quickly in response to a strategic strike against its homeland or interests; they think that history has shown that the United States is reckless in its response to attacks. Using the concept of mirror imaging, does this also reflect the way Russian leaders are thinking about their own response to an attack? We need to keep in mind that the larger the attack, and the larger and more cosmopolitan the target, the more likely and widespread the nationalities of the casualties. This indiscriminate casualty base can be used against al Qaida or Chechen separatist movements to deny them popular support.

Discussion. Would this type of attack constitute a new level of terrorist targets? Rather than simply a counter-city strike, we may be facing a future of counter-icon strikes that threaten to destroy a society's cultural icons (such as the Kremlin).

After Next Nuclear Use Scenarios

The Center for Strategic and Budgetary Assessments conducted a series of small, 1 ½ day workshops after 9/11 on behalf of OSD Net Assessment. The first workshops dealt with three scenarios: an attack against U.S. forces deployed overseas (in South Korea or Okinawa); an attack against a U.S. ally (Israel); and a situation in which the United States instituted the first use of nuclear weapons (against buried al Qaida WMD stocks). A second workshop focused on a nuclear use scenario involving war between India and Pakistan. The third workshop looked at four small-scale, low-yield atomic weapons used during a conflict to achieve decisive military effect with limited collateral damage. And a fourth examined an attack on the U.S. homeland.

The conclusions of the CSBA workshops were as follows. A state's initial reactions to the next use of nuclear weapons will shape the international scene for decades. The United States has an incentive to maintain the norms of non-possession and non-use. Any U.S. military use of nuclear weapons will shape global military responses; public diplomacy will be necessary to shape international interpretations of the event.

Nuclear use may lead to U.S. retrenchment, or it may lead to new opportunities for engagement. The United States may rely less on forward basing as a result of being attacked; it may feel compelled to be better prepared in the areas of preventive attack, active and passive defenses. It may need to reevaluate its weapons mix and alliance partnerships. Economic consequences could be as great as the military impact of next use. The impact on future proliferation will depend on the nature and consequences of the attack. The scenario matters—does the United States feel justified in using nuclear weapons? What U.S. interests are at stake? Will nuclear weapons be successful in achieving U.S. goals?

Iranian Nuclear Escalation Pathways

Another SAIC study has examined in depth the likelihood and pathways Iran might use to acquire a nuclear capability. Its premise was that proliferants seek weapons for a reason. Iran feels that the U.S. presence in the Persian Gulf is a greater threat than were Iraq's WMD capabilities; so it is pursuing WMD in order to force an American withdrawal from the Gulf region.

We should not expect a clean resolution to this situation. The ladder of escalation may include the possibility of nuclear use after a conventional conflict appears to be over.

Pakistan took Jack Snyder's instability paradox, which was simply meant to be an empirical observation, as a policy prescription. As a result, Islamabad believes that possession of nuclear weapons makes the region safe for conventional war.

Reasons Iran may consider using a nuclear weapon: to force American withdrawal from the Gulf; to signal a deterrence capability through breakout testing; to thwart regime change; localized release if approved by a rogue commander; and revenge against another party. Triggering conditions for nuclear use include regime survival. The potential for a nuclear test is high. The most likely location for any nuclear use would be at sea, against an adversary's naval forces.

Four Scenarios

The workshop then directed its attention to four plausible scenarios which might lead to nuclear next use in the coming decade. Each of these scenarios considered the effect, likelihood of success, and proper response to a nuclear attack on the United States or its forces overseas.

Taiwan Crisis Scenario

U.S.-Chinese relations are, at the moment, very good in nearly all areas. The major exception to that generalization has to do with Taiwan. The Tawianese independence movement ebbs and flows, but it is a real force for change. China is prepared to act to prevent independence by the island that it considers a breakaway province.

This scenario assumed that Taiwan declared its independence in the year 2011. As part of America's commitment to Taiwan's defense, we maintain forces on Guam, Japan, South Korea, and Alaska, plus naval forces in the region and silo-based ballistic missile interceptors in Alaska. China has at least 100 warheads in its strategic rocket forces that could reach most U.S. bases and forces in the North Pacific. China has a tradition of maintaining minimal strategic force and has declared a policy of no-first use of nuclear weapons. Yet its modernization efforts have enabled a first use capability—a more mobile, capable strategic force with a robust command and control overlay. Its nuclear force may be shifting to more of a focus on the United States, rather than its traditional adversary, Russia. China knows that it cannot catch the United States in either strategic or conventional forces and capabilities. And it no longer sees Americans as casualty averse. Beijing has been impressed by the United States' willingness to fight for its values since 9/11. So, it has reassessed its operational code for thinking about the United States. Given this changing perspective Chinese assessments of the 2001 U.S. Nuclear Posture Review therefore believe the United States has lowered the threshold for using nuclear weapons. Chinese strategy may be changing to one of early nuclear use in a conflict to match its perceived view of U.S. policy.

China also has a substantial conventional force, which it might consider using under the shadow of its nuclear capabilities. But it is unlikely that China's conventional military is sufficiently strong to capture Taiwan. If true, that weakness may push them to go nuclear early in a conflict.

Discussion. We need to focus our attention on preventing Taiwan from declaring its independence. This is more immediately important than deterring China—although deterrence is also a necessary step. We cannot be certain that Taiwan would risk its current stable situation for the sake of a declaratory policy.

One way to deter China would be to convince them that we really do mean what we say about guaranteeing Taiwan's freedom. But that works against the issue of Taiwan showing restraint. In addition, we may face a demographic issue: does the rising generation of Americans care to defend Taiwan. Probably not—they believe that Taiwan belongs to China, and mainland China is moving in the right direction towards democracy; so, why risk American lives to defend an island they know and care little about? What will such attitudes bode for the future?

There is a major difference in the commitment level between the United States and China over Taiwan. Taiwanese independence would be a fatal catalyst, posing too great a challenge to Chinese communism to let pass.

If we carry this scenario further, and assume China uses nuclear weapons first, would that use be limited? Would it only be an electromagnetic pulse explosion, for instance? Or would they use nuclear forces in an attempt to shift the military balance in the region? If the latter, would they use weapons only against Taiwan, or also against U.S. forces and bases? What choices would Japan have to make in response? In a situation where China threatened to use nuclear weapons, American missile defenses might work to deny Chinese victory, thereby enhancing deterrence.

If we had actionable intelligence that Taiwan planned to declare its independence, and the United States had a month to persuade Taiwan not to do so, would we succeed? What ramifications on U.S. extended deterrent credibility elsewhere would success or failure have? On the other hand, if Taiwan were to declare independence in a surprise

announcement, what if China succeeded in a quick grab that captured Taiwan, as Iraq did in Kuwait in 1990? Would the United States try to retake Taiwan, or would we accept the result as a fait accompli? If we decided to fight, how would we keep China from crossing the nuclear threshold? Would Taiwan, understanding U.S. reluctance to defend its hope for independence, take matters into its own hands, for example, by developing its own nuclear deterrent?

F.E. Warren Scenario

This scenario posited that a group of ten native born American citizens of South Asian ancestry, all of them having specialized training, would attack, seize, and attempt to detonate a Minuteman ICBM warhead in the missile fields of Wyoming, Nebraska, or Colorado (all belonging to the missile wing at F.E. Warren AFB in Cheyenne). This far-flung missile field, covering an area the size of Pennsylvania, has 150 missile sites, some of them 3 ½ hours away from Cheyenne by car. Missile warheads are routinely changed out and brought back to the base for maintenance and replacement, and the convoys are easy to recognize. They typically have minimal security forces, with more available by helicopter if requested.

What are the chances that the United States would detect the terrorist cell in advance? Could they be deterred from attempting this move? What impact would an attempted nuclear seizure have on the country as a whole? What responses are available should the terrorists succeed in controlling one or more warheads?

Discussion. If terrorists were able to actually capture an ICBM warhead in the field, they would not be able to detonate it—but they could create an improvised radiological dispersal device (RDD) by using conventional explosives that spread the fissile material around the countryside. Would that be a logical scenario for a group like al Qaida to pursue? Why would they waste their time attempting to steal a well-guarded missile warhead, when they could more easily get a weapon some other way? Capturing a U.S. ICBM, for however short a period before the military response teams arrived, would have some symbolic value. It is possible that a well-organized and well-equipped group

of 10-12 terrorists *could* temporarily capture a weapon. And it could possibly be a home-grown domestic group, a conduit for radicals that would do this. Their chances of actually detonating a captured weapon before security forces arrived in response to the theft are virtually non-existent, given the permissive action links and surety devices installed on modern warheads.

This scenario brings to the fore a series of additional issues, including questions about the morale, capabilities, and responsiveness of U.S. security forces at nuclear bases.

Aryan Militia Scenario

In this scenario, we envisioned a situation where a homegrown terrorist cell would attempt to steal spent fuel from a nuclear power plant in the Omaha region in the year 2012. Their goal would be to get control of the low-level waste and use conventional explosives to create an RDD in a metropolitan area. The questions raised by this scenario include whether such a group would be detected in advance, whether they could be deterred, what the local and federal governments' response would be, and what the overall impact of such an attack would be.

Discussion. There is a high probability that a group of this size (eight persons) would be identified, and possibly infiltrated, well ahead of any terrorist use of WMD by law enforcement agencies. This would effectively preclude a successful outcome for this type of scenario.

It is unclear what we mean by "deterring" such a group, or if deterrence is a relevant concept for this scenario. In both of the previous two scenarios we asked this question—but by deterrence do we mean preventing a group from acting at all, or from striking certain targets because they are off limits? Do we want to deter a group from seeking revenge, or just from using WMD in their actions? We must not imply that all violent non-state actors are simply crazy and write them off.

Diego Garcia Scenario

The final scenario examined an escalating crisis between the United States and Iran in 2010. Following an underground nuclear test by Iran, the United States conducts a limited non-nuclear strike against Iran using B-2 bombers that causes severe damage to Iran's nuclear infrastructure, including the release of substantial amounts of radiation. Iran waits two years before retaliating against the American military base on Diego Garcia in the Indian Ocean. After taking many months to establish a fishing fleet presence near the island through a clandestine front, Iran places a 17 kiloton warhead on a fishing boat. Would the United States be aware of this plot? Could it be detected in time to prevent or deter it? If the attack succeeds, what impact would that have, and what responses would be available to the United States? And if it failed, would that have negative ramifications for Iran?

Discussion. Why would a country like Iran attack Diego Garcia rather than just smuggle a weapon into the continental United States? Would they want such an attack to be covert, from an unknown source? If not, they would be more easily deterred. What if Iran were to say, "yes, we did it—and next time we can strike the U.S. homeland"? Would a U.S. conventional retaliatory strike against Iran be viable? It would be difficult to gauge their reactions in advance, given that it is a fairly closed society.

From a purely military point of view, the United States (or Great Britain) could certainly establish a maritime exclusion zone around Diego Garcia that would not allow any ship to enter without first being boarded and searched. But in practice such zones are often violated, particularly when a pattern of seemingly harmless behavior numbs the level of concern.

General Discussion over Scenarios

Each of these scenarios raised questions. For some of the workshop participants, the scenarios seemed ill-structured. Regarding the Diego Garcia scenario, for example, why would Iran decide to use a nuclear bomb? There are certainly other ways to kill Americans, if revenge was its motive. Biological weapons could prove equally damaging.

Is the United States supposed to prevent or deter such events? Or does it need to try to deter or prevent individuals from pursuing such scenarios?

Other issues came up in discussion. Are we concerned with the choice of target or the type of weaponry used? Would the United States use nuclear weapons for purposes of influence or revenge? An adversary would have to know what game was being played—attempts to achieve cooperation, or simple power maximization. Intelligence requires a more nuanced approach, incorporating new types of methodologies such as pattern recognition.

We need to pay attention to the "micro-environments" of terrorism. These are certain geographical black spots, lawless regions where we find a convergence or confluence of terrorism, criminal organizations, diasporas, and radical groups. One example of such a region is the tri-border area of South America (the triple frontier zone where Argentina, Brazil, and Paraguay meet).

Can the United States postulate the desire to create autoimmune responses? Or can we identify localized adroit responses? We need to remember that some actors are not deterrable. Israel was taken by surprise in the 1973 Arab-Israeli War, because it assumed the Arabs were deterred and would not attack because they could not win. Yet the Arab side decided it was better to attack and lose than not to attack at all.

We also need to know how our adversary defines victory, so that we can deny that to him. China's leadership, for example, may define victory as remaining in power, even following a military defeat. If true, they may be more willing to risk conflict. North Korea may think the same way.

What role do U.S. decisions on nuclear force posture have on the decisions made by other states whether to procure WMD? Has recent U.S. policy persuaded the rest of the world that we are unlikely to use nuclear weapons under any scenario? Have our actions created the impression that the United States will be out of the nuclear business by year 2020? The nuclear powers always understood that they had the right to modernize their stockpiles. Has the United States allowed the rest of the world to create unrealistic criteria for judging "success" in arms control and disarmament measures? One

school of thought calls upon the United States to disarm, thereby setting an example that other states will emulate. Were we to follow that logic we would be undermining our own strategy of deterrence and moving out of the nuclear business.

Today, however, our nuclear arsenal is still robust, and U.S. credibility is based to a large degree on who the president is. There is a degree to which a state wants to have the public on its side as it engages in diplomacy and threats. This gives an adversary leverage as it points out inconsistencies in U.S. nuclear policies.

A final note of optimism: there are no new countries entering the nuclear business. The rogue states we worry about today are the same countries that were of concern 20 years ago. This is a positive sign.

Deterrence

During the Cold War the United States designed the ideal force structure and associated strategies to deter another United States-like country. The Soviet Union did the same thing. So we were not deterring each other; we were actually deterring mirror images of ourselves. Today's world is much more complicated and challenging; deterrence is idiosyncratic. Each one of our potential adversaries interprets U.S. signals differently, believes different things, and responds differently to our actions. Add to the deterrence requirement the need to assure allies and dissuade potential adversaries, and you have a complex reality within which U.S. military forces must operate.

The United States today faces three categories of deterrence challenges:

- Traditional global nuclear powers (Russia and China)
- Emerging and traditional regional nuclear powers:
    - Europe (Great Britain, France, and Russia)
    - Northeast Asia (North Korea and China)
    - South Asia (India and Pakistan)
    - Middle East (Israel and Iran)
- Nontraditional non-state nuclear threats
    - Global violent non-state actors (VNSA) (such as al Qaida)

- Regional VNSA (Hezbollah)
- Homeland proxies (sleepers)
- Homegrown groups (militias)

Discussion. Is China on par with Russia in the matrix shown above? Beijing is not yet a global military power. Chinese theater nuclear forces are sized and manned for the region, and are treated differently than strategic forces.

Is Russia reconstituting its nuclear strength? Russia may be on a path to nuclear superiority over the United States in another 10 to 15 years. We cannot afford to dismiss Russia as no longer posing a strategic threat. The Russian economy may save us from an unfortunate military situation, since they cannot afford to sustain high levels of military investment.

So what is the United States trying to deter? War? Nuclear use against the U.S. homeland (or our allies)? Or nuclear use at all (or WMD)? Proliferation of WMD? Terrorism and state sponsorship? The answer is not clear. We can think of deterrence in terms of a Venn diagram with three circles that overlap: traditional nuclear threats, regional nuclear powers or aspirants, and WMD terrorism. Do our deterrence decisions depend on the size and capability of our potential adversaries, or on the missions we will use nuclear weapons to achieve, or on the types of states we are deterring, or on the individuals we face? In general, we are trying to influence an adversary's decisions by getting inside his decision making loop. Deterrence may not be static as it was during the Cold War. It may fluctuate day to day, and crisis to crisis, and according to the target of our deterrent actions. In a crisis we may want to deliberately lower the nuclear threshold to enhance the credibility of our threat. In other words, we need to tailor our deterrence packages, adjusting our arsenal size and capabilities, the missions, and the targets according to the specific state or organization we are attempting to deter.

How could deterrence fail? Obviously the most likely situation would be if Taiwan decided to declare its independence, or if China decided it was tired of waiting to attract Taiwan peacefully and felt strong enough to resolve this long-standing issue

through military force. China may think it can use nuclear weapons in the theater in a limited way and control the risk of escalation—in effect, getting away with capturing Taiwan by breaking Taiwan's will and breaking America's will, thereby creating a fait accompli.

The Taiwan scenario implies a role for strategic defenses. They remove the low level options from the table, forcing China to jump to a higher conflict level that they cannot win. This in turn enhances deterrence by enlarging the firebreak between conventional and nuclear use.

We also need to clarify the distinction between prevention and deterrence. The only states we really have to deter are North Korea, Iran, and potentially Russia if relations deteriorate in the future. We can prevent the need for deterrence in all other cases on the list above. And we don't want to deter Iran and al Qaida; we want to stop them from achieving a WMD capability. There may be a third category below deterrence and compellence that combines the two approaches—attempting to deter escalation while compelling people to do what we want.

Time may be on our side with respect to China. As Beijing becomes more integrated into the globalized economy of the developed world, the Chinese are bound to have a growing national interest in peace and stability. Deterrence may no longer be necessary. In the meantime, what is it that we propose to deter China from doing? And with what means should we best do that?

We need to establish coherence among deterrence, compellence, and dissuasion. What kind of global deterrence posture will send a coherent and consistent message to everyone, without conflicting with the need for tailoring our approach to different states? This is a big challenge, but that is what DoD has asked US Strategic Command to tackle. They are trying to determine how to maintain deterrence while simultaneously trying to compel a state to take certain actions. What are the best instruments to do this? Is it even possible to have a single deterrence posture that works in all cases? Maybe, but it will still have to be nuanced to fit individual cases. We need to know what a state perceives its worst outcome to be, and we need to make it clear to them that that's what they should

expect in response if they attack us—and that we know them well enough to recognize what that greatest fear is. Some adversaries, especially those that are risk averse, will react better to ambiguity, whereas others will require forthright threats. In the Taiwan case, for example, we might need to convince China that crossing the nuclear threshold even in a very minor way will fundamentally change the stakes of the contest. The fight will now involve attempted coercion of the United States and an assault on its position in the world, a much more important interest that goes well beyond the issue of Taiwan's future.

Nuclear Iran

There are multiple ways in which the United States can potentially deter or dissuade Iran from procuring nuclear weapons. These fall into three categories of action: addressing the triggering mechanisms for nuclear use; looking at Iranian motivations for nuclear use; and hedging against use.

We need to counter a number of triggering conditions for nuclear use: technical (by slowing their development of reliable weapons, or lowering their confidence that their weapons would work), operational (by defending U.S. military deployments in the region, and providing assurances that these are not directed against Iran), political (by changing their perception that conflict is inevitable, and reassuring their leadership), and diplomatic (by establishing direct communications with Tehran). We have established a circuitous political means of communications with Tehran through the European Union and Baghdad. But this only takes place on marginal issues, not the core relationship between the two states. And with whom do we talk? Who is in charge? Our level of understanding of Iran's leadership is only about as advanced as was the study of Kremlinology in the early 1950s.

We could also attempt to reduce Iran's motivations to develop or use WMD by increasing the cost or reducing the benefits of use, and by keeping a hedge of U.S. military capabilities just in case—including counterforce weapons, missile defenses, and nuclear device detection systems.

Nuclear North Korea

North Korea is the most difficult intelligence target in the world. STRATCOM's Strategic Deterrence Center is working on this problem, with help from the National Institute for Public Policy. There are strong parallels between the behavior or Kim Jung Il and Saddam Hussein. Neither leader showed much rationality; they ran their countries as a "thugocracy." No real political system was in place; it was a cult of personality.

Discussion. North Korea seeks respect from the United States. Is it easier to deter an individual or a government? Regardless, if we are able to cut the same deal with Pyongyang that we did with Libya in December 2003 to remove their WMD, we should take it. Sometimes the United States has to deal with the bad guys of the world in order to remove the real threat, which is not the cult figure, but his nuclear weapons. Will his perceptions change as he gets older? Doubtful, as he is already 64.

The United States is able to deter North Korea day-to-day. That may change following an attempt by the United States or another actor to preempt North Korea's nuclear forces with a conventional attack. If we cannot successfully eliminate that threat, we may be forced to pursue military deterrence as our default option.

Deterring Non-State Terrorist Groups

A non-state terrorist organization can be though of in hierarchical terms according to the following diagram:

Core organization >> operational support >> [terrorist/act/victim] << U.S. government/public << strategic objectives

At a tactical level, we want to deny such groups opportunity. At an operational level we want to deny them the capability. And at a strategic level we want to deny them their objectives.

Deterrence is ultimately a psychological process, involving ideas from psychology and sociology as well as political science. The vectors in this diagram remind us that the war on terror is more than simply killing the enemy before he kills us. It also

involves public relations with the larger population (including overseas audiences); it involves shaping perceptions; and it has multiple dimensions, with declaratory policies at multiple levels. Our goal is to influence the chain of elements in the diagram so as to deny the terrorist his ability to achieve his objectives. We can do that with denial packages aimed at each of the levels of analysis:

- Tactical level: deny opportunity through protection, hardening, and mitigation
- Operational level: deny capability by cutting off funding, interdicting, eliminating linkages, marginalizing and isolating groups
- Strategic level: deny objectives through superior warfighting capabilities

Each group will offer different seams or weaknesses, points at which we can plug in the denial package elements. We can thereby affect, re-direct, and/or isolate terrorism.

By broadening the notion of deterrence we can identify additional things that will influence the elements in the above diagram. One can use an analogy with a biological construct to focus on the sources of a group's growth and development, which will differ in each group. Each organization will have different items that it values which can be put at risk.

Discussion. Can we differentiate between intentional and accidental use in these cases? Some members of the workshop were not in favor of ambiguity in U.S. declaratory policy, because to some adversaries it appears to be a strategy of the weak, and can lead to miscalculation. It may also result in counterproductive responses. While we have to remember to tailor our deterrent approaches to individual situations, we also have to be careful not to have too many exceptions if we wish to keep our declaratory policy credible. Ambiguity may work on a day-to-day basis, but in a crisis situation you want the adversary to be certain of your response.

Should the international community criminalize proliferation activities? To what extent does the United States hold other states accountable or responsible for allowing terrorists to have access to materials, technology, or operational details necessary to create a nuclear bomb—even if unintentionally (as in theft from their countries)? And before we answer this question, let us consider whether the United States' hands are

completely clean in this regard. We may have to pursue both a public stance on our declaratory deterrent policy, and a covert approach to the likely state sponsors of terrorism, telling them that if anything happens, they will bear presumptive guilt and we will shoot first and sort out responsibility later.

What lessons did other rogue states learn from the U.S. intervention in Iraq? The answers fall into three categories:

- We need to give up our WMD programs before the same thing happens to us (Libya, and possibly Syria)
- We need to make WMD more quickly (North Korea, Iran)
- The United States is tougher than we thought (China, Iraq)

It is hard to imagine a scenario in which a nonstate actor detonated a nuclear weapon on U.S. soil to which we would respond with nuclear weapons, even if we knew who that group's state sponsor was. There are several scenarios in which a nuclear weapon could be used without causing any appreciable damage: if missile defenses work and destroy an inbound missile; an EMP attack; a failure or dud; and a situation in which intelligence success allows us to intercept the weapon en route to its intended target. In any of those scenarios the United States would clearly want to restore the presumption of non-use, rather than amplify the value of nuclear weapons by nuclear retaliation. On the other hand, there may be value in responding with nuclear weapons in such cases in order to reestablish deterrence credibility, thereby avoiding the possible consequences of restraint.

The United States must decide if it truly wants global declaratory policy that it will be held accountable for. We may find ourselves having to support a state responding to an attack by launching military actions against a third party that we really didn't want to harm. Additionally, we have to be sure we can meet the standards established in any such norm. Note that the United States rejected the proposed Biological Weapons Convention verification protocol because of concerns about foreign inspection rights at U.S. biotechnology firms.

It is instructive here to remember that in a recent SAIC study of retired flag officers, they agreed that there were five criteria which applied to U.S. use of nuclear weapons:

when there is public support to do so; when there is allied support; when such use would stop a conflict; when the norm of proportionality was met; and when a nuclear weapon was the only weapon that would successfully do the job.

Domestic Threats

There are a number of disaffected groups within the United States that could be recruited or who already believe in Islamic causes. Given finite resources, how much can or should the U.S. government spend dealing with this low-level but potential domestic threat?

While it is unlikely that a domestic group would seek a nuclear weapon, they could attempt to attack society through other terrorist means: cyanide in a city's water supply, biological attacks using anthrax, chemical attacks with ricin, or very powerful conventional bombs. The probability of any of these types of attack is low, and many of the domestic movements we've been concerned with in recent years are in decline. Nonetheless, the risk of loss of life makes it worth tracking these groups. We cannot simply write off this risk. The government also needs to consider putting out a competing narrative, or story, to counter the terrorist narrative. In addition to our actions, we need to put forth a message selling our side of the story.

Discussion. One approach to deal with these groups is to take the FBI concept of infiltrating a group and breed distrust within what then becomes a marginalized organization. The United States can also influence foreign state sponsors of domestic terrorist groups by threatening economic or migration consequences.

Social movements need mobilizing resources, political opportunity, and framing effects that justify their actions. We can address each of these elements in our attempt to disrupt such groups. Most disaffected groups will refrain from using violence until they are certain that there is no other way to address their grievances.

Themes and Deterrence in Context: Holistic Security

Our overall goal is one of threat reduction. One can envision threat reduction as having four pillars, as shown in Figure 1.

Threat Reduction

- Diplomacy:
  - Acknowledge others' legitimate security concerns
  - Collective security
  - Be a good winner and better international partner
  - Listen to others' concerns, enhance understanding
  - Prevention
- Military security and capability: Deterrence
  - Denial/interdiction
  - Defense
  - Homeland Security
- Consequence management: Contain/mitigate damage
  - Recover
  - Determine where we are most brittle
    - (terrorist nuclear strike on capital or major city)
  - Prevention
- Intelligence (underlying all three categories): Ask the right questions
  - Develop sources

Figure 1: Threat Reduction Pillars

Final Discussion

Among the impediments to effective declaratory policy are the exceptions that creep into all American policies. Exceptions make declaratory policy look hypocritical. For example, we often talk tough on terrorism, but we make distinctions between terrorist groups in the war on terror. This is taken as a sign of weakness by some of our enemies. We need to be willing to carry out our threats, or it will undermine strategic deterrence, as well.

How can we restore the nuclear taboo after next use? The need to reestablish deterrence and the belief that a nuclear threshold remains a global good despite recent violation of that barrier, will be foremost in policy makers' efforts following the next use of a nuclear weapon.

Are we overestimating the effects of a terrorist nuclear weapon? It may not be as important to a terrorist group, nor its use as damaging to Western interests, as we often assume. A tactical nuclear weapon of the size and type most likely to be stolen or built by

a terrorist group will produce a relatively small explosion, which, depending on the location it is detonated, will have a similarly small number of casualties. With a good public diplomacy and education effort, the governments of the developed world can remove much of the psychological fear associated with a single use.

Should we put more focus on prevention and nonproliferation, rather than on dealing with the aftermath of a terrorist attack? Certainly yes, but the current administration has not emphasized this aspect of its foreign policy. We may regret our national parsimony in cooperative threat reduction efforts with the benefit of hindsight after the next nuclear use.

The United States probably needs to have a declaratory policy to respond to public reactions and expectations following a WMD terrorist attack. The U.S. public will want to see immediate and decisive military response. Perhaps prompt non-nuclear ICBM strikes could meet that need.

Arguments in favor of disarmament have resurfaced. We've gone about as far as we can with nonproliferation. We probably need to surrender the idea that there are nuclear haves and have-nots. The only way to ensure that nobody has nuclear weapons, or any rationale for having any, is for everyone to disarm. This will take time and effort to do it right, without endangering anyone's security.

Alternatively, we may be moving toward a world in which everyone has the right to have nuclear weapons. Their domestic cost-benefit analyses will determine whether they choose to do so. But a world in which everyone has nuclear weapons is a self-denying philosophy, since it would be unlikely that every international competition would allow its adversary to reach that point.

Our allies recognize that the United States has global responsibilities, and therefore the need to maintain some nuclear forces as the ultimate sword. We need to refute the moral equivalency of some states who argue that we should do away with all nuclear weapons. In particular, we should distinguish between the legitimate, useful global security enhancing role of U.S. weapons and the likely negative consequences of North Korean weapons.

Conference Themes

The workshop participants finished the second day with a wrap-up session in which they attempted to distill the key themes that arose during the conference. The following list captures most, though certainly not all, of those that seemed most pertinent and least likely to be negatable.

- Deterrence is a very uncertain business. Yet strong traditional perspectives of deterrence continue to be held in the military services. The 2001 QDR and NPR present some alternative views of deterrence, such as the potential role of non-nuclear systems in helping our response options and decisions.
- Defenses have a real role in deterrence scenarios, especially vis-a-vis China and Taiwan. American missile defenses, whether strategic or theater, may deter China from taking aggressive steps, knowing that it cannot cow the United States into acquiescence because it cannot guarantee that its missiles would reach their targets. This is classic deterrence by denial, a concept that was almost forgotten in the latter stages of the Cold War.
- Public opinion is important. We need to control it in a crisis, then seek support for later action. That may require prompt retaliatory capabilities and action following a terrorist attack in order to meet the public demand for retribution.
- Deterrence is culturally dependent. It also relies on U.S. leadership styles. Each president puts his (or, eventually, her) mark on U.S. deterrence force and deployment decisions, the manner in which deterrent threats are conveyed to an adversary, and so on.
- There is a rich menu of options available to us in trying to prevent proliferation. This includes cooperative threat reduction programs, lab-to-lab initiatives, nuclear city programs, and many other low-cost efforts by the Departments of Defense and Energy that have been put in place over the past decade. In addition to enhancing deterrence capabilities, there is no reason the West, and the United

States, could not do more on these “upstream” prevention issues. The potential payback is enormous.

- The nuclear weapon states must be responsible stewards of their arsenals. They are not currently doing all that they could to prevent the potential loss or use of their weapons. This adds fuel to the arguments for disarmament.
- Our goal with China is a cooperative relationship, not military competition. Hence we should attempt to improve that relationship on many levels, while maintaining a prudent deterrence and defense capability “just in case.”
- The workshop participants did not come up with a good suggestion for deterring the use of WMD by a non-state terrorist group. Nor did they decide how best to dissuade a state from trying to acquire nuclear weapons, or how to deter a group without a center (such as al Qaida).
- On a more optimistic note, we are worried about the same countries acquiring nuclear weapons today that we worried about 25 years ago. If we cut a deal with North Korea and Iran that allows them to become nuclear weapons states, thereby avoiding conflict to prevent or reverse those trends, we can keep the number of nuclear weapons states at the current level (those two would make 10) for years to come.

Areas for Further Research: Where Do We Go From Here?

The workshop participants also developed a list of suggested future research for the sponsor organizations to consider. These items are not in prioritized order.

1. Nuclear Aftermath. We need to more diligently consider the actual consequences of a terrorist attack on a major city with a nuclear weapon. How can we restore confidence in government after that happens? (Although the need for a strong centralized national leadership may not be such a concern in a federal society like the United States.) How do we affect a recovery from such an attack? The consequence management issues from even a single nuclear detonation on American soil are huge.

2. New Versions of Deterrence. We should consider alternatives to the type of deterrence we grew used to during the Cold War—vulnerable societies, lack of defenses, countervalue targeting, and the like. The 2001 QDR and NPR, and the forthcoming 2005 QDR, all provide new ideas for future colloquia to build upon. We no longer need to feel stuck with Cold War deterrence thinking.

3. Dissuasion. In addition to deterrence, U.S. national security strategy has recently placed increasing faith that we can also prevent the acquisition of nuclear weapons through dissuasion. Success in this arena would eliminate the need for deterrence. Future study of the concept of dissuasion is called for.

4. Responsible Nuclear Stewardship. The nuclear nations need to develop a program of responsible nuclear stewardship agreed to by all the nuclear weapons states. Future studies could design such a program.

5. Scenario Building. We should develop a series of prioritized scenarios that examine nuclear use by any number of potential adversaries. That list would include rogue states (such as North Korea), terrorists, China, and possibly Russia. The group eliminated the need to further discuss or develop scenarios that focused on domestic nuclear terrorism—they were simply too far-fetched.

* * * * *

The sponsor organization would like to continue holding these workshops annually at the Air Force Academy, and invited all participants to attend the Strategic Concepts Roundtable to be held in Colorado Springs mid-September (and annually thereafter). In addition, DTRA/ASCO hopes to hold a workshop on U.S.-Russian strategic relations at an overseas location in spring 2006.

DEPARTMENT OF THE AIR FORCE
USAF INSTITUTE FOR NATIONAL SECURITY STUDIES
USAF ACADEMY, COLORADO

DTRA/ASCO and USAF Institute for National Security Studies

"The Sum of All Fears"

Crossing the Threshold of Nuclear Conflict in the 21st Century

17-18 August 2005

Tuesday, 16 August 2005

Travel to Colorado Springs

1900 Dinner and a Movie: "The Sum of All Fears" (Optional) (Arnold Hall Ballroom, Cadet Area)

Wednesday, 17 August 2005

0800 Registration, Doolittle Hall

0830 Welcome and Opening Comments
Dr. Kerry Kartchner, DTRA, and Dr. James Smith, INSS

0845-1100 Review of Previous Scenario Work
"Black Dawn" CSIS Scenario – Bob Bell, SAIC
"Al Qaeda Strategic Personality" Analysis – Lew Dunn, SAIC
"Big Bang" Analysis – Mike Urena, DTRA
Break 1000-1015
"After Next Nuclear Use" CSBA Scenarios—Jim Smith, INSS
"Iran Nuclear Pathways" – Greg Giles, SAIC

1115-1200 General Discussion of Previous Work

1200 Catered Lunch (Cunningham's Deli)

1300-1530 Scenario Development/Discussion
"Taiwan Crisis" Scenario—Traditional Nuclear Power Confrontation
Jim Smith, INSS
"FE Warren Crisis" Scenario—Foreign Terrorist Detonation in CONUS
Lt Col Bill Thomas, INSS
Break 1415-1430
"Wyoming Aryan-Militia Crisis" Scenario—Domestic Nuclear Terrorism
Lt Col Jon Drummond, USAF/Brooks AFB
"Diego Garcia Crisis" Scenario—Iranian Revolutionary Guards Attack Diego Garcia
Maj Bill Casebeer, USAF/NPS

1530-1630 General Discussion of Scenarios
Lead Discussant: Valerie Hudson, Brigham Young University

1900 Hosted Dinner (La Casa Fiesta Restaurant, Monument)

Thursday, 18 August 2005

0900-1015 Deterrence Strategies & Requirements

Deterring China/Traditional Nuclear Powers—Jim Smith, INSS
Deterring Iran & North Korea/Rogue Nuclear Powers—Forrest Waller, SAIC

1015-1030 Break

1030-1100 Overview of STRATCOM's Strategic Deterrence Assessment Lab—Greg Weaver, SAIC

1100-1145 General Discussion of Deterring State Actors

1145-1300 Lunch at USAFA Officers' Club

1315-1500 Deterrence Strategies & Requirements

Deterring Foreign Non-State Actors/Foreign Terrorist Groups—Lt Col Bill Thomas, INSS
Deterring Domestic Non-State Actors/Domestic Terrorist Groups—Lt Col Jon Drummond, USAF

1500-1515 Break

1515-1615 General Discussion of Deterring Non-State Actors

1615-1630 Closing Comments

1630 Departure

"The Sum of All Fears"
Crossing the Threshold of Nuclear Conflict in the 21st Century

17-18 August 2005
USAF Academy, CO

Participants

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SAIC

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Departmen of State

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USAF

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