

**“Survival in the Nuclear Gray Zone:  
Why We Have Not Addressed Response Planning  
for Nuclear Terrorism – and Why We Must”**

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Homeland Security and Government Affairs  
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Since the terror attacks of September 11, 2001, the United States has faced an Anthrax bioterrorism attack, the 2002 Smallpox scare, an enormous northeast regional blackout, a sustained concern for possible pandemic influenza, the devastation of Hurricanes Katrina and Rita, the related flooding of New Orleans and last year's Minneapolis bridge collapse. And we have also witnessed global catastrophes, two this week alone in Myanmar and China, that have reinforced the necessity for any nation to optimize its capacity to prevent, respond to, mitigate and recover from megadisasters.

To that end, beginning with the creation of the Department of Homeland Security, the federal government organized and paid for one of the largest expansions of federal bureaucracy in U.S. history – and did so in record time. Concurrently, agencies at all levels of government, from states and local jurisdictions to federal, have incorporated disaster planning as a core responsibility. Furthermore, many private sector entities and non-profit organizations have also incorporated disaster planning into mainstream operations. Citizens, as well, have been encouraged to appreciate the importance of individuals and families preparing for disasters.

Whether or not the nation has been successful – or is truly on the right track - in this complex process of “getting prepared” remains a debatable point, although no one doubts that the size and scope of this endeavor is formidable. Still, nearly seven years after 9/11, enormous challenges remain. Hospitals and the health care systems remain by and large unprepared, accountability for billions spent on all aspects of preparedness are far from transparent, some of the biggest preparedness challenges, like pandemic flu planning remain grossly underfunded, and so forth.

But among the most concerning realities of our disaster planning agenda has been the apparent failure to grasp, organize or implement plans to mitigate and respond to a terrorist attack based on detonating a nuclear device. This is in spite of the fact that the detonation of 10Kt improvised nuclear device is one of 15 planning scenarios developed in 2004 by the White House Homeland Security Council. Of further interest is the fact that since 2001 the Department of Defense has permitted the engagement of military personnel in homeland defense issues and, under classified conditions, DoD planners have developed training modules and exercises for civilian applications.

These factors notwithstanding, few –if any – major U.S. urban centers have taken on the admittedly daunting challenge of planning for a meaningful public health response to a nuclear detonation. This aversion is evident even in cities where planning for other types of natural and terror-related disasters is relatively sophisticated. Complicating matters is a serious level of confusion among federal agencies, including the DoD, with respect to how, when and with what resources the federal government engages in the response to a nuclear attack.

This Committee has previously heard testimony from panels addressing the consequences of nuclear terrorism, so there is no need for these concerns to be reiterated here. What I want to focus on are (a) the principles of survivability and (b) understanding the

impediments that currently inhibit rational response planning for the nuclear threat, even as we acknowledge that this would be a particularly horrific form of terrorism.

Put another way, it is critical that we dispel the myths of nuclear terrorism and get to the business of planning for this potential catastrophe, much as we do for the possibility of a major earthquake in the heart of a city, a major meltdown of a nuclear power plant or a 1918 style pandemic influenza. Planning for all of these megadisasters has long been underway in most states and local jurisdictions; planning for the “nuclear scenario” has essentially not been on the table.

I believe that one important reason we’ve neglected nuclear terrorism is consequent to the persistence of long-held misconceptions regarding nuclear threats in the age of terrorism. Let’s call them the “three principle myths” of nuclear terrorism:

### *#1 The Myth of Extreme Improbability*

This issue was presented in detail in previous hearings of this Committee. And, from my perspective, we commonly hear emergency planners say something on the order of “nuclear terrorism is highly improbable; we want to focus on those disasters that are more likely to occur.” But, unfortunately, like other terror threats there is simply no objective means of determining probability with respect to when or if a terrorist might detonate a nuclear weapon in a location that might be seen as a high value target. There is simply no known objective method for comparing relative risks of nuclear terrorism in New York, Los Angeles or Washington against other large-scale disasters.

And as previously discussed here, the reality of “loose nukes”, the relative availability of plutonium and highly enriched uranium, porous borders, unchecked cargo containers and air cargo, and an unending pipeline of terrorists who are increasingly well educated and determined make it impossible to ignore the nuclear threat.

### *#2 The Myth of Planning Futility*

Unique among potential disaster scenarios, radiological events – especially nuclear explosions - are shrouded in a special level of dread that have captured the imagination of disaster planners, as well as the general public. There are widespread beliefs that such catastrophes are simply not survivable, that any efforts to save people would be futile and that disaster response planners should concentrate on events that are both more likely and inherently thought to be more survivable.

In our view, the principle reason that such perspectives are so deeply ingrained has to do with images developed – quite appropriately – during the Cold War and its most dangerous manifestation, i.e., the creation of vast arsenals of megaton level nuclear weapons between the Soviet Union and its allies on the one side and the U.S. and its allies on the other.

At its peak, more than 60,000 warheads were in the combined arsenals; and an attack or perceived attack by one would trigger a counter-attack by the other. Thousands of very high yield nuclear weapons would obliterate the two major antagonists and many other countries, as well. This vision of Armageddon has been sustained well beyond the end of the Cold war to the point where it has permeated the public consciousness and impaired planners and citizens from taking steps to ensure maximum survival in the event of nuclear terrorism. It is a nearly intractable set of beliefs that we seem unable to shake, in effect a perception that inhibits the possibility of rational planning.

The central point is that all-out nuclear war with the Soviets would *not* have been survivable in any meaningful way; but nuclear terrorism with a single, relatively low-yield smuggled or crudely constructed bomb - while fatal for many to be sure – would be survivable by many more with appropriate information, planning and response.

### *#3 The Myth of Federal Rescue: the Cavalry Is Not On Its Way*

It is clear that the public at large harbors entirely unreasonable expectations regarding the rapidity and efficiency of disaster response systems. A study conducted last year by my own program, The National Center for Disaster Preparedness at the Columbia University Mailman School of Public Health, showed that more than one in three Americans believe that in the event of a catastrophic disaster, help would arrive within one hour (37%). Interestingly, this belief was even more prominent among big city residents; 45% expecting to see help arrive within the one-hour window. And overall, two-thirds of Americans believe that help will arrive “within several hours”. These beliefs persist in spite of information from FEMA, the American Red Cross and others that help may not be on scene for more than a day under a variety of disaster scenarios; and in some cases the public is asked to be prepared to survive and self-care for 72 hours or more. The fact is that in a megadisaster, the public represents the true “first responders”.

On another level, unrealistic expectations may also be seen among professional disaster planners. While data does not yet exist to support this notion, it is my impression from conversations with state and local disaster planners throughout the U.S., that federal teams will somehow be immediately available to assist local efforts in managing the consequences of nuclear terrorism.

It is true that federal response teams from a range of agencies, including the DoD, do exist, many operating in the capacity of law enforcement, counter-terrorism and military response, but few assets can be expected to provide large-scale medical triage, hospital care and so forth. The National Guard’s WMD – Civil Support Teams are available for rapid assessment, technical advice and general support – but not to appreciably add to actual medical response capacity. And on the civilian side, National Medical Response Team, consisting of 60 highly trained medical and technical specialists is available and trained to enter hot zones for decontamination of affected patients.

Still, in last month's testimony before this Committee, John Gibb, director of New York State's emergency Management Office stated, "There is no ready system in place or planned for that would result in victims from this type of event receiving pre-hospital or definitive care in any reasonable time frame". New York, like most other states, has, on some level realized that substantial response capacity to nuclear terrorism is not available within their borders – and the only hope is to count on federal resources. But this latter concept is, at best, a work in progress.

Perhaps the most serious issue affecting the nation's ability to respond to nuclear terrorism is a complex state of confusion with respect to the role of the federal government around planning for and response to a nuclear detonation. No state, region or locality has the necessary resources to respond effectively to a 10Kt nuclear explosion.

How and when federal resources – DoD and Civilian - are deployed and under what legal authorities is part of the problem. The other key issue, however, has to do with the operational capacity - in terms of personnel, expertise, medical counter-measures and medical facilities – that is actually available to the federal government for rapid deployment to an area that has experienced large-scale nuclear terrorism. We have every reason to believe that even if the total federal capacity was coordinated, it would be insufficient to meet the needs of potentially hundreds of thousands of nuclear survivors with trauma, burns and radiation injuries.

In sum, the federal cavalry is, at this point simply may not ready for the level of response required to meet the needs of nuclear terror in any American city. States and localities should not be dependent upon a sufficient federal rescue, although it is conceivable that this situation could be reversed with sufficient resources and redefining how and when the federal response can be activated.

### Surviving in the Gray Zone

This is a straightforward concept that should be guiding preparedness efforts for nuclear terrorism. As was made abundantly clear from the testimonies heard in previous expert panels, the detonation of a 10 KT nuclear weapon during a workday in downtown Washington, DC or New York City would immediately kill between 100,000 and several hundred thousand people who were within a radius of approximately two miles. But accepting the fact that actual consequences will depend on many conditional factors, including precise location and yield of the explosion; structural configurations, wind conditions and so forth, think of the following basic description:

- Radius of .5 mile from ground zero – vaporization; lethal zone
- .5 mile to 2 miles, extraordinary fatality rate and life-threatening, complex injuries
- 2 miles to 8 miles, plus the fallout plume: "*The Nuclear Gray Zone*"
- 8 miles – 10 miles and beyond, very minimal immediate fatalities

The fact is that survival in the gray zone, while by no means assured, will be highly dependent on effective pre-event planning and citizen awareness. And significantly higher numbers of people will be located in the gray zone than in the lethal zone, optimal survival is made possible by a range of planned strategies, including:

- An informed emergency response system, including official agencies and voluntary organizations
- An appropriately stocked shelter system
- Pre-positioned medical countermeasures
- Well understood contingency relationships with state, regional and federal resources that have been clarified and exercised by key planners on all levels
- An informed citizenry, i.e., basic information about what behaviors are likely to improve the odds of survival

Conclusion:

Planning for nuclear terrorism must be a high priority for all levels of government. While prevention of catastrophic terrorism through sophisticated intelligence gathering, counter-terrorism measures and detection, is the most desirable concept, this is not always possible. Short of the eventual abolition of all nuclear weapons, the nation needs to understand that the importation of an illegally obtained nuclear device or the building of one here on U.S. shores remains challenging, but not overwhelmingly so for appropriately educated, highly dedicated and well-funded terrorists aiming to do harm to America.

In the meantime, Congress should consider expanded funding to:

- (1) enhance our understanding of the barriers to nuclear preparedness planning;
- (2) support more research on critical workforce needs and resiliency;
- (3) provide states and at risk urban areas with greatly enhanced stock-piling and distribution capacity for medical counter-measures, as well as contingency systems needed to assure availability of emergency care for injured survivors; and
- (4) substantially bolster the capacity and clarify the authority of the federal government to deploy massive resources in the event of a nuclear terror attack anywhere in the nation.

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