



Taking the Long View in a Time of Great Uncertainty

Sometimes Life Seems Too Complicated

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As I write this column, the terrible terrorist attack in Paris is still fresh in everyone's mind, Belgium's prime minister has established the highest terror alert for a sustained "serious and imminent" threat, and Russia has determined the downing of its Metrojet airliner over the Sinai was a result of a terrorist bomb. Intelligence assets have joined forces to find the planners of the Paris attack, and representatives from many nations are gathering to develop strategies for addressing the international concerns of a growing threat to freedom and democracy. All of these events come at a time when there are many critical uncertainties that could impact the Institute, as addressed in last issue's column, "A World Full of Critical Uncertainties."¹ In this context, there is a question that many are asking more and more these days: "What happens if one of these terrorist groups obtains nuclear materials?"²

Sometimes life seems to be too complicated.

Using Scenarios to Rehearse Future Worlds

There is no way to make the world we live in less complicated; however, there are planning tools, such as scenarios, that can be used effectively to rehearse possible futures, discuss actions that can be taken as events unfold leading to those futures, and create a greater sense of understanding and ability to address even improbable uncertainties. Scenario planning has been used effectively by large corporations and even governments to address complex technological, political, and social situations. Examples abound in the literature,³ and the tool is in continuous use these days by organizations to address highly complex issues such as climate change and energy resources.⁴ The stories that are created in the development of these scenarios allow managers and policy makers to discuss the worlds in which decisions have to be made, and develop the preparatory actions that need to be taken to accommodate uncertainties.⁵

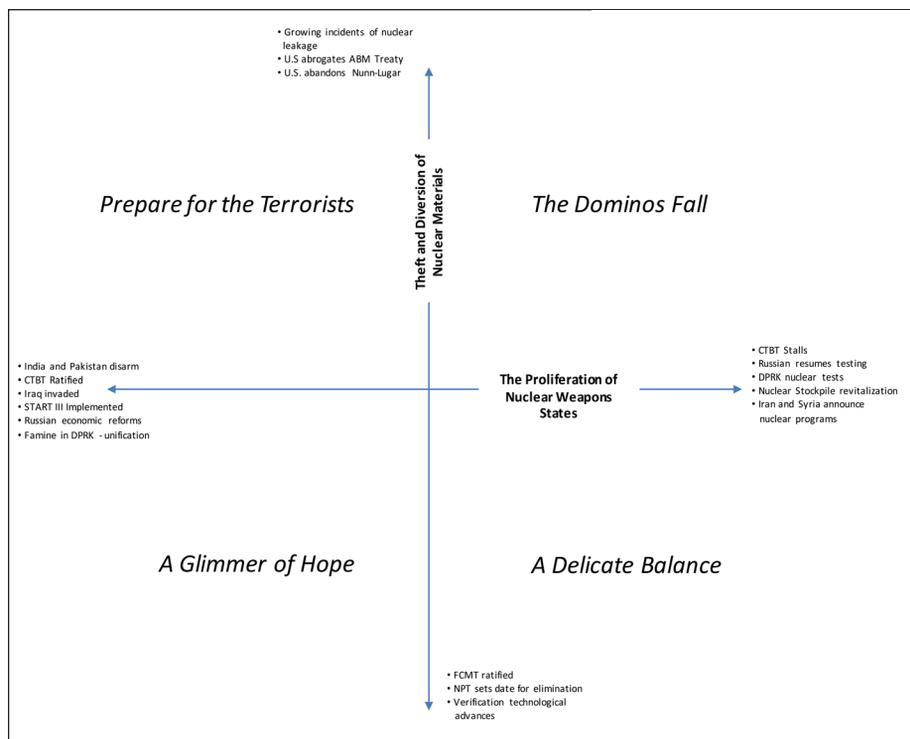
Constructing the Scenarios

In last issue's column I indicated that, in its most useful form, scenarios can be shown as an orthogonal construct using descriptors of the two most distinctly different and impactful *Critical Uncertainties*, creating a landscape for four distinct and challenging future worlds.⁶ In 1998 I constructed a set of scenarios for a U.S. Department of Energy (DOE) site looking at an otherwise potentially optimistic turn of the millennium, in the context of the underlying critical uncertainties of the proliferation of nuclear weapons technologies and the theft or diversion of nuclear materials. One of the future worlds in that set was named "The Dominos Fall." This characterization, posited by Dr. Sig Hecker, former director of the Los Alamos National Laboratory, looked at a troubling time when more and more nations joined the "nuclear club." Figure 1 shows a simplified version of that construct and some of the speculative "end points" that created the future world stories used to stretch the imagination of management. Of particular note, one of the worlds, "Prepare for the Terrorists," speculated on the evolution of non-nation-states using nuclear materials in a world that otherwise seemed to be headed toward a more peaceful future, but where those nuclear materials were not adequately controlled, and inaction by leaders created an environment for those actors to achieve their goals.

This column is intended to serve as a forum to present and discuss current strategic issues impacting the Institute of Nuclear Materials Management in the furtherance of its mission. The views expressed by the author are not necessarily endorsed by the Institute, but are intended to stimulate and encourage JNMM readers to actively participate in strategic discussions. Please provide your thoughts and ideas to the Institute's leadership on these and other issues of importance. With your feedback we hope to create an environment of open dialogue, addressing the critical uncertainties that lie ahead for the world, and identify the possible paths to the future based on those uncertainties that can be influenced by the Institute. Jack Jekowski can be contacted at jjekowski@aol.com.



Figure 1. Global nuclear danger scenarios circa 1998



The introduction to this set of 1998 scenarios came with a prescient warning: *As the world enters the third millennium, it teeters on the brink of disaster. With the proliferation of weapons of mass destruction, mankind no longer has the luxury to allow others to exercise unilateral actions in support of extreme agendas. The potential for a single incident to take the lives of millions of people, impact the economy of countries or regions in the trillion of \$\$, and effect social change of unprecedented scale requires the creation of a new global social conscience and rule of law. Unfortunately, mankind has acquired the power for such destruction before it has developed a responsible social structure. In this unstable world a sequence of discontinuities, particularly those for which an inappropriate, or no re-*

sponse occurs, could lead mankind to those desolate worlds so often depicted by Hollywood. It is of paramount importance that world leadership understands the consequences of their actions or inaction and engages in strategic conversations that identify critical indicators that could lead to the unimaginable...

Creating Scenarios of Interest to the Institute

Based upon current critical uncertainties, as identified in my last column, one could envision creating a set of future worlds in which strategic discussions pertinent to the future of the INMM could occur. Those future worlds would be created by the nexus of two critical uncertainties on an orthogonal set of axes. One possible set of critical uncertainties that could be used to create those future world stories would be characterized by:

The advancement of nuclear technologies

Global nuclear security threats

The advancement of nuclear technologies

might include new national technical means of detecting clandestine nuclear materials and weapons-related activities, research that many of our Institute members are engaged in; or the development of more secure and safe nuclear reactor concepts, such as the advancements promised by small modular reactors.⁷ On the opposite side of the axis, it could include darker aspects of the future that would allow individuals or groups to more easily build weapons of mass destruction,⁸ or open new paths for the acquisition of nuclear materials or the surreptitious manufacture of those materials.⁹

Global nuclear security threats

abound, but have been mitigated greatly by the commitments made by nation-states as a result of the Nuclear Security Summits of the past six years, leading to the enhanced protection of nuclear materials and facilities.¹⁰ However, the once optimistic future that the end of the Cold War offered has suffered setbacks recently as every nuclear weapons state pursues modernization efforts for their stockpiles and delivery systems,¹¹ and as once-tempered political rhetoric has been over taken by frightening words of nuclear confrontations.¹² The proliferation of nuclear weapons knowledge has forever let the “genie out of the bottle,” and despite some perspectives that over time that knowledge can be allowed to deteriorate, the hope for a “global zero” seems farther away than ever.¹³

In future columns I hope to explore the development of a set of scenarios—



“future world stories”—that will capture the imagination of the membership and allow us to better understand the role the Institute can play in this very complicated world. As always, I would welcome thoughts and ideas that can help shape those future world stories.

Endnotes

1. See Taking the Long View Article, “A World Full of Critical Uncertainties” *Journal of Nuclear Materials Management*, Volume 44, No. 1, for a discussion on the Critical Uncertainties facing the world and the INMM today.
2. See <http://www.theatlantic.com/international/archive/2015/10/moldova-nuclear-weapons-isis/409456/>, and <http://www.nbcnews.com/storyline/isis-terror/smugglers-try-sell-nuclear-material-isis-ap-investigation-n439851>; also see “*The Greatest Terrorist Threat: How to stop nuclear material from falling into the wrong hands*,” <http://www.nti.org/analysis/opinions/greatest-terrorist-threat/>
3. See <http://www.generationconsulting.com/publications/papers/pdfs/Mont%20Fleur.pdf> for the final report of the “Mount Fleur Scenarios” that helped to prepare South Africa for the end of Apartheid. Also see <http://futuristablog.com/the-mont-fleur-scenarios/> and <https://www.youtube.com/watch?v=f92RYCZMwEk>
4. See <http://www.shell.com/global/future-energy/scenarios.html> for a rich discussion of scenario planning and its history at Shell Global.
5. There have been many descriptive statements made about scenarios, including “*A modern day hearth for people to gather around and talk about what might be*,” “*A way for people to say ‘I am prepared for whatever happens’*,” and “*A way to change a person’s view of reality*.”
6. The seminal work of creating useful scenarios was presented in Peter Schwartz’s book “*The Art of the Long View: Planning for the Future in an Uncertain World*,” which can still be obtained on Amazon.
7. See <http://www.energy.gov/ne/nuclear-reactor-technologies/small-modular-nuclear-reactors> for more information on the U.S. Department of Energy’s programs to stimulate the development of these new energy sources.
8. See “*3-D Printing the Bomb? The Nuclear Nonproliferation Challenge*,” <http://carnegieendowment.org/2015/11/04/3-d-printing-bomb-nuclear-nonproliferation-challenge/ilcn>
9. See NNSA Report “*Prevent, Counter and Respond—A Strategic Plan to Reduce Global Nuclear Threats*,” [https://nnsa.energy.gov/sites/default/files/NPCR%20Report_FINAL_\(with%20signatures\)_3-18-15.pdf](https://nnsa.energy.gov/sites/default/files/NPCR%20Report_FINAL_(with%20signatures)_3-18-15.pdf)
10. See <https://www.whitehouse.gov/blog/2015/08/05/announcement-nuclear-security-summit-2016> for information on the fourth Nuclear Security Summit that will be held in Washington, D.C., March 31-April 1, 2016.
11. See “Disarm and Modernize,” <http://foreignpolicy.com/2015/03/24/disarm-and-modernize-nuclear-weapons-warheads/>
12. See “*A New Arms Race Threatens to Bring the U.S. and Russia Back to the Nuclear Brink*,” http://www.huffingtonpost.com/joe-cirincione/arms-race-us-russia-nuclear_b_8557526.html, and “*North Korea Threatens U.S. Nuclear Attack*,” <http://www.washingtontimes.com/news/2015/sep/15/todd-wood-north-korea-threatens-us-nuclear-attack/>
13. See “*Today’s Nuclear Dilemma*” by Eric Schlosser, <http://thebulletin.org/2015/november/todays-nuclear-dilemma8839>