No one can predict the future. However, through the use of well-developed scenario planning tools it is possible to create an environment that allows for discussions about possible futures, and through that process better prepare an organization and management team for almost any eventuality. With origins in wargaming dating back to the 19th century and continuing through current exercises conducted today by military organizations, scenario planning took on a new urgency after 9/11 as many questioned why the US was not better prepared for such a discontinuity event. During the 1970s the wargaming process was applied to commercial business by Royal Dutch Shell as they prepared for an uncertain future in the oil industry, allowing them to position the company for the impending (and unexpected) oil crisis. Since then, for the past 50 years, the scenario planning tool has been refined and adapted to many organizational and global environments, and as demonstrated over time, provides valuable insight into how events might unfold toward a future world where significant uncertainties exist.

Scenarios for INMM

Since the inaugural issue of this column in 2011, we have discussed various elements of scenario planning in the context of the "externalities" that were examined by a special INMM Strategic Planning Working Group in 2010 to recommend a new strategic direction and functional organization for the Institute. Throughout the past decade we have seen how unexpected events have driven major strategic decisions for the Institute, from travel and conference restrictions imposed by the US Federal Government in the 2010s, to the more recent global disruptions to our operational environment caused by the COVID-19 pandemic. Along the way we have had the intervening events of importance to the global nuclear community, including nuclear weapons tests by North Korea, the Fukushima nuclear accident that impacted a burgeoning nuclear renaissance, the efforts to negotiate a diplomatic solution to the Iranian nuclear activities, and many, many more consequential turning points that demonstrate how difficult it really is to see into the future. All of these historic events have influenced not only the strategic direction that the Institute has taken, but in many cases the impacted the individual careers and activities of our membership.

Over the past four years I have touched occasionally on the topic of developing a set of scenarios for the Institute that could be used by the membership and leadership to discuss possible future worlds, and what, if any, actions the Institute might take now to prepare for, adapt to, or even influence, those future paths to achieve our vision to be the leading international professional society for the stewardship of nuclear materials and related technologies to enhance global security.

The figure accompanying this article presents the first step in the construction of a set of future scenarios for the Institute that is intended to help stimulate the strategic discussions needed to be prepared for the future. I will be seeking input from our membership as we develop this construct further, using the steps in the scenario process. Features of this first construct include:

- An "orthogonal" set of axes that have been derived in discussions over the past four years. Each axis represents an independent issue that has a great impact on the Institute. At the end of each axis is a set of descriptors that paints a picture at some future time that would reflect an extreme environment in either a positive or negative direction. These descriptors may change as input is provided, and as external events occur, during the further development of this construct.
- A statement of the focal question that we are trying to answer with our scenario development: Where is the world headed with respect to nuclear materials management?

It is not uncommon for the focal question to change as an organization develops the scenarios and they become...
more interested in answering a different premise.

- An initial set of names for each of the four quadrants (future worlds) describing the combination of the endpoint descriptors, creating an easily identifiable environment that the organization can use as events unfold in a particular future world direction. It is also not uncommon for the names to change as the scenarios evolve.

- A very brief, first end point “short story” of each of the four future worlds describing the confluence of events leading to the descriptors on each axis for that quadrant. Great artistic license is used in the creation of the stories as the scenario construct proceeds and possible events identified that might lead in that direction. It is important in creating these stories that a realistic element is included—even if one might say “that will never happen” but there is agreement that it is possible. The stories, if written well, can become a modern-day hearth for people to gather around and talk about what might be—one of many descriptions of what scenarios are and are not that I have collected over the years.

**Next Steps?**

There is still a lot of work that has to be done to get to a final set of scenario stories—this is just the beginning of the journey. In future columns I will tackle the scenario development, identifying potential events that might lead to each of these worlds, developing stories to accompany those events, and then, finally developing strategies that the Institute might consider in order to adapt to, or even influence the direction of those worlds. Once developed, in my experience, there are always common strategies that emerge in all four worlds that I label “Robust Strategies.” Since they are present in each world, they can become core organizational strategies to consider as potential actions to be prepared for any future world.

In the interim, this effort may be interrupted by external events that will take precedence over the subject material of this column—so have patience!

**Endnotes**

1. See https://en.wikipedia.org/wiki/Wargame (11-3-21)
2. See “‘We’re going to lose fast’. U.S. Air Force held a war game that started with a Chinese biological attack,” https://www.yahoo.com/how/were-going-to-lose-fast-us-air-force-held-a-war-game-that-started-with-a-chinese-biological-attack-170003936.html (11-3-21)

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 jjjekowski@aol.com.
INMM “Taking the Long View” Scenario Development

Focal Question: Where is the world headed with respect to nuclear materials management?

Delicate Balance

Although global leadership has failed, the advancement of technologies to manage nuclear materials has advanced enough to strike an uncomfortable balance that allows for attribution of bad behavior.

Danger, Danger

Global leadership has failed, and the proliferation of nuclear weapons has brought the world to the brink. Nuclear materials management has lost all meaning as proliferators ignore all established norms.

Moving Forward

Global leadership comes together to reduce the nuclear threat, but geopolitical differences continue to drive the next generation of Weapons of War, making nuclear materials management more important than ever.

Global Nuclear Security Threats

(-)
- Iran tests a nuclear weapon
- DPRK starts a new series of nuclear tests
- Hypersonic and space nuclear weapons proliferate
- Nuclear materials reduction efforts slow
- Detonation of a dirty bomb in a large Western city
- Nuclear tensions rise amid modernization efforts
- Nuclear states proliferate (Iran, Japan, Saudi Arabia, etc.)
- New generation of international terrorists expand worldwide
- Territorial conflicts worldwide (East and South China Seas; Kashmir, Ukraine; Middle East)
- Loss of control of nuclear materials
- Abandonment of Arms Control Treaties

(+) New technologies allow for fabrication of weapons components and nuclear materials by non-state entities
- Cyber intrusions proliferate including attacks on physical infrastructure
- New weapons delivery technologies including Hypersonic and Space-Based delivery

Joining Forces

Stopping at the brink, new, informed leadership recognizes the real threats posed by nuclear weapons and materials and works toward eliminating at least one existential threat to humanity. Nuclear materials management takes on a new international priority.

US, Russia and China agree to multilateral nuclear arms reductions talks
- DPRK agrees to open discussions about de-nuclearizing peninsula
- Iran agrees to JCPOA-2
- New Nuclear-Free Space Treaty signed
- NPT and TPNW groups align efforts and move nuclear zero agenda forward
- IAEA enjoys significant global support for new roles in treaty verification
- NGOs help sway public opinion to “global zero”
- UN and other international efforts stem the rise of international terrorism and eliminate roots of major terrorism groups
- Economic stability reduces the impact of political divisiveness

Local support has failed, and the advancement of technologies to manage nuclear materials has advanced enough to strike an uncomfortable balance that allows for attribution of bad behavior.

Although global leadership has failed, the advancement of technologies to manage nuclear materials has advanced enough to strike an uncomfortable balance that allows for attribution of bad behavior.