



# Taking the Long View in a Time of Great Uncertainty

## 60 Years in the Making

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Like many organizations across the world that became engaged in “things nuclear” at the beginning of the nuclear age, the INMM is celebrating a decadal anniversary - its 60th year in 2019 as a leading international professional society for the stewardship of nuclear materials and related technologies to enhance global security. In Palm Desert, California, this next July, we will also be celebrating our 60th Annual Meeting.<sup>1</sup> One of those “other” organizations the Institute has worked with since its early beginnings is the International Atomic Energy Agency (IAEA). The IAEA was established as an autonomous organization on July 29, 1957, through its own international treaty, and reports to both the United Nations General Assembly and Security Council. The collaboration between the INMM and its members over the decades with the IAEA has helped to create a future that benefits from nuclear energy.<sup>2</sup> Just as the

60th IAEA General Conference was held in 2016,<sup>3</sup> and that Institution celebrated their decades-long history of successes, it behooves our membership to reflect back on the scientific, technological and policy challenges that have arisen in these past decades, and what the Institute has succeeded in accomplishing as a member of the international community.

Another organization that the INMM has had a long and prosperous relationship with is the European Safeguards Research and Development Association (ESARDA), which is also celebrating its 50th anniversary in 2019.<sup>4</sup> INMM and ESARDA signed an MOU in 2011 for expanded cooperation and INMM members participate extensively in ESARDA annual meetings and Working Groups, as well as cooperation in the area of Education and Training.



And speaking of anniversaries that are significant to all of our organizations, this is the 50th anniversary of the Nuclear Nonproliferation Treaty (NPT).<sup>5</sup> The Institute will be celebrating that milestone as well during our 60th Anniversary Meeting.

A precursor of how intertwined that international treaty is with the INMM history, and how complicated the international political environment is with respect to the tenets upheld by the treaty, became apparent this year in Baltimore, as a special Non-proliferation & Arms Control Panel was held Thursday morning entitled “NPT at 50 – What Next?”. That panel of experts<sup>6</sup> examined the historical milestones of the NPT and the engagement of the Institute, and speculated on the Treaty’s future as the world continues to be faced with challenges from many different actors, and the NPT itself finds challenges from many fronts, including the U.N. movement to ban nuclear weapons completely (the Treaty on the Prohibition of Nuclear Weapons, also known as the “Ban Treaty”)<sup>7</sup> which some believe discredits the NPT’s goal of disarmament. We can expect to see more informational presentations on this subject at next year’s Annual Meeting.

### **The INMM Historical Timeline**

As we approach the 60<sup>th</sup> Annual Meeting, the Strategic Planning Committee, in collaboration with the Executive Committee (EC), the Technical Divisions, Past President, Larry Satkowiak, and others have been working on a graphical



timeline depicting major events that have influenced, or been influenced by, the Institute over its first 60 years. That timeline will be presented to the membership at the 60th Annual Meeting. A sampling of some of the dramatic world events that the Institute and its membership have been engaged with from various perspectives, includes the following:

- The Limited Nuclear Test Ban Treaty
- The first tests of nuclear weapons by France and China in the 1960's, creating a path for them as Nuclear Weapons States (NWSs), along with the U.S., the U.K. and Russia in the NPT.
- The NPT and the various protocols associated with the work of the IAEA.
- The first tests of nuclear weapons by India in 1974, and then India and Pakistan in 1998.
- The removal of nuclear weapons from three nation-states after the demise of the Soviet Union.
- The Nunn-Lugar Cooperative Threat Reduction Program.
- The Lab-to-Lab program.
- The Comprehensive Test Ban Treaty.
- The Intermediate Range Nuclear Forces (INF) Treaty.
- The Three Mile Island, Chernobyl, and Fukushima nuclear plant incidents.
- Nuclear weapons tests by North Korea in the first decade of the new millennium.
- The Prague speech by President Obama in 2009.
- The Joint Comprehensive Plan of Action with Iran.
- The modernization of the nuclear deterrent by all five of the NWSs.

And of course, there are many, many more.

The Technical Divisions will be reaching out to membership for milestones to add to the Timeline during the next year so that we have an historical picture of the influence and engagement of the Institute over these past six decades.

### **What Lies Ahead for the Next 60 Years?**

As described in the previous "Taking the Long View" column,<sup>8</sup> at the closing plenary of the 59th Annual Meeting in Baltimore this year, the membership was challenged to think about the future of the Institute through a series of seven questions<sup>9</sup> created by the EC as a component of our new Strategic Plan. Stimulated by an international panel of five experts,<sup>10</sup> attendees were able to register their perspectives on remote polling devices, and results were documented to compare and contrast the perspectives of the five experts to the weighted perspectives of the attendees. The EC is analyzing the results of this exercise to help craft priorities for the Institute over the next couple of years, including a focus on future themes for the Annual Meeting. Some of those challenges identified during the plenary session, and as world events continue to shape our future, include the following:

- Concern was expressed by the membership and the panelists during the closing plenary session about the cyber vulnerabilities of nuclear security systems and the challenges presented by the rapid evolution of Artificial Intelligence (AI) technologies. These concerns are fueled almost every day in our world, as cyber hacking events capture the headlines, and the rapid advancement and proliferation of AI applications capture our imagination. With the revision of the U.S.

Nuclear Posture Review (NPR) this year opening the possibility of the American nuclear arsenal serving a deterrent not only against nuclear threats, but also against "non-nuclear aggression," including cyber threats, and the growing automation of offensive systems, the literature has introduced the "doomsday" scenario of combining cyber, AI and nuclear weapons.<sup>11</sup> It is interesting to note that during the "NPT at 50" panel discussion held at this past year's Annual Meeting, cybersecurity was described as the potential "third rail" for the NPT moving forward. As noted in our previous "Taking the Long View" column, the Institute has already taken proactive measures to engage cyber discussions in all of our Technical Divisions through the creation of an interim Cyber/Physical Security Integration Committee.

- The challenges of a new Cold War, or "Cold War 2.0,"<sup>12</sup> as the five NWSs aggressively move to modernize, and in some cases, expand their nuclear stockpiles. Concomitant with these modernization programs is an increasingly hostile public rhetoric driven by new political realities.<sup>13</sup>
- Socio-economic and political turmoil within the NWS countries, as each faces the rise of a new generation of technology-enabled voters living within a connected environment unlike anything previously experienced. These include:
  - **United States:** Continued partisan divide in the United States as the current Administration disrupts the normalized approach to governance. The divide has given rise to an animosity that pervades every day



- dialogue and the news cycle.
- **United Kingdom:** Continuing complex issues associated with the Brexit issue in the U.K. have contributed to a political divide as well. As covered in previous “Taking the Long View” articles, not only does this have the potential for broad socio-economic impact, but it also brings into question the future of the nation’s nuclear deterrent, which depends on Scotland for the basing of its nuclear submarines.
  - **France:** Recent political turmoil has demonstrated a growing disconnect between the current government and the general populace. The nation is also struggling with the continuing role of nuclear power within its electric infrastructure, as many facilities reach their end of life.
  - **Russia:** Russia continues to take a more nationalistic stance with reliance on their nuclear stockpile. The tensions with the West, and the United States continue to increase, amid economic sanctions; lack of resolution of the Crimea/Ukraine situation; continuing tensions in Syria, and threats by the United States to withdraw from the INF Treaty due to violations by Russia.
  - **China:** China continues on its path of securing islands in the South China Seas, with a growing frequency of confrontations by U.S. forces in the region, as the nation moves to become the global superpower. Internal political struggles surface occasionally despite the

restrictive press, indicating that the nation is not without its own internal socio-economic issues.

- Socio-economic turmoil in many other nation-states as the new connected environment dramatically portrays the growing disparity between the “haves” and “have-nots”. This was no more clearly demonstrated than by the international movement this past year in the U.N. to pass, and release for signature, the Ban Treaty.

Clearly the challenges that lie ahead for the next 60 years will be no less engaging than those of the previous 60, since the formation of the Institute. It is up to the new generation to tackle these issues and offer the technical, scientific, and policy expertise of the membership to the world to help resolve them amicably, and preserve a bright future for mankind.

*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](mailto:jjjekowski@aol.com).*

## Endnotes

1. The INMM was officially founded on May 17, 1958. The following year, on May 26, 2019, the Institute held, in essence, its first Annual Meeting – an INMM-AEC “Joint Meeting”. For more information on the history of the INMM, please see: <https://www.inmm.org/About/History.aspx>.
2. See <https://www.iaea.org/about/overview/history> for more information on the formation of the IAEA.
3. See: <https://www.iaea.org/about/policy/gc/gc60> for more details on this 60th IAEA General Conference.
4. See <https://esarda.jrc.ec.europa.eu/> for more information on ESARDA and the announcement for its 41st Annual Meeting to be held at the Regina Palace Hotel in Italy, May 14-16, 2019.
5. For a comprehensive look at the history of the NPT see: <https://www.armscontrol.org/act/2018-06/features/npt-50-historical-timeline>; <https://www.armscontrol.org/factsheets/Timeline-of-the-Treaty-on-the-Non-Proliferation-of-Nuclear-Weapons-NPT>; and <https://armscontrol.org/act/2018-06/features/npt-50-staple-global-nuclear-order>
6. The extraordinary session included panelists Laura Rockwood, Vienna Center for Disarmament and Nonproliferation; Susan Koch, National Institute for Public Policy; Joan Rohlfing, Nuclear Threat Initiative; and William Tobey, Belfer Center for Science and International Affairs.



7. See <https://www.un.org/disarmament/wmd/nuclear/tpnw/> for complete information on this international effort.
8. See JNMM Vol. 46, No. 4, “*New Challenges for the Institute*”
9. Seven questions were provided to the panelists prior to the Closing Plenary with several multiple choice answers, including “other”. After asking the attendees for their input, the panelists and the attendees were queried for more details. The questions posed were: 1) What is the current top global challenge/risk/threat with respect to nuclear proliferation?; 2) What is the current top global challenge/risk/threat with respect to nuclear security?; 3) Which risk set concerns you more?; 4) What are the greatest cyber threats related to nuclear materials management?; 5) What are the top 3 areas the INMM should focus on?; 6) Which technology has the best chance to become a “game changer” (plus or minus), for the INMM?; and 7) Where should the INMM increase its attention?
10. Panelists included Dr. Jacques Baute, Director, Division of Information Management, Department of Safeguards, IAEA; Dr. Bassam Abdullah Ayed Khuwalleh, Assistant Professor, Nuclear Engineering Program, University of Sharja; Mitsuo Koizumi, Manager of Technology Development Promotion Office of Integrated Support Center for Nuclear Nonproliferation and Nuclear Security of the Japan Energy Atomic Agency; Sonia Fernandes Moreno, Planning and Evaluation Officer, Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials; and Julie Oddou, Head of the Committee Technique Euratom, Atomic Energy Commission (CEAR).
11. See: “*Pairing AI and nukes will lead to our autonomous Doomsday*”, <https://www.defensenews.com/opinion/commentary/2018/11/13/pairing-ai-and-nukes-will-lead-to-our-autonomous-doomsday/>
12. See <https://www.wilsoncenter.org/event/us-china-2018-year-review-new-cold-war>
13. See “Putin hails U.S. withdrawal from Syria, warns nuclear war could destroy the planet” <https://globalnews.ca/news/4780320/putin-russia-nuclear-war-syria/>