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From the Editor's Desk

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From the Editors' Desks

Dear Colleagues,

We are pleased to introduce *IJNS* issue 6.1, 2020. This issue offers seven articles and two book reviews. The topics include global and regional nuclear safety and security practices, cybersecurity measures in contemporary nuclear facilities and transportation management, and radiological detection systems. We thank all authors for sharing their research in these vital areas. Your focused commitments help educate fellow scholars and administrators in the complex fields of nuclear safety and security, creating safer and more sustainable nuclear science and engineering environments for communities around the world.

We open with “Sunken Efforts? Legal Hurdles to Stemming Maritime CBRNE Proliferation,” from Arjun Banerjee of the University of Tennessee in Knoxville. Banerjee shines a light on the high tensions swirling in open seas around the world and how these tensions impact the transportation of CBRNE materials through foreign waters. The article proposes that, in light of modern threats from non-state actors, some freedoms of the past may have to be reconsidered through the thoughtful implementation of maritime laws. Banerjee carefully considers sections of the UNSCR 1540, the PSI, and the SUA 2005 with the UNCLOS, in an effort to push for specified reforms to maritime law.

Our next article, “Regulatory Perspective on Nuclear Cyber Security: The Fundamental Issues,” is by Uchechukwu Christian Arinze of the Information and Communication Technology (ICT) Unit, Department of Radiological Safety, and Nigerian Nuclear Regulatory Authority, in Abuja, Nigeria; Olumide Babatope, professor in the School of IT & Computing in the Department of Information Systems, American University of Nigeria, Yola; and Agozie Hyacinth Eneh of the Computer Science Department, University of Nigeria, Nsukka. They discuss the great danger of cyber threats to nuclear facilities. Cybersecurity efforts are a critical step to maintaining confidentiality, integrity, and availability. The authors claim that this proves to be difficult, even with the “varied cyber security services” and other measures put in place by various entities. Arinze, Babatope, and Eneh aim to provide a regulatory perspective on global best practices as Nigeria joins other countries around the world with their own nuclear facilities.

Whereas Arinze et al. consider how to respond to cybersecurity threats to nuclear facilities, the next article shifts the focus to physical protection systems and the importance of maintaining this type of nuclear security investment. This article, by Ouadie Kabach of the University of Mohammed V Agdal at Rabat, Morocco, Abdelouahed Chetaine, and Abdelfettah Benchrif is entitled “Physical Protection System, Corrective Actions, and Weakness Identification Based on Nuclear Security Series: The Hypothetical Atomic Research Institute (HARI) Case.” The authors base their assumptions on findings from simulation models, and they conclude that material considerations, such as wall thickness, must be a serious architectural concern for designers and engineers involved in the construction of nuclear facilities. IAEA publications on nuclear security also inform their professional opinions.

The next article, “Coordination of Inter-agency Action for Nuclear Security in Uganda,” by Richard Ssegane, CNSP, of the Uganda Atomic Energy Council, informs us of both the readiness and the challenges facing Uganda as it seeks to implement a nuclear power program. Ssegane sees a need for “coordination and cooperation among stakeholders” before communities and nuclear facilities can safely and successfully coexist. He proposes, based on findings from the UK Nuclear Design Basis Approach, the streamlining of roles and directives for the various agencies involved in nuclear programs before these programs will have a chance at long-term existence.

Next comes “Parking Garage Measurements Indicating a Gamma Spectrometer-Neutron Counter Background Correlation”—by Jackson N. Wagner and Craig M. Marianno of Texas A&M University, and Thomas McCullough of the Nevada National Security Site. It presents the authors’ methodology and findings into gamma spectroscopy and gross neutron counting systems. They argue that background interference could contribute to a variance in detection levels. The authors also discuss that the systems used to record these readings are common in nuclear security, and they aim to raise awareness about otherwise unaccounted-for variables. Based on experiments conducted in parking garages around the Texas A&M University campus, Wagner et al. present their findings and propose a linear relationship between the detection systems and the data they record, which could affect how other researchers record detection levels in some situations.

The following article, “Consideration of Administrative Monetary Penalties in Nuclear Safety and Security,” by Jelena Vucicevic and Edward Waller of the University of Ontario Institute of Technology, discusses the Administrative Monetary Penalties (AMP) used in Canada to punish “any individual or corporation” violating nuclear safety and security regulations. The authors explore the pros and cons of AMPs by looking at offenses case-by-case and judging whether and where changes to the penalties should be made. After uncovering some of the questionable aspects of the AMP system, Vucicevic and Waller present data supporting the argument that changes to the system could benefit both parties and encourage more widespread effectiveness of nuclear safety and security policies and practices in Canada and beyond.

Whereas the Vucicevic-Waller article discusses Canadian nuclear safety and security policy in a broader sense, this issue’s final article takes a more specific perspective on radioactive materials operators and their directors at the state and facility levels in Canada. The article, by Raphael Duguay of the Canadian Nuclear Safety Commission, is entitled “Challenges and Opportunities for Sharing Threat Information with Radioactive Materials Operators that Use, Store and Transport High-Risk Radioactive Materials.” From his experience as Senior Security Adviser at the Canadian Nuclear Safety Commission (CNSC), Duguay reviews nuclear security practices and encourage stakeholders to maintain a thoughtful stance on security of nuclear materials, arguing that a careful balance of specific information is key in keeping nuclear sites and materials secure from malicious actors. Such a synthesis of specific information must be provided to operators involved in transport of these materials in order for them to most effectively maintain critical security measures.

The issue ends with two book reviews—a father-and-son effort! Jyotirmoy Banerjee reviews Edward Snowden’s *Permanent Record*, followed by Arjun Banerjee (the son, our own book review editor) examining Matthew Kroenig’s *The Logic of American Nuclear Strategy: Why Strategic Superiority Matters*. These reviews expand our awareness of key perspectives shaping how the public perceives nuclear intelligence and potential threats.

We thank our authors, book reviewers, and manuscript reviewers for their vital service and contributions. The valuable conversations going on in this journal could not take place in this way without your efforts.

Very best regards,

Adam Swift, Associate Editor, Davis Editorial Fellow
Russel Hirst, Editor

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