

Regulatory Design for Transport Security Regulations of Nuclear and Other Radioactive Materials

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Abstract

A cornerstone of the nuclear security regime of a country is the legislative and regulatory framework that both oversees the use radioactive and nuclear materials and ensures compliance with international law. When drafting nuclear law and regulations, technical and legal expertise is needed to ensure they not only meet technical requirements regarding the security of the materials but are also legally enforceable within a country's jurisdiction. While the Primary Nuclear Law or Enabling Act establishes the Competent Authority and assigns responsibilities regarding nuclear security, regulatory development is where the proverbial "rubber meets the road." Transport security regulations for nuclear and radioactive materials provide instructions for inspections, authorizations, and managed activities such as use, storage, and transport. Development of such regulations is complex because they can be multi-jurisdictional or multi-modal, involve multiple stakeholders, and require coordination with other ministerial stakeholders, transport operators, and alignment to international treaties and conventions outside the nuclear domain. This paper provides a brief discussion of the challenges associated with the development of transport security regulations for nuclear and other radioactive materials in transit. The paper will briefly identify key stakeholders, international laws involved, and current efforts by the International Atomic Energy Agency (IAEA) in supporting member states in regulatory development. While active in that regulations are necessary for a robust nuclear security regime, regulatory development is more of a slow burn than a high priority in nuclear security.

Introduction

At the foundation of a robust nuclear security regime is a legislative and regulatory framework that clearly delineates the requirements for the peaceful use of nuclear and other radioactive materials. Broadly defined, the field of nuclear law is "the body of special legal norms created to regulate the conduct of legal or natural persons engaged in activities related to fissionable materials, ionizing radiation, and exposure to natural sources of radiations" (Stoiber et al., 2003). When focusing on the "security principles" of nuclear law, the threat of diversion, sabotage, or development of nuclear and other radioactive materials by non-state actors poses significant risks to society. Insofar as a country has a nuclear law, that law should include provisions for physical protection, both at sites and during transport; emergency preparedness; safeguards; and export control (Stoiber et al., 2003).

Regulating the transport of nuclear and other radioactive materials poses challenges for nuclear security. First, by its very nature, the transport of material is mobile, crossing multiple jurisdictions, potentially using multiple modes of transport, and involving multiple stakeholders, both in the public and private sector. Another challenge facing transport security regulatory development is the timeline in which a regulation may be developed. Because transport safety regulations have been promulgated first, there may be a tendency to try and amend an existing transport safety regulation to

include security provisions. This process can lead to incomplete security requirements or misalignment to nuclear security measures recommended by the IAEA.

This paper will briefly describe the challenges associated with the development of transport security regulations for nuclear and other radioactive materials. First, current international conventions in the field and existing challenges to regulatory design will be discussed. The IAEA Nuclear Security Series (NSS) guides to help countries in the development of transport security regulations will then be introduced. Finally, current IAEA efforts to develop a methodology for the development for transport security regulations will be discussed. Ultimately, regulatory development is more of a slow-burn process, requiring active participation but relying heavily on the regulatory processes and rulemaking within a given country's legal system. There is no quick fix; rather, it is a deliberate process.

Current International Instruments for Transport of Nuclear Materials

Starting in 1956, the United Nations Committee of Experts on the Transport of Dangerous Goods developed a classification system for handling dangerous goods. There are nine classes, with radioactive materials being classified as Class 7 (United Nations, 2009). At the outset, the recommendations focused primarily on safety considerations, with the United Nations Committee using the 1996 edition of the IAEA Regulations for the Safe Transport of Radioactive Material (Stoiber et al., 2003; IAEA, 2000).

In addition to the regulations and recommendations developed by the United Nations, in tandem with the IAEA, other modal organizations such as the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) have international instruments for the safe transport of dangerous goods. These conventions include the Convention on International Aviation (the Chicago Convention), the Safety of Life at Sea (SOLAS) Convention, the International Maritime Dangerous Goods (IMDG) Code, and the International Ship and Port Facility Security (ISPS) Code. Regionally, countries have also developed procedures for the safe carriage of hazardous materials, including Class 7. In Europe for example, the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) Convention, the Intergovernmental Organization for International Carriage by Rail (COTIF/RID) Convention, and the European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN) provide further guidance for transport in specific countries.

While all these international instruments govern the safe transport of hazardous materials, one of the fundamental conventions for nuclear security during transport is the Convention on the Physical Protection of Nuclear Material (CPPNM, 1980) and its subsequent Amendment (CPPNM/A) (CPPNM/A, 2005). The convention provides coverage for nuclear material in transport and obligates parties of the convention to provide physical protection measures for nuclear materials in transport, both interstate and intrastate, using recommendations provided in IAEA Information Circular 225 (INFCIRC/225/Rev.5) (IAEA, 2011). The convention also requires parties to criminalize acts specified to include misusing or threatening to misuse nuclear materials to harm the public and prosecute/extradite those accused of committing the above-mentioned acts. It should be noted that while the convention provides coverage for nuclear material in transport, it does not cover ionizing radiation sources.

Regulatory Design Challenges

While the previous section highlights the various international instruments relating to the transport of dangerous goods, it also illustrates some challenges in the design of a transport security regulation for nuclear and other radioactive materials. At a global level, the CPPNM and the CPPNM/A only cover nuclear materials. The convention and its amendment do not cover ionizing radiation. In response, the IAEA developed the Code of Conduct on the Safety and Security of Radioactive Sources and the supplementary Guidance on the Import and Export of Radioactive Sources. While providing guidance, the Code of Conduct is not legally binding; rather, it is a political commitment made by the member state that has little to no force of law.

A fundamental challenge in regulatory development of transport security is that transport security is a relatively new concept compared with transport safety. The UN Committee of Experts on the Transport of Dangerous Goods primarily focuses on the safety aspects of transporting these materials. ICAO and IMO likewise focus on safety rather than security. Although the ISPS Code provides for maritime security, its alignment to IAEA guidance on transport security is unclear. This highlights the interoperability challenges between the IAEA, ICAO, and the IMO when it comes to the harmonization of transport security in general and the transport security of nuclear and other radioactive materials more specifically.

Aside from international instruments, the development of regulations within a given country depends on the legal system and regulatory processes in place for such actions. Because nuclear law sees the general creation of a Competent Authority for nuclear materials and their activities/functions, including security, the possibility of regulatory fragmentation exists. If an Enabling Statute creates a new Competent Authority within a country vested with responsibilities in nuclear security, including transport, how does this agency interact with pre-existing agencies, such as a Ministry for Transport or Ministry of Interior? Furthermore, if existing regulations for transport exist for Class 7, how does the new nuclear Competent Authority develop regulations so as not to either conflict with existing regulations or create redundancy in regulations where they are acting *ultra vires* of their statutory mandate.

IAEA Nuclear Security Series for Transport Security and Regulatory Development

The IAEA provides support for member states in developing transport security regulations. While INFCIRC/225/Rev/5 includes the most updated recommendations for implementation of the CPPNM and the CPPNM/A, the IAEA also provides the Nuclear Security Series (NSS). The NSS is a collection of documents that provide guidance and recommendations for developing a security regime, including regulatory development. Within the transport security domain, the two primary NSS documents that address this issue are NSS-9, Security of Radioactive Material in Transport, and NSS-26-G, Security of Nuclear Material in Transport. Each of the guides describes a graded approach to developing a security regime for the transport of radioactive and nuclear materials and provides recommendations for a variety of issues involved in transport, including tracking technology, trustworthiness of personnel, security verification, communications, and requisite training to ensure material in transport is not stolen or diverted (IAEA, 2015; IAEA, 2008).

Recognizing the importance of regulatory development, especially regarding transport, the IAEA Division of Nuclear Safety and Security has also been working on a methodology for regulatory development of transport security. Bringing together experts from IAEA member states, the goal of the methodology is to provide an adaptable regulatory process for member states to use in developing their own transport security regulations. The process tries to account for challenges in regulatory coordination within a given member state and adapt to the nuclear law regime in a given member

state. Recognizing different legal systems and traditions, the process is flexible such that it provides for changes and is iterative to allow for multiple stakeholder engagements, both public and private entities.

Regulatory Development: A Slow-Burn Process within Nuclear Security

Regulatory development, whether for transport, facilities, or other aspects of nuclear law, takes time. However, the importance of such activities cannot be understated. The challenges facing transport regulatory development require coordination of multiple instruments, agencies, and individuals to ensure the regulation provides the necessary security within that country's nuclear legal regime. While it is not an instantaneous change or an activity that happens overnight, the slow burn required for regulatory development makes it an important element to consider within the nuclear security regime.

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