

ENHANCING AND SUSTAINING REGULATORY FRAMEWORKS FOR NUCLEAR SECURITY: *A Work in Progress*

P. GIZOWSKA
National Atomic Energy Agency (PAA)
Warsaw, Poland
Email: paulina.gizowska@paa.gov.pl

Abstract

A robust national legislative and regulatory framework lies at the foundation of a State's nuclear security regime. The establishment of adequate nuclear security systems and measures against threats from malicious acts involving nuclear and other radioactive material needs a sound legal basis in order for the systems and measures to be effective, efficient, consistent and sustainable. In a fragmentary international landscape where no single international legal instrument provides a comprehensive listing of nuclear security obligations to draw from, States are in severe need of adequate expertise, resources, assistance and guidance to establish their national requirements. Nuclear security is slowly catching up with nuclear safety in that assistance in sustained regulatory development can no longer be overlooked.

The recent years have seen an expansion of activity focusing on the development of regulations for nuclear security. At the national level, States have been deploying considerable efforts to include nuclear security considerations in their nuclear legislation and regulations, while at the international level initiatives to assist with their development have started to bloom.

The paper will provide an overview of regulatory development for nuclear security throughout the world and analyse the current trends in regulatory development, while also giving specific examples. It will in particular provide insight into the challenges faced when developing and sustaining national nuclear security regulatory infrastructures as well as propose ideas for addressing these challenges and for providing comprehensive support in this area. An overview of the initiatives undertaken to address needs in this regard will also be given. It is the thesis of this paper that enhancing and sustaining regulatory frameworks for the security of nuclear and other radioactive material is a continuous work in progress, notwithstanding each individual State's level of regulatory advancement.

1. INTRODUCTION

Strengthening national regulatory frameworks against threats from malicious acts involving nuclear and other radioactive material should lie at the heart of any State's nuclear security regime. A robust national legislative and regulatory framework sets an appropriate basis for the establishment or identification of competent authorities, the assignment of nuclear security responsibilities, as well as for the subsequent adoption of adequate nuclear security systems and measures for the prevention and detection of nuclear security events involving nuclear and other radioactive material. States have to deploy considerable efforts to establish their national requirements – while often facing a variety of other security challenges, conflicting priorities, limited resources and scarce expertise.

The last decade has seen a considerable expansion of nuclear security assistance. International efforts have for a long time focused on the development of nuclear security capabilities and security systems and measures, rather than ensuring there is an adequate legal framework for these efforts. This is due to a number of reasons. Nuclear security measures cannot, however, be established in a vacuum. Since there is no single main legally binding international instrument providing a comprehensive framework for nuclear security to draw from but rather a complex plethora of intertwined, interconnected and at the same time separate instruments, States have to deploy considerable efforts to establish their national requirements – while often facing a variety of other security challenges, conflicting priorities, limited resources and scarce expertise. If there is one noticeable trend in nuclear security these days though, it is indeed the global effort to develop, strengthen and sustain nuclear security regulatory infrastructure. Nuclear security is slowly catching up with nuclear safety in that assistance in sustained regulatory development can no longer be overlooked.

This paper will share how States have increasingly paid attention to the development of regulatory frameworks for nuclear security and how regional and global initiatives have contributed to launching a wider

effort to raise awareness and build capacity in the development of regulatory frameworks. The paper will identify some of the challenges States face and possible ways forward to address them. It will also offer some ideas on the provision of assistance and comprehensive support in that area that would be applicable to most States and regions in the world, notwithstanding their level of regulatory advancement in the area of nuclear security. This paper argues that enhancing and sustaining regulatory frameworks for the security of nuclear and other radioactive material is a continuous work in progress for all States, be they small fish or big fish in the nuclear pond. However, while developing and sustaining national nuclear security regulatory infrastructures is a daunting task requiring time, resources and expertise, with an innovative inter-regional approach, the right involvement and cooperation between like-minded States, as well as with adequate support, this exercise can be done more efficiently and easily for the benefit of all.

2. THE NEED FOR A ROBUST LEGISLATIVE AND REGULATORY FRAMEWORK

A robust legislative and regulatory framework lies at the basis of all nuclear security efforts – it is the foundation of a State’s nuclear security regime.

Ultimate responsibility for nuclear security within a State rests entirely with that State, but the nuclear security regime in one State is affected by the adequacy and effectiveness of nuclear security measures taken by other States. While often used – and abused – among security experts, the phrase that “we are only as strong as the weakest link in the chain” is ultimately very true: the security measures of country A might affect other countries if a nuclear or radioactive material is stolen in country A, is smuggled through the borders and is used for a malicious purpose in country B. In today’s interconnected and mobile world, the consequences of such an act may be global.

This has led to a considerable expansion of nuclear security assistance in the last decade or two, but international efforts have focused primarily on the development of nuclear security capabilities and in particular on developing local physical protection systems and measures. The regulatory frameworks in which they operate were often outside the scope of global interest. Assistance was provided without ensuring there is an adequate legal framework for these effort. However, to be truly efficient nuclear security measures cannot be established in a vacuum.

2.1. Components of a nuclear security regime

The IAEA Nuclear Security guidance identifies twelve essential elements of an effective and appropriate nuclear security regime [1]. One of those essential elements is the legislative and regulatory framework (Essential Element 3). In particular, a robust national legislative and regulatory framework sets an appropriate basis for:

- the establishment and/or identification of competent authorities
- the assignment of nuclear security responsibilities
- the adoption of adequate nuclear security systems and measures

It effectively provides for all of the important aspects of how a nuclear security regime functions. An adequate and rightly balanced framework (strong but also sufficiently flexible and adaptable) is thus the single most important component of a nuclear security regime.

2.2. Establishment of a legislative and regulatory framework

While there is a number of international legal instruments governing nuclear security, there is no single international instrument that would address all aspects of nuclear security in a comprehensive manner. This is even more true when it comes to the security of radioactive material, for a long time rather overlooked¹. To be

¹ The security of radioactive material is mainly addressed by the Code of Conduct on the Safety and Security of Radioactive Sources, which in itself is not a legally binding instrument. States may, however, express political

able to navigate the legal complexities of that fragmentary international landscape, States need to grasp well enough how those instruments work together, what they have in common, what their major differences are and what is it that they need to effectively translate into their national requirements. States have thus to deploy considerable efforts to identify the relevant requirements to incorporate nationally - while often facing a variety of other national security challenges, conflicting priorities, limited resources and particularly a lack of expertise.

Notwithstanding the level of nuclear technology or regulatory advancement of any given State, we can always do more, better, safer and securer. Even when a State has a comprehensive framework in place, the evolving threats and the development of new technologies keep regulators busy: the framework needs to be regularly assessed and reviewed.

3. CURRENT TRENDS IN NUCLEAR SECURITY REGULATORY DEVELOPMENT

There are currently three main noticeable trends in the regulatory development in nuclear security throughout the world: the adoption or the update of national nuclear laws to include nuclear security, the incorporation of specific provisions for the security of radioactive material, and the review and update of existing provisions to reflect updated threat assessments, evolving technologies and the overall increased nuclear security culture². Depending on the level of regulatory maturity, a State might be undergoing one or more of these processes at the same time. To conclude on the trends, Poland will be used as a case study.

3.1. Adoption of a comprehensive nuclear law

For a number of years the IAEA has been advocating for the adoption by States of a comprehensive nuclear law to provide a basis for the safe, secure and peaceful use of nuclear technology [2]. Through its legislative assistance programme, the IAEA Office of Legal Affairs provides advice on the development and drafting of such legislation, and ensures that all aspects of the 'safe, secure and peaceful use of nuclear technology' are in fact covered. It is noticeable that many States which already had a nuclear law are currently updating their legislation to incorporate nuclear security aspects. Since historically the focus has been primary on nuclear safety, it is most common to find safety provisions in some form or another already incorporated at the national level. What is often missing is the nuclear security component of the '3S' (safety, security, safeguards).

3.2. Security of radioactive material

Another historical vestige of the development of nuclear legal frameworks is the early predominance of the concept of 'physical protection'. This is particularly true in countries with a language where one and the same term designates both safety and security - in those countries the somehow restrictive term of physical protection has been widely used to address nuclear security and presents nowadays important semantic challenges³. One of the specificities of the use of that term is that for a long time the term was linked only to nuclear material and nuclear facilities, whose security was the only one to be expressly regulated. In addition, due to the lower level of consequences linked to radioactive material but also to the widespread use of sources in various non-nuclear applications, it has proved more difficult to regulate the security of radioactive material than it has been for nuclear material. A number of technologically advanced countries with large nuclear

commitment to the Code). Of the relevant international conventions, the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT) applies to radioactive material.

² This paper distinguishes between 'legislation' and 'regulation' as two different levels in a State's legal hierarchy. By legislation is understood an enactment by a parliament or legislature at the statutory level, while regulations are often promulgated by expert governmental bodies as a subsidiary set of detailed and often technical rules. The names given to these two levels of acts may differ from one State to another and from one legal system to another. At the IAEA, legislative assistance is provided by the Office of Legal Affairs, while assistance relating to regulations is provided by technical departments, in this case the Division of Nuclear Security.

³ As is the case in Polish, where no satisfactory term has yet been found to encompass the broad meaning of 'nuclear security' as understood by the IAEA and international practice.

applications are in fact at various stages of developing their legal provisions regarding the security of radioactive material.

3.3. Update of provisions contained in existing regulations

In countries with existing regulations, it is essential that the framework be regularly revised. Often, the States' legislation provides for such a review. It is not only essential so that the framework keeps being relevant over time, it is also necessary in order to avoid inconsistencies or problems of interpretation between all relevant legal instruments. It might indeed happen in the lengthy legislative process that inconsistencies between various provisions appear and are often only identified at the stage of use. Changes in the threat situation, updates of the threat assessment, increased awareness of gaps and shortcomings, upgrades in technologies and technical measures all call for a regular review and update of existing provisions.

3.4. Case study: Poland

In the case of Poland, the Atomic Law Act provides that a review of the legal framework takes place at least every 3 years⁴. The national legislative and regulatory framework for nuclear security is comprised of, in particular:

- (a) the Atomic Law Act (2000, last amended 2019)
- (b) the Act on the Protection of Persons and Property (1997, last amended 2018), which requires that facilities' operators develop a Protection Plan approved by the Police (this plan is an Annex to the facilities' Physical Protection Plan)
- (c) the Act on the Common Obligation to Defend the Republic of Poland (1967, last amended 2019)
- (d) the Act on the Protection of Classified Information (2010, last amended 2019)
- (e) the Penal Code (1997, last amended 2019)
- (f) the Regulation of the Council of Ministers of 4 November 2008 on the Physical Protection of Nuclear Material and Nuclear Facilities (2008)

In addition, a number of specific laws and regulations governs the competences and tasks of other competent authorities involved in security. Every competent authority has its own legislation on the basis of which they fulfil their tasks. These laws delineate roles and responsibilities, including for nuclear security. While the legal framework is well-established in accordance with international obligations stemming from the Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment, the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT), UN Security Council resolutions 1540 and 2325 as well as other relevant international instruments, some gaps and shortcoming can nevertheless be found. The Atomic Law Act of 29 November 2000, with later amendments and its secondary legislation, is the primary law in the Polish nuclear security regime that establishes the national physical protection regime. Historically, 'physical protection' was (and still to an extent is) the term of choice to designate nuclear security in the Polish language and the official nomenclature used among nuclear professionals. There is thus no wonder that the legislative and regulatory framework has for a long time only considered nuclear security as relating to the performance of physical protection systems in existing facilities and only directed at nuclear material and associated facilities.

Some of the identified gaps⁵ have been addressed in a recent amendment to the Atomic Law Act which entered into force in September 2019. As a result, the security of radioactive sources has been incorporated into the law, while previously the term of security (or rather "physical protection") was only applicable to nuclear material and nuclear facilities. The President of PAA issued organisational and technical recommendations

⁴ Art. 113a of the Atomic Law Act requires the Polish nuclear regulatory authority PAA to assess nuclear regulatory activities and analyse the status of the existing legislative and regulatory framework at least every three years.

⁵ Gaps were identified through internal review, but also through IAEA advisory missions such as the International Physical Protection Advisory Mission (IPPAS) which Poland hosted in 1997 and in 2016, or the Integrated Nuclear Infrastructure Review mission hosted in 2013.

concerning the security of radioactive sources in 2017, but there was no strong legally binding obligation in the law. As a consequence of this addition, a draft regulation focusing specifically on the security of radioactive sources is currently being developed to implement the obligations enshrined in the law. This regulation will address the categories of radioactive sources, the security levels for each category of radioactive sources, the organisational and technical measures for the security of radioactive sources and the minimum required content for a security plan for radioactive sources having regard to the need to ensure that sources are adequately protected against loss, damage, theft or unauthorized access and to prevent the occurrence of nuclear security events involving radioactive sources. The regulation will address the security of radioactive sources in use, storage and transport. In addition, the amended Atomic Law Act has now also codified in a detailed manner the concept of design-basis threat (DBT). Previously, even though a DBT had been developed for nuclear facilities, it was not a systematic legal requirement.

Finally, Poland has initiated the revision of the Regulation on the Physical Protection of Nuclear Material and Nuclear Facilities (2008) to reflect INFCIRC/225/Rev.5 since the current regulation is still based on the much weaker requirements of INCIRC/225/Rev.3. Consultations on the draft regulation with all relevant stakeholders, including operators, will take place in 2020.

4. CHALLENGES TO NUCLEAR SECURITY REGULATORY DEVELOPMENT

Regulators face various challenges when it comes to developing and sustaining the regulatory infrastructure for nuclear security. With various degrees of occurrence, the most frequent challenges throughout the world include:

- Policy / decision-makers lack of awareness and commitment (due to other and/or conflicting priorities)
- Volatile governments and frequent changes in cabinets
- The length of existing administrative processes for the adoption and/or promulgation of a primary legislation that would provide the legal basis for the development of the regulatory infrastructure
- Financial / human resources availability
- Access to adequate training / knowledge for drafters (human resources development)

The need to raise awareness among policy makers and the need to ensure sustained capacity building needs to be particularly stressed. One of the biggest challenges when adopting the legal and regulatory framework for nuclear security is the engagement of high-level decision and policy makers. Given the existence of more pressing national priorities, nuclear security is not often at the top of their agenda, resulting in significant delays in the adoption or promulgation of necessary legal texts. These delays are further increased when the lengthiness of the process is further exacerbated by changes in government or among law makers. It is essential to further stress the importance of nuclear security and to sensitize decision and policy makers to the need for ensuring adequate human, technical and financial resources for regulatory bodies and other competent authorities with responsibilities for nuclear security.

Possible ways forward include:

- Awareness-raising and sensitization of policy and decision makers
- Strengthening the implication of stakeholders at national level
- Strengthening of human resources and capacities
- Seeking assistance from partners at regional and international levels
- Availability of drafting guidance and model provisions

The utility of cooperation agreements with neighbouring countries to assist with the strengthening of national nuclear security regimes should also be highlighted. It is also recommended to consider the development of drafting schools and regional masters in nuclear security to support regional efforts to build and strengthen national capacities in nuclear security.

5. PROVISION OF COMPREHENSIVE SUPPORT

Regulatory assistance can be provided to support States in the development and enhancement of their respective regulatory frameworks for nuclear security. Such support aims to help States develop and draft their nuclear security regulations for the security of nuclear material, other radioactive material, associated facilities and associated activities. It furthermore helps States meet their international obligations in nuclear security.

The expectation is that the increased level of regulatory advancement in any third country will be beneficial to all. Well-drafted regulations based on relevant international legal instruments as well as IAEA and international accepted practices enable better cooperation between potential State partners and help mitigate the risk of the weakest link anywhere in the chain.

At the international level, regulatory development assistance is available through the International Atomic Energy Agency (IAEA), the European Union or bilateral partners such as the US which have all developed extensive assistance programmes. Other global or non-governmental initiatives can also be found⁶. Assistance includes provision of expertise, review of draft regulations, organization of workshops to finalize regulations and training activities for drafters. These programmes would benefit, however, from more coordination and a more comprehensive and unified approach.

The priorities in this regard should be threefold:

- the development of a harmonized approach for the provision of assistance
- practical and targeted national support
- focus on regional and local capacity building / sustainability for regulatory infrastructure development

Cooperation among relevant institutions would be beneficial for the development of a harmonized approach for the provision of assistance in that it would unify the methodology used and reduce confusion among beneficiaries of the assistance. Some ready-made drafting guidance in written form would help States get at least a first crack at drafting provisions at the national level. This guidance could be complemented with some model provisions to be used, however, in a cautious way (not to be seen as encouraging a highly risky copy-paste approach!). The same or a complementary guidance could be used by experts and providers of assistance.

At the same time, providing tailored individual assistance to States is necessary so as to best respond to specific country needs. This can be done through the conduct of expert or advisory missions to assist States in establishing their national processes for the development of their regulatory frameworks. Such missions should, whenever possible, be made in the mother tongue of the assisted State. This is vital when the mission includes the review or drafting of provisions and where inaccurate translation or misunderstandings could have severe implications for the coherence of the regime being established. During the review exercise, the reviewer of a regulation has to constantly keep in mind the primary legislation that gives the legal basis for the adoption of the regulation, e.g. are the terms already defined in the primary legislation, are there no inconsistencies between the use of similar terms in the different texts, how do they work together, etc. Being able to grasp these aspects in the language of the assisted State is a distinctive advantage. On the other hand, States less advanced in terms of development of regulatory frameworks should also not be forgotten. The conduct of high-level awareness-raising missions can give them the right impetus to start work and significantly benefit the provision of further assistance in the future if it is done in a systematic and planned way.

It is equally important to build regional and local capacity so that the assistance delivered can be sustained over time. Capacity building through the provision of trainings needs to be done at various levels and addressed from both a theoretical and practical perspective. Drafting schools and regional masters in nuclear security prove to be an invaluable efficient way of doing so. Further facilitating knowledge exchange and the dissemination of expertise at a local or regional level is just as important. Recommendations in this regard include the identification of regional leaders and the establishment of a roster of regional experts. Encouraging cross-border cooperation with neighbouring countries can have similarly positive effects, where States with similar legal systems or similar challenges work together.

⁶ For instance the Global Initiative to Combat Nuclear Terrorism (GICNT) or VERTIC's National Implementation Measures programme to name but a few.

6. HARMONIZATION OF METHODOLOGY AND APPROACH TO SUPPORT THE DEVELOPMENT AND ENHANCEMENT OF REGULATORY FRAMEWORKS FOR NUCLEAR SECURITY

It has become evident through the implementation of regulatory assistance projects, that there is a need for more systematic and comprehensive support with regard to regulatory development and the drafting of regulations. An IAEA project started in 2017 to assist African States with developing nuclear security regulations has launched a wider effort within the IAEA to address the development of regulatory frameworks for nuclear security. An internal process to harmonize the approach in assisting States has resulted in the development of a new portfolio of regulatory assistance activities, in particular the establishment of the first drafting school for nuclear security regulations in February 2019. It has also contributed to developing a Working Document on the Development of Nuclear Security Regulations which explains more in depth how to conduct that process, what to consider when drafting and how to take into account the national context. In order to allow more flexibility, the document will be a living document rather than an official publication, to be updated along the way and provide users with a guideline how to draft rather than with a readymade solution. It moves thus away from the model regulation format to incorporate some examples of model provisions but it focuses more specifically on the questions to consider while drafting. It is important to understand that there can be no one-size-fits-all approach in drafting regulations: national considerations, the threat situation, the scope of nuclear activities within the State and the specificities of the national legal system have all to be taken into account.

7. CONCLUSION

Regulatory development is a daunting task, but with adequate support and a smart inter-regional approach and cooperation, this can be done more easily. Once you have a robust and adequate legislative and regulatory framework, implementing specific measures for the prevention and detection becomes much easier. It does, nevertheless, always remain a work in progress as new activities and technologies develop, the law evolves, the threat changes and circumstances vary. As much as there is no one-size-fits-all, there can be no question either of setting nuclear security requirements in stone once and for all.

Moving to strengthened efforts in the international assistance with regard to legislative and regulatory frameworks, the emphasis should be placed on enhancing them rather than developing, so that it could be of use to all States.

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