NSGEG

Working Paper

Nuclear Security Checklist Results

Demonstrating Implementation of IAEA Information Circular 869

December 2016

Executive Summary

In 2014, the Strengthening Nuclear Security Implementation Initiative transitioned from a Nuclear Security Summit (NSS) product to International Atomic Energy Agency (IAEA) Information Circular 869 (INFCIRC/869). It has the support of 38 states that have committed to fully implement the IAEA's nuclear and radiological security documents, continuously improve national and operators' systems, and ensure that all nuclear management and staff are competent and accountable. The INFCIRC/869 has the potential to enhance international nuclear security norms, but it currently lacks a method for states to report on their progress.

The Strengthening Nuclear Security Implementation Checklist was developed by the Nuclear Security Governance Experts Group (NSGEG) to help states understand and share information on the activities required to fully implement INFCIRC/869. It offers a practical tool for states to self-assess their national nuclear security systems and build confidence in their stewardship of nuclear assets. The three-page document was sent to the Washington, D.C.-based embassies of all 38 participating nations in June 2016, with a request to return completed checklists by October 2016.

Approximately a quarter of the recipients completed and returned the checklist: Australia, the Czech Republic, Finland, Hungary, Japan, Romania, United Kingdom (UK), United States of America (USA), and Vietnam. Their replies showed positive implementation trends. All nine countries affirmed their full implementation of the first two commitment areas—which involve the IAEA's Nuclear Security Fundamentals and recommendation documents on the physical protection of nuclear materials and facilities, radioactive sources, and materials outside of regulatory control. These countries are also taking additional actions beyond the four commitment areas, including developing cyber security measures for nuclear facilities. However, additional efforts will need to be focused on commitment areas three (improving the effectiveness of national nuclear security regimes and operators' systems) and four (ensuring competent and accountable management and staff). Commitment area three was the section with the least reported action and, therefore, is well-suited for additional efforts.

The NSGEG commends the nine states that completed the checklist for their commitment to nuclear security excellence and encourages others to follow their lead.

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Introduction

New tools are needed for regularly sharing and assessing the measures taken to improve nuclear and radiological security now that the Nuclear Security Summits have concluded. The six-year NSS process included four international gatherings at which heads of state shared non-sensitive information about their countries' national systems. More than 50 states joined in international efforts to improve nuclear security by issuing national progress reports and making national and multinational commitments. The final summit resulted in five Action Plans for international organizations and initiatives that predated the NSS process.[1] This diffuse approach will make it difficult for meaningful assessments and improvements of the regime to regularly occur. However, building on an earlier summit outcome, the *Strengthening Nuclear Security Implementation* initiative, provides a potential driver of action.

The *Strengthening Nuclear Security Implementation* initiative was published as IAEA INFCIRC/869 in October 2014. [2] Transitioning the initiative from the NSS process to the IAEA opened it up to all IAEA member states and provided it with additional legitimacy and longevity. Jordan became first state to use the INFCIRC process to join the initiative in 2015, and India and China joined in spring 2016.[3] This progress is encouraging, but countries with significant civil stockpiles, such as Russia and Pakistan, remain outside of the initiative's scope. Furthermore, the initiative lacks a reporting mechanism. This is a critical weakness which will hamper its long-term effectiveness.

The NSGEG believes that the initiative is a valuable and innovative way for states to demonstrate their shared commitment to effective nuclear security. Therefore, the group developed a self-assessment checklist to address the accountability gap and offer states a way to share non-sensitive information and show leadership in nuclear security. Completing the checklist allows states to demonstrate their efforts under each commitment area of INFCIRC/869 and build confidence in their national systems. It is also useful for states wishing to identify their strengths and determine where additional resources are best directed.

The checklist concept was originally published by the NSGEG in October 2015.[4] Its text was adapted after the 2016 NSS to a three-page document, and circulated to the Washington, D.C.-based embassies of all 38 participating states in digital and hard copy form in June 2016. It follows the structure of INFCIRC/869 and lists actions that countries can take to fulfil each commitment area. It also includes a final section for communicating additional actions taken which are not listed in the form. The checklist was accompanied by a letter explaining to states that the results of the survey would be published in December 2016 around the IAEA International Conference on Nuclear Security.

Checklist survey results are presented together as a matrix in this document. Countries are listed in alphabetical order, not as a ranking of their nuclear security practices. The responses establish a self-reported baseline from which to assess states' progress. The assessment is ongoing and iterative. The NSGEG encourages all countries to use the tool and provide periodic updates of the results.

Analysis

Completed checklists were submitted by nine countries: Australia, the Czech Republic, Finland, Hungary, Japan, Romania, UK, USA, and Vietnam. All nine countries affirmed their full implementation of the actions listed under the first two commitment areas, which involve the IAEA's Nuclear Security Fundamentals and recommendation documents on the physical protection of nuclear materials and facilities, radioactive sources, and materials outside of regulatory control.

The Czech Republic, Japan, and the United Kingdom affirmed that they are undertaking all of the actions outlined by the NSGEG in all four commitment areas, including being prepared to

conduct comprehensive national assessments of their national nuclear security regimes every three years and accept an IAEA International Physical Protection Advisory Service (IPPAS) and International Nuclear Security Advisory Service (INNServ) every five to ten years. The USA checked most of the boxes but is unwilling to commit to a specified frequency of IAEA reviews. However, it did note that it is committed to using peer review mechanisms and is "seriously considering an INSSERV mission in the near future." Romania also checked most of the boxes, but indicated that it is not conducting exercises and tests at the national and facility level that are inclusive of physical protection systems and response measures after a theft has occurred.

Commitment area three, which focuses on improving the effectiveness of national regimes and operators' systems, had the most unchecked boxes. While all nine states reported maintaining an effective nuclear and radiological accountancy and control system, four states indicated that they do not provide regular control tests of their databases and reporting procedures.[5] Other gaps in this commitment area included a lack of periodic comprehensive national assessments and no periodic reviews of transport security of nuclear and radiological materials.

The Czech Republic, Finland, Japan, Romania, UK, and USA are undertaking all of the suggested actions under commitment four to ensure that competent and accountable management and staff are at the helms of their nuclear enterprises. Australia is taking most of the steps suggested by the NSGEG, but it does not require operators to perform evaluations of staff in security measures at this time. Similarly, Vietnam reported not having programs in place to ensure the qualifications of staff, but it is implementing the other five suggested actions. Hungary requires companies to establish security measures as part of their policies and compiles evidence of staff qualifications, but it could take further steps to strengthen its nuclear security culture.

All nine countries indicated that they are taking additional actions beyond the four commitment categories of the initiative to continuously improve their nuclear security systems. Japan, UK, and the USA report conducting all of the fourteen activities listed in the initiative. Examples of steps taken by the other six countries include:

- Australia has improved cooperation with nearby states to support the strengthening of nuclear security, and it can provide experts to conduct INNServ and IPPAS missions.
- The Czech Republic maintains effective emergency and contingency preparedness, response procedures, and mitigation capabilities in both safety and security.
- Finland shares good practices with states, including through seminars, workshops, and exercises while respecting confidentiality, and it has developed and enhanced cyber security measures for nuclear facilities.
- Hungary maintains and continuously improves domestic or regional nuclear security activities through education, certification, or qualification activities, and it takes nuclear security into account at all stages of the life cycle of its facilities.
- Romania contributes to IAEA nuclear security guidance documents and promotes information exchange while respecting the confidentiality of sensitive information.
- Vietnam promotes nuclear security culture for management and personnel, and it provides technical support to other states (bilateral and multilateral).

Additionally, the Czech Republic noted that on January 1, 2017, its new Atomic Act will enter into force, completely overhauling the country's nuclear legislation. Accompanied by implementing regulations, the act will create new legal framework for nuclear matters and embed the "latest standards and recommendations in nuclear safety, security, radiation protection, non-proliferation, and emergency response" into domestic law.

Conclusion

As INFCIRC/869 is relatively new, having only been introduced in March 2014, states are still working through assessments of how their individual laws, structures, and activities are meeting its criteria. Identifying and implementing ways to improve and fully implement all of its elements which are based on non-binding IAEA recommendations will take time. The NSGEG commends the efforts of all states working to meet the standards set out in the initiative. Special esteem is bestowed on those nine states who undertook the self-assessment exercise of completing the checklist, as their actions demonstrate a public commitment to nuclear security excellence and responsible information sharing with stakeholder communities.

Unchecked boxes on the checklist provide countries with indicators for how they can more fully implement each commitment area. For example, to improve the effectiveness of national nuclear security regimes and operator systems, Finland could provide regular control tests of databases and reporting procedures, and Vietnam could periodically conduct comprehensive national assessments. To improve the security culture of management and staff, Australia could require operators to perform evaluations of staff in security measures, and Hungary could require that active programs to ensure staff qualifications are established.

Completion of the checklist by the remaining 29 countries subscribed to the initiative would provide an important baseline assessment of how well each country is meeting its goals and where assistance from partner states would be best directed. The checklist provides a starting point for conversations among participants for what full implementation looks like. A decision on these criteria could be valuable for determining if and how its obligations may evolve in the future. It will also provide states considering joining INFCIRC/869 with concrete examples of what they will be expected to do as a participant in the initiative. Further, it provides an important transparency and accountability measure for states to demonstrate that they take the continuous improvement of the nuclear security system seriously and use it to build public confidence in their stewardship of nuclear assets. The NSGEG encourages INFCIRC/869 subscribers to embrace and utilize the checklist.

Endnotes

[1] The Actions Plans are for the IAEA, United Nations, INTERPOL, Global Partnership against the Spread of Weapons and Materials of Mass Destruction, and Global Initiative to Combat Nuclear Terrorism.

[2] Communication Received from the Netherlands Concerning the Strengthening of Nuclear Security Implementation, IAEA 2014.

[3] Communication Dated 13 November 2015 Received From the Permanent Mission of the Hashemite Kingdom of Jordan Concerning Its Commitment to the Joint Statement on Strengthening Nuclear Security Implementation; Communication of 26 May 2016 From the Permanent Mission of the People's Republic of China Concerning Its Commitment to the Joint Statement on Strengthening Nuclear Security Implementation; Communication of 20 June 2016 From the Permanent Mission of India Concerning Its Commitment to the Joint Statement on Strengthening Nuclear Security Implementation.

[4] The Strengthening Nuclear Security Implementation Initiative: Evolution, Status and Next Steps, Nuclear Security Governance Experts Group, 2015.

[5] Australia was one of the four states that did not check this box. It included a comment indicating that more details about such tests were needed to understand what is meant by this activity description.

Commitment 1: Subscribe to the "Nuclear Security Fundamentals" set forth in IAEA Nuclear Security Series 20 (NSS20), 'Objective and Essential Elements of a State's Nuclear Security Regime.'

1. States commit to establishing national nuclear security regimes and recognizing that all nuclear and radioactive material require control and protection. As a result, my country has:	Australia	Czech Republic	Finland	Hungary	Japan	Romania	UK	USA	Vietnam
Developed and published national legislation acceding to the amended Convention on the Physical Protection of Nuclear Materials and International Convention on the Suppression of Acts of Nuclear Terrorism obligations.	●	●	●	●	●	●	●	●	●
Can provide proof of legislation or penal code provisions that identify offenses and punishment involving nuclear and radioactive material.	●	●	●	●	●	●	●	●	●
Maintains a list of competent and independent regulatory authorities and could detail their specific responsibilities if necessary.	●	●	●	●	●	●	●	●	●

Commitment 2: Meet (or go beyond) the intent of the recommendations of NSS13 ('Nuclear Security Recommendations on Physical Protection of Nuclear Materials and Nuclear Facilities' INFCIRC225/Rev5), NSS14 ('Nuclear Security Recommendations on Radioactive Material and Associated Facilities and The Code of Conduct on the Safety and Security of Radioactive Sources'), and NSS15 ('Nuclear Security Recommendations on Nuclear and Other Radioactive Materials out of Regulatory Control').

2. States can demonstrate implementation of this commitment by communicating that national laws and regulations are in place which incorporate the guidance in NSS13-15 (including requirements for operations, shippers, and/or carriers). In my country:	Australia	Czech Republic	Finland	Hungary	Japan	Romania	UK	USA	Vietnam
Domestic regulations include specific references to NSS13, NSS14, and NSS15 requirements.	●	●	●	●	●	●	●	●	●
Arrangements are in place for the establishment of a coordinating body to handle issues for materials outside of regulatory control.	●	●	●	●	●	●	●	●	●
Measures and requirements are implemented that ensure control, protection, and accounting; the interface between safety and security; access to related information; and the security of radioactive materials in transport.	●	●	●	●	●	●	●	●	●

Commitment 3: Continue to improve the effectiveness of national nuclear security regimes and operators' systems.

3. Continued and sustainable nuclear security effectiveness requires periodic reviews, assessments, tests and internal reporting systems of events. Exercises are essential for maintaining an effective response system, technical support for equipment is necessary (particularly in nuclear smuggling prevention), and facilities must have established nuclear security policies to ensure internal company effectiveness. Therefore, my country:	Australia	Czech Republic	Finland	Hungary	Japan	Romania	UK	USA	Vietnam
Is prepared to periodically conduct comprehensive national assessments, such as every 3 years.	●	●			●	●	●	●	
Plans to implement any recommendations and improvements that result from these national assessments.	●	●	●		●	●	●	●	●
Provides regular control tests of databases and reporting procedures.		●			●	●	●	●	
Engages in exercises and tests at both the national and facility level which are inclusive of physical protection systems and response measures after a theft has occurred.	●	●	●		●		●	●	●
Periodically reviews the transport security of nuclear and radioactive materials.	●	●	●		●	●	●	●	
Is willing to accept international reviews every 5-10 years, such as the International Atomic Energy Agency's (IAEA) International Physical Protection Advisory Service (IPPAS) and International Nuclear Security Advisory Service (INSServ).	●	●	●	●	●	●	●		●
Maintains an effective nuclear and radiological accountancy and control system in which the state communicates objective, goals, and main requirements.	●	●	●	●	●	●	●	●	●
Established a facility-to-facility network, which will enable informal interactions and practice information exchanges.	●	●	●		●		●	●	

Commitment 4: Ensure competent and accountable management and staff.

4. Effective security culture should be established in company policies and procedures and routines should be visibly supported by management. Implementation of security culture and staff competence is demonstrated by communicating on the following. In my country:	Australia	Czech Republic	Finland	Hungary	Japan	Romania	UK	USA	Vietnam
Companies are required to establish security measures as part of their policies.	●	●	●	●	●	●	●	●	●
Active and effective programs to ensure the qualification of staff (e.g. operators, industry, and medical establishments).	●	●	●		●	●	●	●	
Operational staff are made aware of security expectations and required performance indicators.	●	●	●		●	●	●	●	●
Operators perform evaluations of staff in security measures (management and operational).		●	●		●	●	●	●	●
Nuclear security qualifications are required for different staff categories.	●	●	●		●	●	●	●	●
Evidence of staff qualifications is compiled.	●	●	●	●	●	●	●	●	●

Additional Implementation Action: Contribute to the continuous improvement of nuclear security.

Beyond the four categories of major obligations under the INFCIRC/Initiative, there are also 14 additional actions that are identified. Subscribing states have pledged to take one or more of them. As a result, my country:	Australia	Czech Republic	Finland	Hungary	Japan	Romania	UK	USA	Vietnam
Contributes to the development of IAEA nuclear security guidance documents.	●	●	●	●	●	●	●	●	●
Provides technical support to other states (bilateral and multilateral).	●	●	●	●	●		●	●	●
Maintains and continuously improves domestic or regional training activities, including through education and certification or qualification activities.		●		●	●		●	●	●
Shares good practices with states, including through seminars, workshops, and exercises, while respecting confidentiality.	●	●	●	●	●	●	●	●	●
Promotes information exchange while respecting the confidentiality of sensitive information.	●	●	●		●	●	●	●	●
Can provide nuclear security experts to conduct INSServ and IPPAS missions.	●	●	●	●	●	●	●	●	●
Developed and enhanced cyber security measures for nuclear facilities.	●	●	●	●	●	●	●	●	●
Takes nuclear security into account at all stages in the life cycle of its facilities.	●	●	●	●	●	●	●	●	●
Maintains effective emergency and contingency preparedness and response procedures and mitigation capabilities in a manner that addresses both safety and security.	●	●	●	●	●	●	●	●	●
Makes financial or in-kind contributions to the IAEA Nuclear Security Fund.	●	●	●		●	●	●	●	
Promotes R&D on nuclear security technologies and shares results, consistent with its nonproliferation commitments and intellectual property laws.			●	●	●		●	●	
Promotes nuclear security culture for management and personnel.	●	●	●	●	●	●	●	●	●
Supported or participated in the development of World Institute for Nuclear Security (WINS) best practice guides and training.				●	●		●	●	●
Improved cooperation with nearby states to support the strengthening of nuclear security.	●	●			●	●	●	●	●

If there is any additional information on your implementation efforts that you wish to provide, please include in here:	
Australia	
Czech Republic	A new Atomic Act will enter into force on 1st January 2017. This new Atomic Act represents a complete overhaul of the Czech nuclear legislation. It will be accompanied by a series of implementing regulations, which will together create a brand new legal framework for all nuclar related matters. This step will introduce into the Czech law the latest standards and recommendations in the fields of nuclear safety, security, radiation protection, non-proliferation and emergency prepardness.
Finland	
Hungary	
Japan	
Romania	
UK	
USA	The United States remains fully committed to peer review mechanisms, but will not make a specific commitment with respect to the frequency of such reviews. The United States invited an IPPAS mission in 2014 and is seriously considering an INSSERV misssion in the near future.
Vietnam	