Defining the End State of Improvement of Nuclear Security

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The Objective: No Weak Links

In its *Nuclear Security Plan 2010-2013*, the International Atomic Energy Agency (IAEA) states that, "all States have responsibilities to establish appropriate systems to prevent, detect and respond to malicious acts involving nuclear or other radioactive material. Not doing so may create a weak link in global nuclear security."

This is the essence of the nuclear security challenge – preventing weak links from existing in the international system. The challenge is how to identify these weak links and fix the issues when the international nuclear security system emphasizes national responsibility for nuclear security and lacks effective mechanisms for transnational information exchange and interaction.

If the scope of nuclear security were limited only to fissile materials (plutonium and highly enriched uranium [HEU]), there may be some greater justification for maintaining a system that emphasizes the protection of security-related information. In fact, since most of the nuclear material security regime is a product of the Cold War and the period after the 9/11 terrorist attacks, it reflects the emphasis on information protection. But, the evolving definition of nuclear security and the Fukushima nuclear accident argue for a regime that provides greater international confidence.

The challenge is to identify mechanisms that allow for this increase in international confidence in a way that balances the sovereign responsibility that nations have for their nuclear infrastructure and materials with the increasingly clear international impacts of unauthorized releases of radiation. As United Nations (U.N.) Secretary-General Ban Ki Moon declared, "The effects of nuclear accidents respect no borders. To adequately safeguard our people, we must have strong international consensus and action." This is as applicable to an international nuclear terrorist attack as it is to an unintentional nuclear reactor accident.

However, the international consensus on how to strengthen the nuclear security system has been focused on the easiest actions rather than the most effective ones. This could lead to a false sense of progress and protection.

The example of nuclear safety could be very instructive in thinking about this challenge. Nuclear safety is widely considered to be a more advanced discipline than nuclear security, but some significant problems were recently reported. The European Commission (EC) and the Tokyo

Electric Power Company (TEPCO) released reports on the state of nuclear safety in their region and country respectively. The assessments were spurred by the Fukushima accident.

The EC concluded that nearly all European nuclear power plants required some level of safety upgrade and made recommendations for improving the uniformity of technical standards and safety review procedures. The reason for these recommendations is that the Commission found "significant" differences in safety standards, regulations, and implementation across borders. In their view, confidence in nuclear safety can be enhanced through greater harmonization and information sharing among European Union (EU) nations.

The TEPCO assessment is even starker. It highlights reasons for a culture of complacency in the utility (a phenomenon referred to as Japan's "safety myth" following Fukushima), including overconfidence in safety systems and expertise, unwillingness to implement safety upgrades for fear such action could feed public concerns about reactor safety and invite litigation, and the inability of regulators to effectively enforce safety upgrades. The recommended actions included organizational, work process, and information sharing reforms.

The important conclusions that are derived from these two reports are:

- Improvements in nuclear safety can have impacts on nuclear security;
- Nuclear safety, even in the EU and Japan, two of the most developed areas of the world that operate numerous nuclear reactors, is in need of continuous monitoring and improvement;
- Greater harmonization of safety standards and inspections and testing are beneficial and needed;
- Information sharing can improve confidence in nuclear operations;
- Complacency, insularity, and lack of regulatory independence are not conducive to effective nuclear operations; and
- Innovation in nuclear safety should not be penalized politically or economically.

These lessons can and should all be applied to nuclear security as part of the process of creating a world with no nuclear security weak links. However, in deference to political realities, this evolution in the nuclear security system will need to take place over time and on a continuum from the present system, to additional voluntary commitments, to a comprehensive legal instrument.

Defining the Scope of Nuclear Security

To identify a useful end state set of goals for the international nuclear security system, it is important to clarify the definition of "nuclear security". The IAEA has been assisting countries with their nuclear security since the 1970s and is widely considered to be the foremost international authority on nuclear issues in many countries. At present, the IAEA defines nuclear security as "the prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities." This definition was adopted in late 2003, however, the definition of nuclear security has evolved in several ways since then.

Since publishing its most recent Nuclear Security Plan for 2010-2013, the IAEA has adapted its program to emerging issues in nuclear security including education, forensics, and cyber security. The IAEA also is increasingly discussing the complimentary nature of nuclear safety and security. In its newest version of the *Nuclear Security Fundamentals* document, it includes facilities and activities associated with nuclear and other radioactive materials in the scope of nuclear security. This is consistent with the scope of nuclear security that was adopted at the 2012 Nuclear Security Summit (NSS) in Seoul, South Korea. There, the major items on the agenda for the prevention of nuclear terrorism were nuclear material security, radiological source security, and the interface between nuclear safety and security. The NSS included 54 nations (about a third of the number of IAEA Member States) and the emphasis on both radiological security and the safety-security interface was controversial with some, in part because the original NSS mandate was to lock down all vulnerable nuclear materials in four years.

With both the IAEA and the NSS process emphasizing the multiple aspects of nuclear security, a comprehensive definition would include the security and safety of nuclear materials, radiological materials, and nuclear facilities. Therefore, it seems that it is both outdated and insufficient to limit the definition of nuclear security to only fissile materials. This expansion of the scope also has the benefit of making the agenda more interesting to a larger number of countries and provides political fuel to continue the high-level focus on nuclear security.

Universalizing the Nuclear Materials Security Regime

The first line of defense for the security of nuclear materials resides with the country that manufactured or stores them. These materials are national possessions, and the laws and regulations of individual nations are the most relevant protections. Individual nations are very protective of this sovereign control. As a result, there is little information regarding the national laws and regulations governing nuclear security available to the international community. International confidence in nuclear security, therefore, must rely on international instruments and assertions of adequate national nuclear security. Unfortunately, compliance with these instruments is inconsistent.

The current international nuclear material security regime consists primarily of international conventions, bilateral and multilateral agreements, U.N. resolutions, and best practice recommendations. Also, the IAEA has numerous technical recommendations and services that are available to member states to help them improve nuclear material security.

These international obligations are largely voluntary. They contain no uniform requirements for implementation and no enforcement or penalty mechanisms for non-compliance. In addition, there is no consistency in the adoption of the elements of the regime by individual nations. For example, while the Convention on the Physical Protection of Nuclear Materials (CPPNM) has 147 signatories, the amendment that extends its protections is not in force, having only been ratified by 47 of those nations.

As a first step in the achievement of a “no weak links” objective for nuclear security, it would be useful for all nations to adopt and adhere to all of the elements of the current international

nuclear material security regime. There are roughly 55 separate components that nations could participate in or implement. But there is no single mechanism to gather information on whether any or all are taking advantage of them. Requests for transparency about the state of nuclear security in individual nations have been resisted up to now. It has been a topic of discussion both during the amendment of the CPPNM and in the more recent Nuclear Security Summits in Washington (2010) and Seoul (2012), but with no progress.

A Checklist

Initially, nations could produce and make available a simple checklist of the elements of the regime in which they participate or implement, without having to produce a detailed national report. A version of this checklist is provided in Appendix A.

Checklists are increasingly used to cope with the volume and complexity of information that is a feature of many 21st century professions. A simple checklist could provide a snapshot of the comprehensiveness of nuclear security in a country, identify areas where some improvement could be made, and also motivate the action for that improvement. In a number of industries, checklists have led to higher standards of baseline performance, which is exactly the objective in the nuclear material security area.

Of course, the submission of the checklist relies on the integrity of the nation submitting it, and there may be some disincentive to make the checklist public (including highlighting weaknesses). But, it could be submitted to the IAEA with the same rules of confidentiality that exist in the areas of nuclear safety and safeguards. While under the IAEA rules the safety reports made by nations are confidential, some nations elect to make them public. This could be an option if the IAEA was empowered by its member states to distribute and encourage the submission of the checklist.

If the checklists are adopted, then there would be some way to measure progress on paper. And, an increased comfort level with the checklist could lead to the submission of more detailed national reports. In addition to this type of reporting there are additional voluntary actions that could be undertaken and cultural changes that would need to be achieved in order to remove weak links in the nuclear security system.

A Culture of Continuous Improvement

One important step forward in achieving a world with no weak links would be to adopt the principal of continuous improvement. This allows for improvements to be made over time and on a continuum. It would allow for the continuous adoption of improved responses to new realities, threats, technologies, and political and regulatory objectives. Continuous improvement should begin with an assessment of the current state and then define objectives that should be met. The continuum of improvement moves from the current state to the end state and then re-evaluates and moves forward again. Such processes are consistent with widely accepted enterprise performance management theories employed by numerous industries.

Responsibility Beyond the Rules

Creating a world without nuclear security weak links is less a technical challenge than a political and personnel one. The technical aspects of the problem are not difficult to address but the political prioritization and will to take additional action are the main impediments.

Most nuclear enterprises, including the operation of reactors, the management of fissile materials, and the control of radiological sources are governed by rules put forth by national regulators. The tension between the regulators and the operators in the nuclear field has created a balance, particularly in the safety area, that has allowed for public confidence in safe nuclear operations. Unlike nuclear safety regulations that are performance based, nuclear security rules tend to be prescriptive. Operators can be reluctant to make changes that could draw scrutiny from regulators that may lead to costly new rules.

However, when operating an extraordinary technology like nuclear, there is an obligation to take extra ordinary steps to ensure the highest standards of safety and security. As the recent reports on nuclear safety have indicated, those standards are not completely being met.

Learning from Nuclear Safety

The inter-relationship between nuclear safety and nuclear security is an area that is receiving considerable attention. Nuclear safety is not a perfect template for nuclear security, but it has several significant benefits. It is a system that many nuclear operators are familiar with; it is acknowledged as a prerequisite for continued operation of reactors; and it is a more developed and transparent regime than nuclear security. There are two key aspects of this interrelationship that have applicability to nuclear security.

The first aspect is what nuclear security can learn from nuclear safety. Here there are four elements of the nuclear safety regime that have direct applicability to the nuclear security regime but are not yet integrated into it: regularized assessments, information sharing, peer review, and reviews of the implementation of relevant international conventions. These four elements are embodied in the Convention on Nuclear Safety (CNS) and have been critical to the improvement of nuclear safety over time. Neither of the nuclear security regime's key international conventions – the CPPNM and its amendment nor the International Convention for the Suppression of Actions of Nuclear Terrorism (ICSANT) includes provisions for assessment, information sharing, or peer review.

A single CPPNM review conference was held in October 1992, five years after it entered into force as required by Article 16, during which unanimous support for the CPPNM was expressed by the 35 states in attendance. CPPNM parties came together again in the late 1990s and early 2000s to strengthen and expand the scope of the convention by amending it to better address threats of nuclear terrorism, smuggling, and sabotage. Amendments were adopted in 2005, but will not come into effect until two-thirds of the state parties ratify the changes. The ICSANT has a provision for an amendment conference but not a review conference.

In addition, strong industry-financed organizations like the Institute of Nuclear Power Operators (INPO) and World Association of Nuclear Operators (WANO) have been created to facilitate domestic and international peer review of nuclear reactor safety. The World Institute for Nuclear Security (WINS) was launched in 2008 to provide a forum for sharing and promoting nuclear

security best practices and it has focused attention on integrating security into nuclear facility operations on a par with nuclear safety. Facilitating information sharing in the nuclear security area is one of the most important paths to improving the regime.

The second aspect is what nuclear security can learn from the failings in the nuclear safety area, most recently highlighted by the EC and TEPCO reports. Here it is clear that the fear of public reaction, a lax culture, discontinuity between rules and regulations, and lack of regulatory independence and aggressive oversight are all pitfalls that the nuclear security regime should avoid, and if they exist, address.

Emphasizing Incentives
Many industries that have public service and public safety obligations supplement their legal and regulatory responsibilities by voluntarily accepting additional requirements. These include industries in the health, environment, finance, aviation, and utility areas. The incentives can be placed in three basic categories – accreditation and certification, financial benefit (aid, tax credits, profit enhancement, cost savings), and reputational enhancement.

The voluntary regimes used in these other industries can serve as models for a medium-term evolution of nuclear security governance because they provide a pathway to developing new norms. Industries that voluntarily adopt higher standards than legally required, or institute best practices to ensure high performance, often see these changes become institutionalized over time. Efforts to improve global nuclear security will be made easier and the results more durable if voluntary, self-imposed actions lead to the ultimate adoption of a binding and comprehensive legal instrument.

Political and Institutional Evolution

The resistance to significantly improving the nuclear security system is driven by a number of political factors. These include old conflicts over nonproliferation and disarmament, worries about the erosion of sovereignty and compromising of sensitive information, concerns about the financial and personnel costs of expanding beyond current obligations, and an aversion to creating new and expansive bureaucracies. These concerns are legitimate, but they also can be answered with the application of innovation and political will.

Transcending the Politics of the Nuclear Non-Proliferation Treaty (NPT) and Nuclear Terrorism
As the international political profile of nuclear security has risen, a backlash among some countries also has risen, particularly in the developing world. This is the result of both a perception gap regarding the seriousness of the threat of nuclear terrorism and the decades old politics surrounding the NPT. There are two main lines of argument. One is that the threat of nuclear terrorism is primarily faced by nuclear weapon states that possess military fissile materials. The other is that the non-nuclear weapons states should not accept any new responsibilities and possible limits on their nuclear activities beyond those provided for under the NPT.

These perspectives have inhibited the Nuclear Security Summits from being more aggressive in their objectives as the consensus that is required in that process tends to reward those that seek the least amount of change. But, it may be increasingly difficult to maintain the positions that only developed and nuclear weapons-possessing states have to be concerned with improved nuclear security.

There are civilian nuclear reactors in some non-nuclear weapons states that use HEU that could be attractive to nuclear terrorists. In addition, the definition of nuclear security transcends fissile materials and includes nuclear facility security and radiological sources. Radiological sources reside in virtually every country around the world for medical and industrial purposes. Sabotage against a nuclear reactor or the explosion of a dirty bomb using high-intensity radioactive sources could be carried out by terrorists in any number of countries. And, in a world of globalized commerce, dangerous materials and components can be transported far and wide. The economic impact of any act of nuclear terrorist event will be significant and it will affect export-dependent developing nations as well as the developed world.

One of the benefits of the nuclear security issue is that it has not yet been consumed by the old nuclear politics. A case can be made that nuclear security should be developed as a parallel policy path that avoids the animosity associated with the NPT and nuclear disarmament issues. This would not require the creation of a new institution or cost countries considerably more money. It could keep the central technical and political consensus roles of the IAEA, which appeal to many nations, but also allow for a multilateral political track on which governments can innovate and take initiative alone or in groups. The nuclear security issue should be one where the emphasis is on responsibly not resentments.

Streamlining the Regime's Components

One way to bolster the value of nuclear security among skeptical nations is to streamline the elements of today's regime where possible. All programs and initiatives should be carefully analyzed so that overlaps, duplications, and inefficiencies can be eliminated. There are four basic categories of activities today – U.N., IAEA, ad hoc mechanisms, and U.S. government. These cover security of materials at their source, security in transit, material disposition, security culture, legal requirements, and emergency response (See Appendix B). Together they amount to almost 20 separate agreements, programs, initiatives, and processes that need to be accounted for – and staffed – by governments. For smaller countries with limited resources and personnel, this can be a significant burden.

Most of these elements were created not as part of a strategic plan for seamless nuclear security but in response to opportunity or urgency. Disentangling the overlap will not be an easy task but it could be an important step in moving the nuclear security regime towards coherence and continuity for the future. As part of the rationalization of the regime, the future roles of the IAEA and the NSS process need to be addressed.

Empowering the IAEA

The IAEA plays a central role in supporting effective nuclear security. However, the IAEA is only allowed to produce recommendations and encourage states to take action on nuclear

security matters. At present, it has no mandate to evaluate state performance in implementing or complying with its recommendations.

The most developed set of recommendations and guidance that the IAEA offers on the physical protection of nuclear materials and facilities can be found in Information Circular (INFCIRC) 225/Revision 5. The fifth revision of INFCIRC 225 was released in early 2011. It addresses the post-9/11 threat environment, as the previous revision was completed in 1999. The most recent version updates categorizations of nuclear material and clarifies site access and control areas. Other changes involve new licensing requirements, prevention of sabotage, interface with safety, interface with material accounting and control systems, and response to a malicious act.

The IAEA also has an Office of Nuclear Security with several responsibilities. It plays the leading role in planning, implementing, and evaluating the agency's nuclear security activities. It also produces Nuclear Security Series documents (15 of which have been published to date) and manages the Nuclear Security Fund which is used to prevent, detect, and respond to nuclear terrorism. This fund is largely reliant upon extra-budgetary contributions from member states, though it does receive some small funding from the regular IAEA budget.

In addition to the documents that the IAEA produces, member states can augment their domestic security protections by seeking in-country assistance. The IAEA's nuclear security advisory services include: International Nuclear Security Advisory Service (INNServ) missions which help identify a country's broad nuclear security requirements and measures for meeting them; International Physical Protection Advisory Service (IPPAS) missions which evaluate a country's existing physical protection arrangements; and IAEA State Systems for Accountancy and Control Advisory Services (ISSAS) which provides recommendations for improving a country's nuclear material accountancy and control systems.

With all of these useful and detailed products and services, the IAEA is indispensable and irreplaceable. But, its capacity and power are constrained by the voluntary nature of its recommendations, the consensus basis of its decision making, and the limits of its budget. Without doubt, the IAEA will remain at the center of the nuclear security agenda as a deep repository of expertise and continue to serve the very important function of achieving universality in the decisions and recommendations it produces. But, it does not and potentially cannot, have a monopoly on a dynamic nuclear security agenda, particularly if its member states do not provide it with greater power, latitude, and funding. There is an important requirement for a separate political track beyond the IAEA that is flexible, allows for greater policy innovation, is not bound by consensus and universality among the parties, and includes all stakeholders.

Maintaining the Political Momentum of the NSS

For the past four years, the NSS process has been the parallel political track alongside the IAEA. It was launched in 2010 to prevent nuclear terrorism and secure all vulnerable nuclear materials in four years. Since its initiation its scope has expanded to include nuclear safety and the security of high-intensity radiological sources. But beyond the technical aspects of the NSS, it has provided several important political benefits. It has raised the international political profile of the nuclear security issue because of the heads-of-state level participation in the summits. It has committed more than 50 nations to the fight against nuclear terrorism and the strengthening of

the current nuclear security regime. And, it has provided the opportunity for nations, alone or in groups, to offer and take actions that move beyond the legal requirements of the regime. Such political momentum did not exist before 2010 and likely will not continue if the NSS process is ended after the 2014 summit in the Netherlands, or if a credible successor process not identified.

The NSS process also has created some important new precedents in the nuclear security arena. These summits allow for a package of ideas and activities to be placed before more than 50 heads-of-state for approval – by all, at the same time. The summits also have established the precedent that, while the pursuit of improved nuclear security should be universal, it also can be multilateral and flexible with different nations exercising leadership. Another important precedent is that the summits seek to achieve goals within set timeframes, like implementing the national commitments made at the Washington summit before the Seoul event.

Beyond the formal governmental summit, the NSS provides the opportunity for the nuclear energy industry and nongovernmental organizations to convene their own satellite events around the NSS. The planning and coordination involved in these events has strengthened all of these international stakeholder communities and deepened their involvement in the issue. A new example of cooperation among stakeholder groups is the first ever international regulatory conference, which will convene in December 2012.

If an NSS-like process is not sustained after 2014, then the centrifugal force that it has exerted in binding all the stakeholder communities to the nuclear security agenda could decrease and the agenda will drift down the international, corporate, and NGO political priority list. This would be a great loss for a number of reasons, but not least is that the nuclear security agenda requires greater attention, cohesion, and improvement in the future, not less. A post-2014 NSS political forum could take many different forms, but its survival, along with the other stakeholder fora is important for future progress.

A Comprehensive Instrument

The achievement of improved nuclear security governance will require actions beyond the current mechanisms and international consensus. In the interim period, voluntary actions and measures can help to fill the gaps that exist in the nuclear security regime and strengthen it in the process. This period could last several years to a decade. At the end of the continuum of voluntary improvements there needs to be a more permanent, cohesive, and comprehensive international instrument for the nuclear security regime.

A Nuclear Material Security Framework Agreement is one approach that could meet this objective. The framework could include a number of items and usefully package them so that its norms are unified, clear, and cohesive. For example it could:

- Include a comprehensive and convincing assessment of the nuclear terrorist threat, including the global economic consequences of a nuclear or radiological terrorist event.

- Underscore that security systems have to evolve to meet the changing threats and that sovereignty must coexist with international responsibility.

- Recognize all the relevant existing conventions, agreements, and UN Security Council resolutions (UNSCR) and state that universal acceptance of these agreements and their rigorous implementation are fundamental for effective and sustainable nuclear security.

- Recognize the importance of the IAEA in all areas of nuclear security and endorse greater international political and financial support for its activities.

- Clearly establish the legitimacy of ad hoc mechanisms such as the Cooperative Threat Reduction program, the G-8 Global Partnership, the Global Initiative to Combat Nuclear Terrorism, and others while proposing that these initiatives be streamlined and folded together to increase efficiency. It could encourage all nations that can contribute to the objective of these efforts, or benefit from them, to become participants.

- Make clear the need for continued robust multilateral funding over the long-term for those nations and institutions in need of assistance to improve nuclear security, including through the IAEA, and to fulfill international obligations such as UNSCR 1540.

- Recognize that that excess fissile materials should be permanently disposed of, and that storage of all nuclear materials should be consolidated to the degree possible consistent with safety requirements.

- Encourage implementation of the highest possible security standards and the utilization of an intensive process of global best-practices and security culture engagement.

- Underscore the need for a balance between voluntary and mandatory security commitments, standards, and practices.

- Identify the need for a baseline standard for nuclear and radiological material security to supplement the current voluntary requirements and guidelines – one that while measurable and transparent, does not compromise sensitive information.

- Encourage public-private partnerships in support of nuclear security and recognize the important role that the nuclear industry and civil society play in this area.

- Allow for the negotiation of supplementary protocols that require more detailed nuclear security actions. The protocols could specify actions to be taken by individual nations, identify or reference standards for security, create a scientific council, detail means of sharing information for peer review on a confidential basis, identify dates for completion of specific security actions and improvements, and establish enhanced authority for the IAEA. It also should include an amendment process and a regularized review conference.

- Include an annex with individual national commitments that will be undertaken to improve nuclear material security, similar to the “house gifts” and “gift baskets” provided at the

summits in Washington and Seoul, but with the ability to continually supplement the list, rather than waiting for a summit.

The suggestion of a framework agreement has drawn considerable antagonism from some countries involved in the NSS process; they argue that it exceeds the mandate of the summit, and may commit them to obligations beyond the current regime. This agreement does not need to be tied to the NSS process, though that is obviously a collection of countries that care about the nuclear security issue. Its purpose is to allow for the legal grounding of the disparate elements of the regime without creating any new bureaucracy. It would take advantage of some of the innovations that the NSS instituted, like continuing the precedent of voluntary commitments, but also facilitate the streamlining of the current regime to reduce the bureaucratic burdens.

Framework agreements addressing transnational challenges, like nuclear material security, have precedent, particularly in the environmental area. Legally, framework agreements are designed to unify a "special regime" that consists of elements that are binding but fragmentary. They also give international obligations a rooting in international law. Models for the framework agreement on nuclear material security include the Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol, the U.N. Framework Convention on Climate Change, and the CNS. This agreement should eventually be universal, but its development could begin with support from a coalition of committed nations.

Conclusion

The political profile of nuclear security has been raised over the past four years and this has resulted in many positive developments. The system is stronger today as a result of the actions of the IAEA and the NSS.

However, the nuclear security system is not yet strong enough to address the evolving dangers of nuclear and radiological terrorism in the 21st century. The political will to significantly improve the system still needs to be effectively marshaled and focused. The political impediments to improvement have been difficult to dislodge. The funding for significant improvement has not materialized. As a result, gaps continue to exist and vulnerabilities remain. The global political and financial cost of any act of nuclear terrorism will dwarf the cost of taking the most aggressive action to prevent it.

In order to incentivize the global political system to accept the change that is necessary it is essential to define nuclear security's desired end state and the process and timing by which the system will evolve.

The end state is world with no nuclear security weak links. These weak links are created by the lack of cohesion and comprehensiveness in the nuclear security regime, the deficiency of international confidence that is fueled by a lack of information and transparency, the imbalance between sovereignty and international responsibility, and political divisions and resentments.

Significant improvement of the nuclear security system can be achieved well within a decade, but it will require leadership and the implementation of improvements on a continuum. As a first step, nations should act to universalize the implementation of the current regime elements. A second step should be the adoption of a principle of continuous improvement matched with voluntary actions that add improvements over time and are measured regularly through the IAEA and a parallel political process similar to the current NSS. The final step is to adopt a comprehensive instrument for nuclear security that is comprehensive, flexible and effective.

Appendix A – Global Nuclear Security Regime Checklist (DRAFT)

The global nuclear security regime has many diverse elements. Please indicate which of the following you are participating in or implementing.

1. Indicate which of the following **treaties, resolutions, and international** agreements you are a member of, a party to, a signatory of, or implementing:	
International Convention for the Suppression of Nuclear Terrorism	
UNSC Resolution 1540	
UNSC Resolution 1373	
Convention for the Physical Protection of Nuclear Material (CPPNM)	
2005 CPPNM Amendment	
Code of Conduct on the Safety and Security of Radioactive Sources	
Supplementary Guidance on the Import and Export of Radioactive Sources	
IAEA Safeguards Agreement	
IAEA Additional Protocol	

2. The **IAEA Nuclear Security Series** is intended to be an implementing guideline for countries to enter into compliance with one or more of the above agreements. Indicate which of the Series documents you are implementing:		
Recommendations	Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC 225/Rev. 5)	
	Nuclear Security Recommendations on Radioactive Material and Associated Facilities	
	Nuclear Security Recommendations on Nuclear and Other Radioactive Material out of Regulatory Control	
Technical	Nuclear Forensic Support	
	Monitoring for Radioactive Material in International Mail Transported by Public Postal Operators	
	Engineering Safety Aspects of the Protection of Nuclear Power Plants against Sabotage	
	Identification of Radioactive Sources and Devices	
	Combating Illicit Trafficking in Nuclear and other Radioactive Material	
	Education Programme in Nuclear Security	
	Computer Security at Nuclear Facilities	
Implementing	Nuclear Security Culture	
	Preventive and Protective Measures against Insider Threats	
	Security in Transport of Radioactive Material	
	Development, Use and Maintenance of the Design Basis Threat	
	Security of Radioactive Sources	

3. The **IAEA Nuclear Security Fundamentals** include 12 essential elements of a nuclear security program. Indicate whether you are adhering to the following elements:	
State Responsibility	
Identification and Definition of Nuclear Security Responsibilities	
Legislative and Regulatory Framework	
International Transport of Nuclear Material and Other Radioactive Material	
Offenses and Penalties Including Criminalization	
International Cooperation and Assistance	
Identification and Assessment of Nuclear Security Threats	
Identification and Assessment of Targets and Potential Consequences	
Use of Risk-Informed Approaches	
Detection of Nuclear Security Events	
Planning for, Preparedness for, and Response to a Nuclear Security Event	
Sustaining a Nuclear Security Regime	

4. Have you taken advantage of or participated in the following **IAEA services and programs**:	
International Nuclear Security Advisory Services	
International Physical Protection Advisory Services	
Integrated Nuclear Security Support Plans	
State System of Accounting and Control Advisory Services	
Integrated Regulatory Review Services	
Illicit Trafficking Database	
Nuclear Security Information Portals	
Training Courses, Seminars, and Workshops	
Master of Science and Certificate Programs	
International Nuclear Security Education Network	
Nuclear Security Support Centers	

5. Indicate which of the following **mechanisms** you participate in or contribute to:	
Global Initiative to Combat Nuclear Terrorism	
G-8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction	
Centers of Excellence (national, regional, or other)	
Nuclear Security Summits	
Proliferation Security Initiative	
World Institute of Nuclear Security	
IAEA Nuclear Security Fund	
U.S. international nuclear security programs (please specify)	

Appendix B – Global Nuclear Security Regime Matrix (DRAFT)

	SECURITY AT THE SOURCE		SECURITY IN TRANSIT			MATERIAL DISPOSITION		SECURITY CULTURE				PREPAREDNESS		
	Physical Protection	Radiological Sources	Legitimate Transport	Detection Capabilities	Border Control	HEU minimization	Plutonium disposition	Human Resources	Information Sharing	Best Practices	Peer Review	Emergency Response	Domestic Legal Frameworks	
GICNT	x	x		x	x			x	x	x		x	x	**Ad Hoc Mechanisms**
G8 Global Partnership	x	x		x	x			x	x					
Centers of Excellence	x	x						x	x	x		x		
Nuclear Security Summits									x					
Proliferation Security Initiative				x	x				x					
DoD CTR	x	x						x	x	x				**U.S. Programs**
NNSA	x	x	x	x	x	x	x	x	x	x		x	x	
Dept. of State			x	x	x			x	x	x			x	
DHS Global Nuclear Detection Architecture				x	x			x	x	x				
UNSC Resolution 1373													x	**United Nations**
UNSC Resolution 1540									x				x	
UNSC Resolution 1887														
ICSANT									x				x	
UN Global Counterterrorism Strategy									x				x	
Nuclear Security Series	x	x	x	x	x			x	x	x		x	x	**International Atomic Energy Agency**
Agreements and Legal Guidance	x	x	x					x		x			x	
Evaluation Missions and Technical Visits	x	x	x	x	x			x		x		x	x	
CPPNM (and Amendment)	x	x	x											
Other Support								x	x					