

# The IAEA and Nuclear Security

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Nuclear security has assumed a profile in the activities of the IAEA only since 9/11. It is thus a relatively new concern for the IAEA and the Agency is still feeling its way. There are several reasons for this cautiousness.

First, is the sensitivity of member states about their sovereignty and confidentiality, both state and corporate. Since nuclear security and radiological protection measures necessarily involve key national functions such as law enforcement and control over access to information, states are “understandably reluctant to expose their sovereign security and law enforcement practices to external scrutiny, let alone anything resembling external regulation” (IAEA 2003c: 145). Moreover, as Matthew Bunn points out, “any test or assessment that revealed particularly urgent vulnerabilities would be especially closely held” (Bunn 2009: 115). As it makes clear from the opening paragraphs of its annual Nuclear Security Report for 2011, the Agency recognizes that “responsibility for nuclear security rests entirely with each State” (IAEA 2011u: Para. 2). This is not a refrain heard in the nuclear nonproliferation and safety areas.

The Agency’s caution has been heightened by the officially sceptical attitude towards nuclear security adopted by the nonaligned movement (NAM), which sees the possession of nuclear weapons by states as the greatest threat; worries that an IAEA emphasis on nuclear security might detract from its core mandates; and fears that there will be subsequent reduction in funding for technical cooperation and peaceful uses (Potter and Mukhatzhanova, 2012: 124-125).

The Agency is also struggling because carving out a prominent role in nuclear security requires involvement with a whole new set of stakeholders — comprising the security sector — with which it has historically had no familiarity. Such stakeholders range from international organizations like Interpol, the World Customs Organization, the Police Community of the Americas (AMERIPOL) and the Organization for Security and Cooperation in Europe (OSCE) to state security organizations, national intelligence organizations, military and paramilitary forces, police, plant operators and commercial security companies.

Another challenge for the Agency is that the nuclear security regime, in terms of its treaties and array of organizations and arrangements, is nowhere near as extensive, advanced or entrenched as the regime for nuclear safety. It is much more fragmented and not nearly as Agency-oriented. The main concern has been with physical security (“guards, gates and guns”), rather than nuclear security in its entirety. There are also less detailed and widely accepted sets

of recommended security principles and practices, little collaboration between nuclear plant operators worldwide, as in the case of the World Association of Nuclear Operators (WANO) for nuclear safety, practically no peer review and an abiding sense that nuclear security is too sensitive an issue to be subject to global governance.

A final challenge is that many other international processes relating to nuclear security are at play outside the Agency's orbit. In recent years a major driver of enhanced global governance in the nuclear security field has not been the IAEA but the Nuclear Security Summits initiated by President Obama in 2012. Other US-led initiatives, such as its various Cooperative Threat Reduction (CTR) programs, bilateral arrangements, the US/Russia Global Initiative to Combat Nuclear Terrorism and other limited membership multilateral arrangements like the G8's Global Partnership Against the Spread of Weapons and Materials of Mass Destruction have tended to overshadow the Agency role. This is due to their immediacy, high political profile, headline-grabbing nature and the availability of vastly bigger budgets. Although the IAEA is often invited to brief participants or even to participate, its role is clearly subordinate and secondary. In the non-governmental area the World Institute of Nuclear Security (WINS) has emerged as a small, but increasingly active, player.

One area where it does play a crucial role is in helping states implement the existing legal instruments concerning nuclear security, notably by convening treaty meetings and developing and propagating physical protection standards for both nuclear materials and nuclear facilities. It also holds relevant conferences and workshops, conducts training, provides legal advice, facilitates research, and even provides equipment. In 2007 a review by the IAEA's nuclear security program chaired by Roger Howsley, inaugural director of WINS, concluded that "the IAEA security team is doing a fantastic job" (Howsley 2009: 204). However, compared with its nuclear safety program, the Agency's nuclear security program is relatively small and, although resources have been increasing, it remains underfunded (Ferguson and Reid 2009: 59).

## **IAEA role in treaty implementation**

### **Convention on the Physical Protection of Nuclear Material (CPPNM)**

The IAEA's role in respect of this treaty is limited. Parties may or may not use the IAEA to communicate to each other their national point of contact with responsibility for physical protection of nuclear material and for coordinating recovery and response operations in the event of a breach. If an incident occurs parties are required to cooperate to the maximum feasible extent in the recovery and protection of nuclear material. Presumably the IAEA would have a clearinghouse role in matching offers of assistance to needs, as in the case of the Convention on Assistance in Case of a Nuclear Accident, although this is not specified. Each party is obliged to report to the treaty depositary, presumed to be the IAEA (although strangely

the convention again does not make this clear), the laws and regulations it has adopted to implement the convention and the depositary is obliged to transmit this information to all other states parties.

While the treaty contains provisions for review conferences every five years, which are organized by the IAEA at its Vienna headquarters, the IAEA simply acts as the secretariat. There is no peer review mechanism for the treaty, as in the case of the Convention on Nuclear Safety, so the IAEA does not have any particular role in this respect. However the IAEA does provide states, on request, with advisory, review and other services to help them, among other things, assess and improve their compliance with the CPPNM.

In 1998 a group of experts convened by the IAEA Director General to review all Agency programs recommended that consideration be given to revising the CPPNM to extend it to domestic use, storage and transport. Negotiations on a CPPNM amendment were formally concluded in 2005, but it is not yet in force. One reason why early entry into force is so desirable is that the IAEA can then begin linking its advisory and expert services to compliance with nuclear security standards domestically as well as during international transport. The Agency is seeking to encourage more states to become party to the CPPNM and to speed up entry into force of the amendment. In November 2011 it held a meeting on Facilitating Adherence to the 2005 Amendment to the CPPNM attended by 55 states and EURATOM.

### **Code of Conduct on the Safety and Security of Radioactive Sources**

In 1998 an international conference in Dijon, France urged the IAEA General Conference to request the Secretariat to prepare a report on how national systems for ensuring the safety and security of radioactive sources could be operated effectively and whether international undertakings could be formulated. The Agency had published the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (BSS) in 1996, but these were binding only on states that chose to adopt them or which were receiving assistance from the IAEA. The Secretariat recommended an Action Plan approved by the BOG and GC in March 1999 covering seven areas: regulatory infrastructures; management of disused sources; categorization of sources; response to abnormal events; information exchange; education and training; and international undertakings.

In terms of the last item, the major outcome was a non-binding international agreement, the Code of Conduct on the Safety and Security of Radioactive Sources. It provides guidance for ensuring the control of such sources and for mitigating and minimizing any consequences should control measures fail. It embeds the Agency's standards and guides into international expectations of proper conduct in the area of radioactive sources, although it does not extend

the Agency's powers beyond the advisory, educational and standard-building role that the Action Plan envisaged.. In order to support states' implementation of the Code, but also not legally binding, supplementary Guidance on the Import and Export of Radioactive Sources, released in 2003, was developed by the Agency in response to the events of 9/11. The new guidance was seen to be necessary to help prevent the malevolent use of radioactive sources, not just the accidental or inadvertent loss of orphaned sources that had been previously emphasized. The Code was reviewed at an IAEA technical meeting in November 2011 to determine, among other things, how it might be enhanced with regard to security, but little arose from the gathering. The status of the Code is also being reviewed, following calls by some member states for an internationally binding instrument on the safety and security of sources (IAEA 2011x).

### **International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT)**

ICSANT, which entered into force in 2007, establishes a wide variety of offences in relation to nuclear terrorism. Although the treaty names the UN Secretary-General rather than the IAEA Director General as depositary and therefore it is not considered to be within the IAEA's "family" of treaties, the IAEA does assume several important treaty functions. Notably, if a state seizes control of any radioactive material, devices or facilities following the commission of an offence, that party must ensure, *inter alia*, that they are held in accordance with IAEA nuclear safeguards and must "have regard" for IAEA "physical protection recommendations and health and safety standards" (UN 2005: Art. 18.1). In doing so the state party "may" call on the assistance of the IAEA. In addition, a state party disposing of or retaining seized radioactive material, a device or a nuclear facility is obliged to inform the IAEA Director General "of the manner in which such an item was disposed of or retained" (UN 2005: Art. 18.6).

The only other international nuclear security-related treaty that mentions a role for the IAEA is, oddly enough, the 1986 Treaty of Pelindaba, which creates an African Nuclear Weapon-Free Zone (ANWFZ). Under Article 10 states parties are obliged to apply measures of physical protection equivalent to those provided for in the CPPNM and IAEA security guidelines. While obscure, the treaty is nonetheless important in setting a precedent that may be considered for other NWFZs. It is an example of how, by gradual accretion, the IAEA's standards can move towards global acceptance as universal norms.

### **UN Security Council resolution 1540**

Although not a treaty, the other legally binding international obligation in the nuclear security realm that the IAEA is involved with is UN Security Council resolution 1540 adopted in April 2004. Since then a 1540 Committee has sought to monitor compliance by UN member states with the resolution and its successors. Supported by a small secretariat at UN headquarters in

New York it is also supposed to match requests for assistance in implementation with offers by other states to provide such assistance. In addition the committee is supposed to seek the assistance of relevant UN organizations already involved in such matters. The IAEA, after a rocky start, due to its fear that the Committee would be encroaching on its substantive territory, now recognizes that the Committee is “an integral part of the international legal framework for nuclear security” (IAEA 2011u: 3). The IAEA Secretariat is now reportedly cooperating well with the Committee (IAEA 2011u: para. 11).

The IAEA is also cooperating with the UN’s Counter Terrorism Implementation Task Force (CTITF), especially on inter-agency coordination in the event of nuclear terrorism. The IAEA serves as the lead organization for the CTITF's Working Group on Preventing and Responding to WMD Terrorist Attacks, which includes the World Health Organization, the UN Office for Disarmament Affairs, Interpol, the Expert Staff of the 1540 Committee and UN Development Programme. In this role the Agency has been responsible for convening high-level meetings and conferences, most notably in March 2010 when it convened a workshop that produced a report on the International Response and Mitigation of a Terrorist Attack Using Nuclear and Radiological Weapons or Materials (CTITF 2012).

The 1540 Committee has acquired its own expert advisers on necessary physical protection measures but has also enlisted the help of the IAEA in recommending better protection of nuclear facilities and materials from theft and sabotage. But technical assistance on such matters is available directly from the IAEA anyway for member states which request it. The Agency has also been involved in assisting states with national implementation legislation to help fulfill their 1540 obligations, but again the Agency had been doing this irrespective of Security Council involvement. It is thus not clear whether the 1540 process makes much difference to the Agency’s role in nuclear security. It certainly does not provide any additional resources. Yet because of the resolution’s legally-binding nature it presumably adds urgency and legal heft to what would otherwise be purely voluntary and presumably even tardier action by member states in this area.

Veteran nonproliferation and arms control negotiator George Bunn has suggested that given that the 1540 Committee cannot be expected to inspect states to ensure they are implementing the Security Council’s recommendations, the Council “would be well advised to consider giving the IAEA a greater role in ensuring that the physical protection requirements of Resolution 1540 are satisfied” (Bunn 2007). It seems worthwhile, he says, to consider whether IAEA safeguards inspectors could be trained and tasked with checking the adequacy of physical protection at the reactors and other nuclear facilities when they conduct routine inspections. The IAEA inspectors, he suggests, could notify the facilities of any problems and provide the 1540 Committee with copies of their reports (Bunn 2007).

The 20/20 Commission, too, opined that it was “imperative and urgent that the IAEA establish a regular process by which safeguards inspectors would report to the IAEA Office of Nuclear Security any nuclear security weaknesses they observe, with appropriate confidentiality” (IAEA 2008h: 23). (The Agency is already obliged to do so for projects for which it is providing assistance). The Commission argued that preventing the use of nuclear materials by terrorists should be seen as part of preventing use for “any military purpose” which is the statutory purpose of safeguards. It advocated training for safeguards inspectors for this purpose. There is likely to be considerable resistance to this among member states and industry as being too intrusive. The inspectorate is also likely to be reluctant, since it would involve significantly greater responsibilities and training for such tasks and moreover may interfere with their primary, safeguards mission. Nonetheless a study should be conducted to examine the implications of such a proposal.

### **IAEA nuclear security standards and recommendations**

Since 1972 the IAEA has issued recommended nuclear security standards for the physical protection of nuclear material and nuclear facilities and updated these periodically. They reflect, according to the IAEA *Handbook on Nuclear Law*, international consensus, procedures and definitions “going beyond” those in the (CPPNM and its Annex 1 (IAEA 2003c: 146). Matthew Bunn notes that despite being purely advisory, most states follow the standards and they have “contributed to substantial improvement in nuclear security around the world since they were promulgated” (Bunn 2010: 53). The US and several other supplier states require recipient states to apply the standards as a condition of supply. Bunn notes, however, that the security standards are “quite vague” and can lead to a situation where “it is quite possible for a [nuclear] site to comply with the IAEA recommendations and still have nuclear security arrangements in place that are inadequate to protect against the evolving threat” (Bunn 2010: 53 & 55).

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### **IAEA Nuclear Security Series**

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**Fundamentals** comprise the objectives, concepts and principles of nuclear security, providing the basis for security recommendations.

**Recommendations** present best practices that should be adopted by member states in the application of the Fundamentals.

**Implementing Guides** provide further elaboration of the Recommendations in broad areas and suggest measures for implementation.

**Technical Guidance** publications comprise:

- **Reference Manuals**, with detailed measures and/or guidance on how to apply the Implementing Guides in specific fields or activities
- **Training Guides**, covering the syllabus and/or manuals for IAEA nuclear security training courses; and
- **Service Guides**, which provide guidance on the conduct and scope of IAEA nuclear security advisory missions.

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The most important IAEA nuclear security document is its Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225), first published in 1972. A fifth revision was released in 2011 (IAEA 2011t). The idea of revising the recommendations arose in September 2001 after the terrorist attacks on the US, when the IAEA Board of Governors (BOG) and General Conference (GC) endorsed new “Physical Protection Objectives and Fundamental Principles”. By 2005, according to the Agency, awareness started to grow of the need to revise INFCIRC/225 to take into account “recent developments and new international legal instruments”, presumably including the CPNNM Amendment (IAEA 2011t: vi). In 2010 an “extensive consultation process” was launched with all member states, including open-ended technical meetings in Vienna, resulting “an extremely lengthy process” (Price 2011: 16) to achieve consensus, complicated by the rapidly evolving nuclear security field.

According to Christopher Price, of the UK Office for Civil Nuclear Security, Health and Safety, the new version is “by far and away the most comprehensive revision ever undertaken”, the result being a much improved set of recommendations that comprehensive, “hopefully more understandable” and which should serve for the next 10 years (Price 2011: 16). Although parts remain prescriptive there has been “considerable movement” towards a performance-based approach. This emphasizes testing and evaluation of effectiveness, together with the establishment, maintenance and exercising of a variety of contingency plans. The new version, according to Matt Bunn, is certainly more extensive than its predecessor and tightens some of the recommendations. For instance, it recommends that a Design Basis Threat (DBT) be prepared, that performance testing should be carried out and that force-on-force exercises should be conducted (which most countries currently do not do). Price argues that the new document will facilitate decisions by states to accede to the CPPNM Amendment by providing clarity about their obligations under the amendment.

But in a number of respects, according to Bunn, the document continues to fail to get to the heart of the matter: for instance it does not suggest that a country's DBT should consider that terrorists seeking access to nuclear material will not care about their safety and that under these circumstances the notion of "self-protecting" nuclear material (considered untouchable because it is too radioactive) is irrelevant. And of course the new INFCIRC/225 is still only recommendatory. Bunn argues for a global baseline DBT that all states should be obliged to meet at a minimum. Others argue against this on the grounds that states would then simply treat this as all that they needed to do. States are currently only committed to implement Fundamental Security Principles when "reasonable and practical" (Price 2011: 16)

### **The process of preparing nuclear security documents**

The IAEA's security documents are prepared in close consultation with member states, which is one reason why they achieve such widespread support. For Nuclear Security Fundamentals, Recommendations and Implementing Guides, open-ended technical meetings are held by the Secretariat to allow member states and other international organizations to review drafts. In addition, to ensure a high level of international review and consensus, the Secretariat submits the drafts for formal review to all member states for 120 days. Technical meetings are not required for Technical Guidance papers, but they may be conducted when considered necessary in order to elicit a broad range of views. The drafting and review process takes confidentiality into account and "recognizes that nuclear security is inseparably linked with general and specific national security concerns" (IAEA 2008e). Combined with the requirement to translate all documents into all UN languages the whole process is time-consuming.

Since 2002 there has been an Advisory Group on Nuclear Security (AdSec) that meets twice yearly to offer advice to the DG on a wide range of nuclear security issues. In 2011 AdSec and the Commission on Safety Standards (CSS) established a Joint Task Force to consider the emerging issue, reinforced by Fukushima, of the overlap between nuclear safety and nuclear security. There have reportedly been significant disagreements between the two bodies. In May 2011 it proposed that the DG establish a Nuclear Security Guidance Committee of member states to enhance states' involvement with the Secretariat in producing NSS documents (IAEA 2011u: 7). A long-term objective of the Task Force is to investigate establishing a single series of Agency standards covering both safety and security, "while respecting the specific character of each". This is a welcome acknowledgement by the Agency of growing support for the importance of the safety/security nexus. In addition the Office of Nuclear Security has carried out a "gap analysis" and review of document publication priorities to enable the better planning of future document production (IAEA 2011u: 6). Whether these reforms lead to faster or slower production by the IAEA of safety and security standards remain to be seen, especially if member states become more active in the process.

In the meantime the Agency has expressed concern about the risk of duplication and confusion that may arise from the involvement of other bodies in the nuclear security realm, in particular with regard to nuclear security guidance documents “where competing, or contradictory guidance would likely result in confusion and have a negative effect in the assistance being provided to States ...” (IAEA 2011u: 4). Although the Agency has cooperated with WINS in some of its initiatives the Agency is obviously worried that this upstart might impinge on its role. WINS argues that it is able to produce guidance quickly and effectively by consulting directly with the nuclear industry and security sector, whereas the Agency is required to consult its member states and takes years to revise its existing documentation, must less respond to new requirements in a timely manner. The Agency has admitted that revising the NSS would be “major undertaking” so it has taken the route of issuing additional guidance on the security aspects of radioactive sources (IAEA 2011x). But as it says rather pointedly in its Nuclear Security Report 2010, “The international community would best be served by relying on and using the guidance documents developed and adopted by the Agency which, with its mandate, technical competence and broad membership, is uniquely placed to provide States with state of the art guidance” (IAEA 2011u: para. 16).

However the Agency clearly does not have the resources or expertise to meet, in a timely fashion, the demands of this growing field. Its Office of Nuclear Security is staffed with those experienced in dealing with states and regulators, not industry or the security community. Its documentation and other activities are therefore geared to member states and official bodies like regulatory organizations. Most nuclear power utilities and security organizations are unlikely to have even heard of the IAEA’s role in nuclear security and may know of it only in the context of safeguards. WINS on the other hand comes at the problem from the angle of nuclear plant operators, the police, security firms and security managers. Its training courses, best practice guides and other activities are geared towards them. It would seem that their activities are entirely compatible with the Agency’s and in fact the two bodies should work closely in cooperation (they already meet formally several times a year). For its part the Office of Nuclear Security should be authorized to recruit more staff with direct nuclear security experience and enhance its interaction with industry.

### **Three-Year Plan of Activities to Protect Against Nuclear Terrorism**

The IAEA also offers an impressive array of assistance to states in the nuclear security arena, much of it now grouped under its three-year plans. It includes conferences, training and advice but also the provision of equipment, physical protection upgrades, installation of remote monitoring systems and physically securing radioactive sources (for details on all of these see the Agency’s Annual Security Reports (IAEA 2011u)). While developing states have, laudably,

taken advantage of these, the Agency reports a low participation rate by developed countries, illustrating again the secretiveness that attends the nuclear security issue.

The plans are designed to improve the security of nuclear and radioactive material worldwide by assisting states in implementing effective national security measures. The priorities are to provide advice concerning the implementation of international agreements and guidelines, review and assess the needs of member states, provide them with support in implementing nuclear security recommendations, and facilitate outreach and information exchange. Projects include capacity-building, security reviews and the development of models for national implementation legislation, as now required under UN Security Council resolution 1540.

The current 2010-2013 plan, adopted in 2009 (IAEA 2009d), is the third in the series and is currently more than half-way through. According to the Agency the three-year plans had by 2008 achieved “sufficient maturity to evaluate its own accomplishments and shortcomings, set meaningful priorities and indicators of success, and take into consideration the evaluations and inputs of other interested stakeholders and groups, including donors to the Nuclear Security Fund” (IAEA 2008c: 1).

### **Nuclear Security Resources, Staffing and Funding**

The regular budget for nuclear security in the 2012-2013 period was increased to €4.6 million (IAEA, 2011u: 13), but remains small compared the total budget for the Department of Nuclear Safety and Security of close to €34 million. The staff of the Office for Nuclear Security remains proportionately small compared to the whole department (precise numbers are not publicly available but they are around 10-13 at any one time depending on the number of seconded experts from member states). It is currently unable to carry out all the functions demanded of it.

A major challenge for the IAEA’s nuclear security work has been its reliance on voluntary funding. The developing states have argued that since nuclear security is not an original statutory function of the Agency it should not compete for regular budgetary funding. This is disingenuous, since BoG decisions have long endorsed nuclear security as being an important new area of concern for the IAEA. Paradoxically, the West uses the same argument against bringing Technical Cooperation (TC) into the regular budget. There would appear to be a budgetary compromise to be negotiated here. Along with such a budgetary deal could eventually come the establishment of a separate Department for Nuclear Security, which would give nuclear security its own bureaucratic voice and mark it as a distinct Agency function. Care would have to be taken not to disrupt current efforts to ensure that nuclear safety and nuclear security are treated as complementary and synergistic.

From its establishment in 2002 till the end of 2011 the Nuclear Security Fund (NSF) dispersed around \$130 million in various nuclear security projects (IAEA 2011u: 13). Funding for the three-year plans comes from extra-budgetary donations from just a few states, mostly Western, but including Japan and South Korea. Member states also provided “in kind” contributions, such as equipment, cost-free experts, the use of facilities and the hosting of meetings and training activities. A major new source of funding is the EU Strategy against Proliferation of Weapons of Mass Destruction. In 2011 the regular budget for nuclear security was increased, bringing it to almost 50% of the total IAEA funding on nuclear security (IAEA 2011u: 13).

A major stumbling block to a more effective and efficient program is that 90% of the funds donated come with conditions. These are primarily limitations on the geographic location of the project for which funds can be used and/or the purposes to which they may be applied, as well as restrictions relating to procurements and human resources. The Agency notes, delicately, that such restrictions make “setting overall programmatic priorities difficult” (IAEA 2008f: 2).

## **IAEA advisory services and missions**

### **Nuclear Security Evaluation Missions**

The International Physical Protection Advisory Service (IPPAS) conducts, at the request of a member level state, a detailed review of the state’s legal and regulatory infrastructure that will determine the extent of compliance with the CPPNM. They also seek to compare national practice with IAEA standards and international best practice. A confidential mission report by each mission is intended to form the basis for remedial action. The IAEA provides subsequent assistance such as training, technical support and more targeted assessments.

The Agency’s International Nuclear Security Advisory Service (INSServ) conducts missions, at a state’s request, to assist in identifying its broader nuclear security requirements and the ways in which it can fulfill them. It generates a report which can serve as the basis for cooperation between the state and the IAEA and for bilateral nuclear security assistance.

Six evaluation missions were conducted in 2010-2011 with funding from the NSF, including two INSServ missions, one of which was the Agency’s first INSServ follow-up mission, and two IPPAS missions. At the request of their respective governments the Agency is carried out in the second half of 2011 unprecedented IPPAS missions in three states with large nuclear

programs—France, the Netherlands and the UK. The Agency hopes these will “point the way to such missions becoming widely used as an important tool to build confidence both within the international community and the general public with regard to the effectiveness of national nuclear security systems” (IAEA 2011u: 8). Norway, the first developed country to invite such a mission, encouraged all other states to do so as a way of benefiting from international advice.

The Integrated Regulatory Review Service (IRRS) was inaugurated in 2006 to help states, at their request, to improve the effectiveness of national regulatory bodies and to assist in the implementation of national safety legislation and regulations. These reviews may benefit the nuclear security infrastructure by fostering more effective national regulators and better legislative frameworks.

### **Integrated Nuclear Security Support Plans**

The Integrated Nuclear Security Support Plan (INSSP), based on findings from nuclear security support missions, attempts to provide states, in contrast to the previous *ad hoc* approach, with a “holistic” approach to nuclear security capacity-building. The plan is individualized to meet the needs of each state. To date more than 60 INSSPs have been developed and are in various stages of finalization. The Agency reports that feedback from states about INSSPs has been “positive”, but they have learned that “the availability of resources, both internal and external, is fundamental for achieving the projected results” (IAEA 2011u: 5).

### **Nuclear Security Support Centres**

In 2008 the IAEA developed a conceptual approach for the establishment and maintenance of national Nuclear Security Support Centres to foster a “systematic, business-oriented approach” to nuclear security (IAEA 2008f: 17). The centres are meant to serve as a focal point for sustainable and continued access to knowledge, skills and abilities. The Agency has focused on providing member states with “train the trainer” courses that may help them in setting up their NSSCs. The Agency has recently supported Columbia in establishing an NSSC that will help train officers from member states of the American Police Community (AMERIPOL) (IAEA 2011u: 12).

### **Nuclear Security Education and Training**

From 2002 to 2011, IAEA nuclear security training reached over 10,200 persons in some 120 states. More than 250 physical protection training events were conducted and more than 6,400 people from 120 member states were trained in the areas of prevention (IAEA, 2012b: 12 and 21). In 2010, the IAEA created the International Nuclear Security Education Network (INSEN) to provide a forum for the Agency, educational institutions and research bodies to collaborate in establishing nuclear security education (IAEA, 2012b: 13). INSEN members cooperate in

developing instructional texts and computer tools, conducting joint research projects and in arranging student and faculty exchange programs. Also in 2010, the IAEA completed its largest project to date in its physical protection activities — the completion of the nuclear security training facility at the Interdepartmental Special Training Centre in Obninsk, Russia. The first international training course took place there in October 2010. The IAEA is also working with 50 academic institutions to implement Master of Science-level courses in nuclear security through the production of textbooks and lecture notes, and the professional development of lecturers (IAEA, 2012b: 15).

## **IAEA activities in countering nuclear smuggling**

### **Nuclear Trade and Technology Analysis (TTA) Unit**

The IAEA established in 2004 an “elite investigative” group, in the Department of Safeguards, tasked with centralizing all information available to the Agency in order to track known smuggling networks and endeavour to detect new ones. Notably, the unit monitors, with the help of some states and companies, refusals of suspicious import enquiries and orders, with the aim of detecting patterns and linkages. It also maintains the IAEA’s institutional memory on covert nuclear related procurement activities. Safeguards strengthening measures, such as those in the Additional Protocol and Voluntary Reporting Scheme, already provide the Agency with some information related to procurement and supply and this information is part of the Agency’s state evaluation process. However, this is mainly related to actual exports, not information on procurement activities or export denials (IAEA 2006i).

The TTA needs greater cooperation from IAEA member states and companies and greater financial and personnel support (it has only a few expert analysts) if it is to realize its full potential. As in the case of the related Illicit Nuclear Trafficking Database, the Unit is probably receiving information on only a fraction of the cases that are occurring. In 2006 the Agency launched an outreach program to states seeking nuclear trade related information from them on a bilateral voluntary basis. Although by the end of 2007 some 20 states had been contacted, only several are providing information (Tarvainen 2009: 63). Charles Ferguson argues that intelligence agencies, while protecting sources and methods, could and should share more information with the IAEA. He points out that “the CIA penetrated Khan’s black market but kept the IAEA in the dark about this activity for years” (Ferguson 2008). David Albright, in testimony before the US House of Representatives Subcommittee on Terrorism, Nonproliferation, and Trade has also contended that the work of the TTA unit is not integrated into the IAEA’s normal safeguards operation. Doing so would, he claims, “dramatically increase the chances of detecting and thwarting illicit nuclear trade, while improving the ability of the IAEA to detect undeclared nuclear facilities and materials”.<sup>1</sup>

In addition to the TTA, the agency's Safeguards Information Management directorate has two small units that have quasi-intelligence functions, one that analyzes open source information and another that assesses imagery. The former head of the directorate has called for a more professional, targeted IAEA 'intelligence' capability, but many member states would be wary of such a venture.<sup>2</sup>

### **IAEA Illicit Trafficking Database**

Established in 1995, the IAEA's Illicit Trafficking Database (ITDB) is designed to facilitate exchange among states of authoritative information on reported incidents of illicit trafficking in all types of nuclear materials and radioactive sources. The ITDB information is continuously analyzed by the Agency's staff to identify trends and patterns, assess threats and evaluate weaknesses in material security and detection capabilities and practices (IAEA 2006d). The Secretariat produces Quarterly and Annual Reports containing ITDB statistics and analysis. Participating states are also provided with regularly updated CD-ROM versions of the database.

Currently the ITDB collects information from 112 participating states (IAEA 2011u: 4) but also from "non-participating states". The ITDB also collects information from open sources, but seeks confirmation about its veracity from the member state concerned. Communication with participating states is maintained through a network of national Points of Contact (POC). Meetings of the POCs are organized regularly to review the operation of the ITDB. One challenge is that not all states provide reports and not all provide the requisite information when they do report. States are not obliged to contribute, since the database does not derive from a treaty obligation or other international agreement.

Since July 2007 the IAEA has convened regional information meetings designed to strengthen national, regional, and international capacities through enhanced information- and knowledge-sharing, management and coordination; improve awareness about the ITDB and enhance reporting of incidents; foster regional dialogue; and promote a culture of networking.

### **Assistance to states in combating nuclear smuggling**

The IAEA continues to assist states to establish effective border monitoring capabilities. In 2010 it worked with 15 states, providing over 280 items of equipment to improve detection and response capabilities (IAEA 2011u: 11). In 2006 it established the Border Monitoring Working Group (BMWG) to promote and coordinate multilateral and bilateral cooperation in establishing detection monitoring capabilities at borders, mostly with the US and the EU, but more recently with Canada and the Francophone African states. In addition the IAEA's Nuclear Security Equipment Laboratory (NSEL) helps ensure that border detection instruments meet technical and functional specifications.

## **Improving use of IT for Nuclear Security program**

In view of the increasing volume of information it is receiving the Agency is taking several steps to enhance its IT capability in the nuclear security area. First it is investigating the suitability of advanced software tools to enhance the Secretariat's own analytical capacities (IAEA 2011u: 5). Second in late 2010 the Agency enabled access to the Nuclear Security Information Portal (NUSEC) for all its member states and selected international organizations (IAEA 2011u: 5). It is intended to provide an "interactive knowledge-based environment" to enhance nuclear security cooperation, facilitate joint activities and share information. As of 30 June 2011 it had over 300 registered users from nearly 70 member states and 6 international institutions. Finally, the Electronic Programme Support System, which had been used to manage the activities and funding of the nuclear security program was retired at the end of 2010 and replaced by the Agency-wide Information System for Programme Support (AIPS) (IAEA 2011u: 13).

## **Other activities**

In addition, the Agency is cooperating with the US, Russia and other member states in securing and repatriating nuclear materials from around the world, notably HEU from research reactors in vulnerable locations. These efforts form part of the US CTR programs and/or the Global Partnership. In November 2010 the Agency was involved in the largest repatriation project in its history, involving nearly 400 Serbian and international experts, including 76 Agency staff, when it facilitated the shipment of HEU and LEU from Serbia's Vinča research reactor to the Mayhak Fissile Material Storage Facility in Russia (IAEA 2011u: 10). Finally the Agency is working to accelerate the development of forensics support for nuclear security purposes through the production of guidance documents, establishment of a collaborative network and the development of Coordinated Research Projects (IAEA 2011u: 14).

## **Conclusions**

The IAEA has clearly made enormous strides in the area of nuclear security in recent years. It has increased the number and quality of nuclear security guides and recommendations and its assistance to states has expanded, notably through its Three-Year Plans. Continuing and increasing contributions to the Nuclear Security Fund in support of such work indicate the success it is having. However the Agency is also searching for its proper niche in the nuclear security area among the welter of initiatives that have arisen in recent years, most notably the high-profile nuclear security summits. The Office of Nuclear Security requires additional resources and personnel if it is to emerge with a central role in the multilateral sphere. As the Nuclear Security Report 2011 notes "in advance of the review that will take place in 2012, it is already clear that the Agency does not have the resources to meet all requests for assistance"

(IAEA 2011u: 14). Moreover, the nuclear security regime, while much improved over the past 10 years, “is still a patchwork of voluntary, nonbinding, non-transparent national commitments, ad hoc bilateral and multilateral initiatives, and vague legally binding measures that provide no specific standards that states must follow” (FMWG 2012: para. 7).

The Seoul Nuclear Security Summit in March 2012, noted “the essential role of the IAEA in facilitating international cooperation and supporting the efforts of States to fulfill their nuclear security responsibilities”(NSS, 2012) and “reaffirmed the essential responsibility and central role of the IAEA in strengthening the international nuclear security framework.” Participating states recognized the value of the IAEA Nuclear Security Plan 2010–2013 and pledged that they would work to ensure that the IAEA “continues to have the appropriate structure, resources and expertise needed to support the implementation of nuclear security objectives.” While falling short of endorsing “HEU minimization” as a goal, the summit “recognized” the “development, within the framework of the IAEA, of options for national policies on HEU management.” It also welcomed efforts of the IAEA to organize meetings to provide “recommendations on the interface between nuclear security and nuclear safety so that neither security nor safety is compromised.” Perhaps most importantly, it welcomed Director General Amano’s proposal to organize an international conference in 2013 on nuclear security cooperation.

The Fissile Materials Working Group, among its recommendations for the March 2012 Nuclear Security Summit, proposed an international framework convention on nuclear security, by 2020 or sooner, that would reinforce the IAEA's mandate to provide impartial reviews and technical assistance to states to help them meet these performance standards; and make the IAEA the convention's executive agent to monitor and evaluate implementation of these standards and requirements. Specific future requirements should be codified in subsidiary protocols. The proposal is entirely laudable. Yet given that states have still not managed to bring the CPNNM Amendment into force after six years and given their reluctance to endorse legally-binding safety peer reviews after Fukushima, it is unlikely that they would be inclined to negotiate a new nuclear security treaty with legally-binding standards and peer review and/or IAEA monitoring.

In the meantime, though, the IAEA should seize the opportunity of the coming demise of the nuclear summit process in 2014 after the third meeting concludes in the Netherlands, to establish itself as the central international body in the nuclear security field. The Agency is already convening a conference on nuclear security in 2013 which should be used to lay the groundwork for an expanded IAEA role post-2014. There is no reason why it could not solicit “house gifts” of national initiatives as the summit process does, but from a broader group of states. It could also begin keeping track of implementation of such undertakings. It could

moreover, start to help provide assistance and coordination to the various regional centres of nuclear excellence that are beginning to emerge. But the Agency needs to convince all stakeholders that it is capable of assuming a greater role, which will in turn depend on its member states resolving the political wrangle over the importance of nuclear security and its place in the IAEA agenda. The developing countries should, in principle, favour the IAEA taking over from the summit process, which they had from the outset criticized as exclusive and dominated by the usual group of most influential states. The Agency and supportive states need to lay the groundwork now so that the IAEA does not miss the window of opportunity that will present itself. The IAEA is after all, supposed to be the hub of global nuclear governance and logically should be able to assign nuclear security to its rightful place in its agenda.

## **Recommendations**

- The IAEA should engage in a continuous review of its nuclear security documents and devise a speedier electronic publication process.
- The Agency should collaborate closely with WINS to ensure that their respective strengths are brought to bear in terms of training, guides and assistance to all nuclear security stakeholders.
- Supportive member states should increasingly avail themselves of the IPPAS peer review and other IAEA security services, in order to make these commonplace and to encourage all states to take advantage of them; expanded funding should be provided by member states to meet the demand.
- The Agency should investigate the idea of training and making standing arrangements for nuclear safeguards inspectors to report any nuclear security weaknesses they observe.
- States seeking technical assistance should be encouraged by the Agency and donor states to request projects that will assist them in enhancing their national nuclear security.
- A budgetary deal should be sought to bring nuclear security properly into the regular budget (in return for also bringing TC in) and, eventually, to create a separate Department of Nuclear Security.
- In the meantime, the Office should strengthen its ability to assess nuclear security and nuclear terrorism threats, and interact more closely with plant owners and operators, police and intelligence agencies; to do this it should recruit more personnel with nuclear security experience; member states should provide additional funding for this purpose.
- Member states should provide more resources and more skilled analysts for the Agency's illicit nuclear trafficking monitoring and analysis efforts.

- The Agency should continue to explore the possibilities of cutting-edge IT systems for creating a true international nuclear security network among its member states and relevant international organizations
- The Agency should begin positioning itself now to succeed the nuclear summit process after 2014.

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<sup>1</sup> [http://www.globalsecurity.org/wmd/library/congress/2007\\_h/070627-albright.htm](http://www.globalsecurity.org/wmd/library/congress/2007_h/070627-albright.htm)

<sup>2</sup> Elaine M. Grossman, 'Boost in IAEA intelligence capability looks unlikely in near term', Global Security Newswire, 22 June 2009.