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THE ROLE OF THE EUROPEAN UNION IN STRENGTHENING NUCLEAR SECURITY

IAN ANTHONY

I. INTRODUCTION

Nuclear power plants make a significant contribution to meeting the overall energy needs of the European Union (EU) today, accounting for roughly 15 per cent of total electricity generation capacity in 2008. According to current plans, electricity generated in nuclear power plants will be an important part of a balanced EU energy strategy for at least the next four decades. Of the 15 countries in the world with the highest share of nuclear energy in their total national electricity generation, 11 are EU member states.[1]

Looking to the future, the EU is putting in place the policies, assets and infrastructure that will determine the pattern of energy production until the year 2050. The overall guidance for the process is provided by (*a*) the decisions to have a competitive, low-carbon economy in place by 2050; (*b*) the need to ensure security of energy supply; and (*c*) the need to maintain economic competitiveness. Nuclear energy is described as 'a key source of low carbon electricity generation'.[2]

Moving to a low carbon economy has many dimensions, including price structure, energy conservation and modernizing distribution networks, but according to current projections the share provided by nuclear power in primary energy consumption across the EU is expected to be roughly 15 per cent in 2030 and roughly 20 per cent by 2050.

The EU is at the early phase of what is likely to be a major investment cycle in many sectors, including energy. A part of that investment will probably be in the nuclear sector. Extending the working life of existing reactors is a current emphasis in a number of

[1] International Atomic Energy Agency (IAEA), *Energy, Electricity and Nuclear Power Estimates for the Period up to 2050*, IAEA Reference Data Series no. 1 (IAEA: Vienna, Aug. 2013).

[2] European Commission, 'Energy Roadmap 2050', Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2011) 885 final, 15 Dec. 2011.

SUMMARY

The European Union (EU) will continue to rely on nuclear energy as one element in a balanced energy strategy, and a large number of nuclear reactors will continue to operate for at least the next several decades. The EU (including its member states and common institutions) has a full spectrum of expertise on the civilian nuclear fuel cycle. There is unique experience in areas of great relevance to nuclear security, such as operating gas centrifuge enrichment plants, spent fuel reprocessing plants, the production of mixed oxide fuel and construction of final repositories for spent fuel.

The EU has made a commitment to implement the highest international standards in the field of nuclear security. While the member states of the EU are ultimately responsible for ensuring nuclear security, a growing number of relevant issues fall within areas where common EU rules and institutions also have a role to play.

The significant expertise (including some unique technical expertise), budgets and financial instruments, and frameworks for internal and external action that exist at the EU level should be used to strengthen nuclear security. Taking advantage of the capacities that already exist in different EU institutions in this field would be to the mutual benefit of the EU, its member states and the wider international community.

ABOUT THE AUTHOR

Dr Ian Anthony (United Kingdom) is Director of the SIPRI Arms Control and Non-proliferation Programme. His publications include *Reforming Nuclear Export Controls: The Future of the Nuclear Suppliers Group*, SIPRI Research Report no. 22 (2007, co-author), and *The Future of Nuclear Weapons in NATO* (Friedrich-Ebert-Stiftung, 2010, co-author). He has contributed to the SIPRI Yearbook since 1988.

member states, and according to current International Atomic Energy Agency (IAEA) projections it will be a decade before significant new net construction can be expected in Europe.[3] However, much of the infrastructure put in place in the 1960s and 1970s must be replaced at some point and the EU is maintaining its investment in understanding and developing advanced reactor designs for use in the future.

Apart from European needs, member states also actively promote their expertise outside the EU, in countries that also see a role for nuclear power in their overall energy strategy.

Many factors could still influence future decisions in the EU, including unexpected events—as illustrated by the major nuclear incident in Fukushima, Japan, that began on 11 March 2011, when an undersea earthquake caused a 15-metre high tidal wave. Together, the earthquake and tidal wave destroyed critical safety equipment at the Daiichi nuclear power plant in Fukushima, as well as devastating the surrounding area—hindering emergency response. In the first three days of the incident the cores of three reactors melted down almost completely after electrical power was lost and cooling systems stopped functioning. While the event was natural, it underlined the need to reduce any risk that a deliberate malicious act might lead to sequential failures in the safety systems at a power plant.

After Fukushima, considerable effort has gone into providing reassurance that nuclear energy is still a viable source that can provide low carbon electricity at acceptable risk. However, another major setback on the safety or security front would certainly be a significant blow to the nuclear industry, and that perhaps raises the incentive for groups to target this sector.

The growing awareness of the need for nuclear security

When differentiating between nuclear safety and nuclear security, it is sometimes said that safety involves keeping sources of radiation away from people, while security involves keeping people away from sources of radiation. In January 2002 the Director General of the IAEA established the Advisory Group on Nuclear Security (AdSec), which subsequently elaborated the definition of nuclear security that has become the most widely quoted. AdSec defined 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'.[4]

There are currently a total of 143 nuclear reactors (of which 132 are operational) for producing electricity located in 14 of the 27 member states. Two more reactors are under construction. Increased awareness of the risks posed by mass impact terrorism has underlined the fact that reactors represent a potential vulnerability as well as being an asset.

Given the potential vulnerabilities, the EU has an obvious self-interest in ensuring the highest levels of nuclear safety and security—something that was reflected in the recent statements of senior leaders, including at the nuclear security summits in Washington in 2010 and Seoul in 2012. The decision to organize a third nuclear security summit in Europe, in the Netherlands in 2014, indicates that the high political salience of the issue will be sustained.

On 26–27 March 2012, 53 heads of state and government, as well as representatives of the United Nations, the EU, the IAEA and Interpol took part in the Seoul Nuclear Security Summit. The participation of large numbers of heads of state and government in the 2010 Washington Nuclear Security Summit and then attendance by even larger numbers at the follow-on event in 2012 focused public and media attention on the issue of nuclear security.

In March 2011 the European Council decided to make a comprehensive risk-based review of EU nuclear power plants. In May 2011 the European Nuclear Safety Regulators Group (ENSREG) and the European Commission decided to divide the responsibility for the review, with one track covering safety and another covering security. The Commission and ENSREG launched EU-wide comprehensive risk and safety assessments of nuclear power plants. However, an Ad Hoc Group on Nuclear Security (Ad Hoc Group) was created to implement the security review.[5]

[3] Jalal, A. I., Planning and Economic Studies Section (PESS), Department of Nuclear Energy, IAEA, 'Long-term nuclear energy outlook: IAEA's estimates for nuclear power development in the world', Presentation at the INPRO Dialogue Forum on Global Nuclear Energy Sustainability: Long-term Prospects for Nuclear Energy in the Post-Fukushima Era, Seoul, 27–31 Aug. 2012, <http://www.iaea.org/INPRO/5th_Dialogue_Forum/Monday,_27.08.2012/Session_II-A_(Nuclear_Power_Development_in_the_21st_Century)/2._Ahmed_Irej_Jalal_IAEA_0827.pdf>.

[4] IAEA, *Nuclear Security Achievements, 2002–2011* (IAEA: Vienna, Mar. 2012).

[5] Council of the European Union, Ad Hoc Group on Nuclear Security, 'Final report', 10616/2012, 31 May 2012, <http://register.consilium.

The rationale for dividing the safety and security reviews was the understanding, stated in the final report of the Ad Hoc Group, that 'there is an international consensus that responsibility for nuclear security within a State rests entirely with that State as it is a matter of national security'.[6]

In some ways the approach could be considered surprising, since the European institutions have, in one way or another, been involved in security-relevant activities for decades. The origins of the EU contribution can be found in the development of safeguards intended to reassure countries in Europe and elsewhere of the peaceful intentions behind the significant European investment in developing nuclear technologies and a nuclear industry. The European safeguards system was intended to reduce any possible uncertainties about the spread of nuclear weapons, and nuclear weapon proliferation is normally seen as a different activity from ensuring nuclear security. While the objectives of non-proliferation and nuclear security can be seen as different issues, however, both require a detailed understanding of nuclear materials and how they are used in the nuclear fuel cycle.

Safeguards methodologies and instruments have been developed to support the work of the European Atomic Energy Community (Euratom) since the 1950s. The treaty that established Euratom dates from 1957, and according to its provisions the European Commission has the responsibility to verify that fissile nuclear materials (plutonium, uranium and thorium) are not diverted from their intended (peaceful) uses.[7] This includes materials in the nuclear industry (including operators of nuclear research reactors as well as reactors at power plants), operators of enrichment and reprocessing plants or users outside the nuclear industry—such as medical institutes.

The management of nuclear material control and accountancy is carried out in direct cooperation with the operators, and it has included the development of methodologies and instruments to support monitoring (such as cameras and sensors), detection and measurement of nuclear materials and radioactivity as well as physical protection (tags and seals). Although developed for safeguards purposes, these assets have direct application in strengthening nuclear security.

Through the work on nuclear safeguards, the European Commission, and in particular its Joint Research Centre (JRC), has also acquired technical expertise in fields such as forensic analysis of nuclear materials, and this expertise is also applicable to nuclear security. The knowledge and expertise in the EU institutions on technical issues is far in advance of anything available in all but a small handful of member states.

The remainder of this paper first examines the elements of a modern definition of nuclear security. It then considers the role of member states and EU institutions in providing nuclear security inside the EU, before turning to the EU's contribution to strengthening nuclear security internationally. Finally, the paper assesses the linkages between the internal and external dimensions of nuclear security and the organization of cooperation between the different parts of the EU to provide nuclear security.

II. THE EXPANDING SCOPE OF NUCLEAR SECURITY

In the past decade, nuclear security has emerged as an important field in its own right. One important catalyst for that development has been the need to reduce the risk of nuclear terrorism, discussed further below. However, one conclusion from recent work is that there cannot be a single, generic approach to nuclear security applicable in all cases. The growing library of publications in the IAEA Nuclear Security Series makes it clear that there is a need to elaborate specific prevention, detection, response and recovery measures for a wide spectrum of nuclear security needs, of which combating nuclear terrorism is only one.[8]

The definition developed by AdSec (and now widely applied) requires an integrated set of countermeasures to protect nuclear assets against a spectrum of actions, some of which potentially have extremely serious consequences, but many of which are of a lower level of concern.

While concern about the possible malicious use of radioactive material has existed from the beginning of the nuclear age, and international standards for nuclear security in the civil nuclear fuel cycle have been

europa.eu/pdf/en/12/st10/st10616.en12.pdf>.

[6] Council of the European Union (note 5), p. 7.

[7] On Euratom see European Commission, 'Nuclear energy, the European Atomic Energy Community (EURATOM)', <http://ec.europa.eu/energy/nuclear/euratom/euratom_en.htm>. The Euratom Treaty is summarized at <http://europa.eu/legislation_summaries/institutional_affairs/treaties/treaties_euratom_en.htm>.

[8] IAEA, *Objective and Essential Elements of a State's Nuclear Security Regime*, IAEA Nuclear Security Series no. 20 (IAEA: Vienna, 2013).

developed from the 1960s onwards, the mass impact terrorist attacks on the United States of 11 September 2001 were the catalyst for a significant increase in international attention to the risk of nuclear terrorism. The September 2001 attacks were a demonstration that there were now non-state actors both willing and able to carry out attacks that killed civilians not in tens or even hundreds, but by the thousands. If this kind of terrorist group could acquire weapons or materials of mass destruction, there was little doubt in the minds of authorities or the public that they would use them.

The measures in place for the physical protection of nuclear materials (where most work has been done to develop guidelines and standards) remain at the heart of nuclear security. A great deal of the work that has been carried out in the field of physical protection has emphasized prevention and it seems to have been largely successful. In spite of periodic press reports focused on Russia and other states on the territory of the former Soviet Union, there does not seem to have been significant leakage of nuclear materials. There are credible reports of interest in acquiring nuclear material among non-state groups that have a record of mass impact terrorist attacks (first and foremost al-Qaeda). Nevertheless, from the information in the public domain it seems that thefts of nuclear material do occur, but only in very small quantities.

This strong imperative to prevent nuclear terrorism is reflected in the proposed approach to what is called the 'global nuclear security architecture' in the 2012 Seoul Nuclear Security Summit's Seoul Communiqué.[9] However, the scope of nuclear security measures has always been broader than physical protection measures for counterterrorism, and the day-to-day work within a nuclear security system is much more likely to focus on other issues. Some of the issues of concern from a nuclear security perspective are mainly technical, but some are political.

The nuclear sector remains controversial in parts of civil society because of both the inherent risks in industrial processes and the (real or perceived) link to the military application of nuclear technology. For countries where nuclear power plays a role in energy strategy, nuclear security plays a role as part of the wider effort to promote public acceptance of nuclear technology. Public diplomacy is likely to be based first and foremost on positive measures—such as information campaigns and outreach to local groups in areas where power plants operate. However, nuclear security procedures also have to include organizing in ways that both ensure the integrity of facilities and the safety of operations and respect the legitimate right of civil society groups to oppose even the peaceful use of nuclear technology, including by organizing protest actions.

The international nuclear industry is becoming more complex as new actors are entering the market place and the traditional dominant players are finding it more difficult to preserve their advantages in the market. For instance, the USA will only be able to preserve a significant role in international markets through industrial partnerships with, for example, Japan and the Republic of Korea (ROK, South Korea)—which have aspirations to play a greater role themselves as independent actors. Russia is seeking to recover its cold war position as one of the predominant international suppliers of power reactors. China and India, which are currently the focal point of a great deal of new demand for reactors, are building their technical capacity to the point where they will shortly become formidable international competitors.

The emergence of new suppliers and the demands for technology transfer from customers are gradually making the nuclear industry more international and more dependent on industrial partnerships that include participants from several countries. Against this background, an important aspect of nuclear security is combating economic crime, including industrial espionage.

The more traditional risk of crime motivated by personal gain (theft of items or information for sale) remains. Nuclear security needs to reduce the risk of crimes motivated by financial motives as well as reducing any risks posed by individuals (who might be 'insiders') with a personal grievance against a company or individuals working in a company.

Given the nature of the targets attacked in September 2001, the discussion of nuclear terrorism has frequently emphasized the fact that the motive for a terrorist group might not necessarily be destruction, but could be to inflict economic or psychological damage—in which case the nuclear materials of immediate concern might not be limited to fissile materials (plutonium or highly enriched uranium, HEU) but could encompass radioactive materials that could be mixed with explosives to make radioactive dispersal devices

[9] Council on Foreign Relations, 'Seoul Communiqué at 2012 Seoul Nuclear Security Summit', 27 Mar. 2012, <http://www.cfr.org/proliferation/seoul-communiqu-2012-nuclear-security-summit/p27735>.

(RDDs or 'dirty bombs').[10] At the end of 2006 the use of the radionuclide polonium-210 to murder Alexander Litvinenko (the first such confirmed incident) highlighted another facet of nuclear terrorism.

In the Nuclear Security Series, the IAEA has noted 'a growing concern that terrorist or criminal groups could gain access to high activity radioactive sources and use the sources maliciously'. The materials that could be suitable for this purpose are used very extensively across different sectors (such as in nuclear medicine) and can be found at many locations. The Code of Conduct on the Safety and Security of Radioactive Sources was revised in 2003 to reflect the need for additional security principles to be developed and applied. The Nuclear Security Series provided practical guidance on how to implement the principles in the revised Code of Conduct nationally.[11]

The issue of where measures need to be applied (that is, the physical locations) has also been discussed. On this point Anita Nilsson, the former Director of the IAEA Office of Nuclear Security, has said that 'the emerging conclusion is that tailored measures should also be considered in every application: at nuclear facilities, for nuclear energy production, in medical or industrial uses etc. Wherever these materials are, they should be subject to a management system that ensures security'.[12]

From these observations it is immediately obvious that the scope of nuclear security now extends beyond the traditional focus on the physical protection of nuclear materials—something that has increasingly been recognized.[13] Given the growing political concern over mass impact terrorism, measures need to be tailored to the potential threat posed by many radioactive materials—and not only fissile materials. The physical form of the material concerned as well as its chemical and other properties and the context and location for its use are factors that dictate the particular security measures needed in any given situation.

In the run-up to the Seoul Nuclear Security Summit in 2012, the South Korean Government developed a policy paper that was based on extensive dialogue among representatives of participating states, including regular meetings both at the working level and among senior officials. In the policy paper three issues were given particular prominence: the response to nuclear terrorism, implementing the highest standards for the protection of nuclear materials and facilities, and developing effective measures to prevent illicit nuclear trafficking. At the meeting the scope was expanded slightly further, with prominent mention in the Seoul Communiqué of information security, nuclear forensics, nuclear security culture and transport security.[14]

III. NUCLEAR SECURITY INSIDE THE EUROPEAN UNION

The concern that non-state actors would mount attacks using chemical, biological, radiological or nuclear (CBRN) devices was reflected indirectly in the 2003 European Security Strategy and, more directly, in the 2005 European Union Counter-Terrorism Strategy, which made tackling terrorist access to CBRN materials a key priority.[15]

The final report of the Ad Hoc Group, noted above, underlined that for the EU, nuclear security is seen first and foremost as a responsibility for member states. The report on nuclear safety prepared by the Commission along with ENSREG also noted that 'the Commission cannot guarantee the nuclear safety and security of nuclear installations, since the legal responsibility remains at national level'.[16]

The consequences of a serious nuclear accident would not be contained within national borders, but would certainly have an impact on other states. As a result, member states have recognized their obligations to one another for many years. The same kind of logic is beginning to be applied in the field of nuclear security.

[10] Forest, J. J. F., 'Framework for analyzing the future threat of WMD terrorism', *Journal of Strategic Security*, vol. 5, no. 4 (2012), pp. 51–68.

[11] IAEA, *Security of Radioactive Sources*, Nuclear Security Series no. 11 (IAEA: Vienna 2009).

[12] Nilsson, A., Presentation at the Special Session on Nuclear Security, EU Non-Proliferation and Disarmament Conference, Brussels, 3 Feb. 2012.

[13] Knox, D., 'International nuclear security engagement: processes and practices', Presentation at SIPRI, 31 Jan. 2010.

[14] Council on Foreign Relations (note 9).

[15] Council of the European Union, 'A secure Europe in a better world: European security strategy', 12 Dec. 2003, <http://www.consilium.europa.eu/showPage.aspx?id=718>; and Council of the European Union, 'The European Union Counter-Terrorism Strategy', 14469/4/05, Rev. 4, 30 Nov. 2005, <http://register.consilium.eu.int/pdf/en/05/st14/st14469-re04.en05.pdf>.

[16] European Commission, Communication from the Commission to the Council and the Parliament on the comprehensive risk and safety assessments ('stress tests') of nuclear power plants in the European Union and related activities, COM(2012) 571 final, 4 Oct. 2012, p. 3.

Without avoiding their national responsibility, member states have recognized that they can sometimes act more efficiently through common legislation, by developing common guidelines under EU auspices and by making use of EU-wide mechanisms for collecting and sharing information.

The legislative dimension of nuclear security in the European Union

The EU member states all have national laws and regulations to implement the nuclear security undertakings in the relevant treaties and agreements that they sign in their sovereign capacity. At the international level, the UN Security Council has established some obligations in the field of nuclear security in its Resolution 1540 of 28 April 2004, and implementing those is also a state responsibility since it is states that make up the UN membership. However, under the modern definition of nuclear security, legal instruments at the level of the European Union have begun to become part of the nuclear security acquis. Moreover, in 2007 the European Council approved Euratom accession to the amended Convention on the Physical Protection of Nuclear Material (CPPNM). Once this decision is ratified, the EU will be a partner in one of the central legal pillars of the international nuclear security acquis.[17]

Common legislation across the EU can sometimes avoid the need for 28 separate sets of national legislation, with the inherent potential for differences of interpretation and understanding. There is common legislation that lays down the obligations for all member states for aspects of nuclear safety, nuclear waste management, radiation protection and emergency response in the event of a serious radiological emergency.

In the framework of the Euratom Treaty, the Euratom Supply Agency is responsible for concluding supply contracts whenever nuclear materials are physically imported into the European Community or exported from it. The agency checks that supply contracts include language specifying that material is only for peaceful end-uses and that all supply contracts include a safeguards clause. It is also responsible for export authorization procedures for nuclear materials produced in the Community. As a result, the Euratom information system holds important information on the quantities and location of nuclear material of foreign origin inside the EU.

The 2005 International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT) requires states to take all practicable measures, including, if necessary, adapting their laws, to prevent and counter preparations for the commission of terrorist offences, including measures to prohibit financing of terrorism.[18] Inside the EU some restrictive measures in the area of counterterrorism are implemented under regulations that are agreed at EU level and binding across all of the member states. In addition, the creation of a Europe-wide network of specialized units within national law enforcement authorities that focus on CBRN-related crimes is under assessment.

The regulations and directives intended to help combat terrorism build on EU legislation previously developed to combat money laundering. For example, Regulation (EC) 2580/2001 is the common legislation providing the relevant national agencies with the legal powers to freeze the funds of suspected terrorists and Regulation (EC) 881/2002 is the common legislation implementing decisions of the UN Security Council to impose restrictive measures on named terrorist groups, including al-Qaeda.[19] In 2013 the Commission has put forward a set of legislative proposals to update the common rules that govern anti-money laundering and counterterrorism. These proposals are currently under review.

The European Union is an important framework for cooperation between the national financial intelligence units of member states (which play a key role in implementing restrictive measures to combat terrorism). The Financial Intelligence Units Platform

[17] IAEA, 'International conventions and legal agreements: Convention on [the] Physical Protection of Nuclear Material, <http://www.iaea.org/Publications/Documents/Conventions/cppnm.html>.

[18] International Convention for the Suppression of Acts of Nuclear Terrorism, adopted 13 Apr. 2005, entered into force 7 July 2007, United Nations Treaty Series, vol. 2445 (2007).

[19] Council Regulation (EC) no. 2580/2001 of 27 December 2001 on specific restrictive measures directed against certain persons and entities with a view to combating terrorism, *Official Journal of the European Communities*, L344, 28 Dec. 2001; and Council Regulation (EC) no. 881/2002 of 27 May 2002 imposing certain specific restrictive measures directed against certain persons and entities associated with Usama bin Laden, the Al-Qaida network and the Taliban, and repeating Council Regulation (EC) no. 467/2001 prohibiting the export of certain goods and services to Afghanistan, strengthening the flight ban and extending the freeze of funds and other financial resources in respect of the Taliban of Afghanistan, *Official Journal of the European Communities*, L139, 29 May 2002.

was established in 2006 as an informal group. The Commission Directorate General (DG) Internal Market and Services manages the platform, and provides it with administrative support. Under its auspices, quarterly meetings of the Committee on the Prevention of Money Laundering and Terrorist Financing provide an opportunity for national regulators from member states to exchange information and discuss issues of current concern.

More broadly, examples of rules that are relevant to radiological and nuclear security agreed at the European level also include Council Directive 2003/122/EURATOM, Council Directive 2009/71/EURATOM; Council Directive 2011/70/EURATOM, and Council Regulation (EC) no. 428/2009.[20]

The member states are currently considering a draft proposal, prepared by the Commission, to require the registration of carriers of radioactive materials.[21] There are also areas of EU activity that are indirectly connected to nuclear security, but potentially important.

Guidance and best practice in nuclear security

In March 2011 the European Council decided that there should be a thorough review of nuclear safety and security in the EU, each pursued on a separate track. An ad hoc group, chaired by the EU Presidency, was subsequently instructed to assess the security of the nuclear power plants in the EU. The methodology of the group was not to assess individual plants (in contrast to the nuclear safety review) but 'to identify and share good practices and consider possible ways to improve general security principles'.[22]

The working method of the group was to collect information from member states using a questionnaire. Neither the questionnaire nor the national responses are public, but according to the report of the Ad Hoc Group, 'almost all' member states responded to the questionnaire and their replies 'to a large extent' addressed the questions in a comprehensive manner.

The group eventually identified 32 agreed best practices, which were grouped under five headings: national legal and regulatory framework, national security framework, design basis threat, nuclear security culture, and contingency planning.

Based on the assessment of information provided in national reports by member states, the group also identified five areas where deeper evaluation and analysis was required: (*a*) computer security and cyber security; (*b*) the IAEA's International Physical Protection Advisory Service (IPPAS) missions; (*c*) intentional aircraft crashes; (*d*) synergies and consistency between safety and security in emergency planning; and (*e*) exercises and training.

The work of the group built on pre-existing cooperation among member states on nuclear security. After the 2001 attacks in the USA, seven EU member states (Belgium, Finland, France, Germany, Spain, Sweden and the United Kingdom) began to meet regularly to discuss how to strengthen the physical protection of nuclear material. These meetings gradually crystallized into the ENSREG, and since 2004 that association has become the forum for a more structured exchange of information and experiences among regulators.

The Council adopted a Chemical, Biological, Radiological and Nuclear (CBRN) Action Plan in December 2009 to help strengthen security inside the EU.[23] The CBRN Action Plan engages both the Commission and the member states in a joint effort intended to promote an enhanced security culture through a mix of instruments, including joint risk assessments, research, exchange of best practices, and joint training and exercises.

The Action Plan includes a total of 124 specific actions to be implemented by the end of 2015 that cover prevention, detection, preparedness and response. Some of these actions are specific to one of the technologies in the CBRN field while others are 'cross-cutting' and relevant to all four. Twenty-five of

[20] Council Directive 2003/122/EURATOM of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources, *Official Journal of the European Union*, L346, 31 Dec. 2003; Council Directive 2009/71/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations, *Official Journal of the European Union*, L172. 2 July 2009; Council Directive 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste, *Official Journal of the European Union*, L199, 2 Aug. 2011; and Council Regulation (EC) no. 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items, *Official Journal of the European Union*, L134, 29 May 2009.

[21] European Commission, Proposal for a Council Regulation establishing a Community system for registration of carriers of radioactive materials, COM(2011) 518 final, 30 Aug. 2011.

[22] Council of the European Union (note 5), p. 4.

[23] Council of the European Union, Council conclusions on strengthening chemical, biological, radiological and nuclear (CBRN) security in the European Union: an EU CBRN Action Plan, 15505/1/09 Rev. 1, 12 Nov. 2009, <http://register.consilium.europa.eu/pdf/en/09/st15/st15505-re01.en09.pdf>.

the 124 specific actions are focused on the radiological–nuclear field and 67 are cross-cutting actions that have relevance to the radiological–nuclear field.

The identified actions are to be taken by member states in association with a wide range of public and private stakeholders. The overall process is coordinated by the Commision, in DG Home, using a CBRN Advisory Group on which member states as well as EU institutions are represented. The work is supported by sub-groups, including one looking at radiological–nuclear security issues and one looking at horizontal, cross-cutting issues.

The main projects in the field of radiological-nuclear security that have been carried out to this point are (*a*) setting up an EU radiological–nuclear training centre for the law enforcement community, the European nuclear security training centre (EUSECTRA); (*b*) developing an agreed glossary of terms in all EU languages; (*c*) assessing and validating existing modelling tools and decision support systems for use in cases of radiation release; (*d*) comparing and evaluating existing equipment for radiation detection and other equipment relevant for radiological and nuclear security; and (*e*) assessing the IAEA Illicit Trafficking Database from a law enforcement perspective, to judge whether it contains the information needed to support efforts to prevent such trafficking.[24]

Other projects include exchange of information and assessment of current practices for reporting on suspicious transactions across the EU and exchange of information on good practices in transport security related to radiological and nuclear materials.

In 1987, in the aftermath of the accident at the Chernobyl nuclear plant in Ukraine, the European Community Urgent Radiological Information Exchange (ECURIE) system was established. ECURIE, which has been running ever since and now also includes Switzerland as a partner, is a framework for the early notification and exchange of information in the event of a radiological or nuclear emergency. Under the arrangement, member states collect data in a standardized way and promptly notify the European Commission and any member state potentially affected by any case they consider sufficiently serious to justify countermeasures to protect their own population against the effects of a radiological or nuclear accident. As a follow-up, after this first notification all member states are required to inform the Commission about measures they take nationally to protect their population, and to provide data on radioactivity levels.

In DG Energy two current projects are being carried out that help implement the CBRN Action Plan. The first is a study of the current status of high activity radioactive sources across the EU, including an assessment of the consequences should control over any of these sources be lost, and a mapping of national strategies for recovery of lost sources. DG Energy is also making an analysis of how the guidelines developed under IAEA auspices on the import and export of radioactive sources have been implemented by EU member states, including conclusions on whether there is a need to develop common criteria for national decisions authorizing imports and exports of radioactive sources.

After 2001 the EU created a civil protection mechanism in order to provide support, on request, if a major emergency proves to be beyond the management capacity of an affected state using its own resources, and to facilitate improved coordination of national assistance provided by member states. This mechanism has subsequently been expanded and revised and can now be deployed, on request, outside the EU.[25]

In the energy sector, the EU has collectively identified certain critical infrastructure, the disruption or destruction of which would have significant cross-border impacts. EU law stipulates that identified and designated security requirements for such infrastructures should use an agreed minimum approach. Current legislation recognizes that the electricity transmission parts of nuclear power plants may fall under the scope of common rules—although the specifically nuclear elements of power plants are covered by other nuclear-specific legislation and are therefore outside the scope of European-level critical infrastructure plans.[26]

The Joint Research Centre inside the Commission was tasked by DG Home to help establish the European nuclear security training centre, which is intended

[24] European Commission, Progress report on the implementation of the EU CBRN Action Plan, May 2012, <http://ec.europa.eu/dgs/home-affairs/what-we-do/policies/crisis-and-terrorism/securing-dangerous-material/docs/eu_cbrn_action_plan_progress_report_en.pdf>.

[25] Council Decision of 8 November 2007 establishing a Community Civil Protection Mechanism (recast), Text with EEA relevance, 2007/779/EC, Euratom, *Official Journal of the European Union*, L314, 1 Dec. 2007.

[26] Council Directive 2008/114/EC of 8 December 2008 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection, *Official Journal of the European Union*, L345, 23 Dec. 2008.

to train the staff of the national authorities involved in providing radiological and nuclear security in member states with a focus on detection and response to nuclear security events. In the first instance this means training in nuclear forensic skills, using the technical expertise, infrastructure and experience already residing in the JRC. Two JRC centres—the Institute for the Protection and Security of the Citizen (IPSC), located in Ispra, Italy, and the Institute for Transuranium Elements (ITU), located in Karlsruhe, Germany—worked together to prepare a feasibility study on the establishment of EUSECTRA.[27] After the approval of the feasibility study, construction of a new facility that will house EUSECTRA is currently under way at the main site of the Institute for Transuranium Elements.

Once the facility opens, one of the main priorities will be the training of first responders from member states, in line with the identified need to reduce the vulnerability of the EU to radiological incidents. However, the centre will also be used to deliver some already existing programmes, both for front-line responders and so-called 'train the trainer' courses. These existing training programmes (which have often been developed in cooperation with the IAEA Office for Nuclear Security and the US Department of Energy) complement national efforts in EU member states. Experts and officials from Asia, the Middle East and European countries also participate in these courses.

In addition to becoming the facility where existing training programmes are implemented, EUSECTRA will also house new programmes: establishing core capabilities for nuclear forensic analysis, including the management of radiological crime scenes, and the development and implementation of national response plans to cope with radiological emergencies.[28]

The EU budget for research and development has also supported nuclear security projects. In the current Seventh Framework Programme for Research (FP7) the EU has set aside dedicated funds for research in the field of security for the first time. Roughly €54 million has been made available for project support in the area of security under FP7. At present there are 16 projects being financed that contribute directly to radiological and nuclear security as well as 23 projects in cross-cutting areas that are also applicable in the radiological–nuclear field.

IV. STRENGTHENING NUCLEAR SECURITY OUTSIDE THE EUROPEAN UNION

Although legal responsibility for providing nuclear security remains with states, the issue of how to organize and manage international cooperation on various aspects of nuclear security has become an issue in its own right. The emphasis placed on issues like preventing illicit trafficking of nuclear materials, and on their secure transport, has further underlined the growing need for different kinds of effective international cooperation across all of the prevention, detection, response and recovery phases.

Support for the IAEA has been a feature of EU policy for a long time. In January 2013 officials of the EU and the IAEA met in Brussels for a first ever senior-level meeting bringing together officials from the EU External Action Service, EU Commission Services and senior officials from the IAEA to discuss enhanced cooperation between the institutions.[29]

The EU budget has been an important source of support to the IAEA nuclear security programme. Looking at the period 2007–13 (which corresponds to the most recent financial framework for the EU) the IAEA has received support worth roughly €110 million from the EU.[30] A number of important nuclear security relevant contributions have been made from different parts of the EU budget.

There have been five separate decisions focused on nuclear security supported by financing from the Common Foreign and Security Policy (CFSP) budget, the most recent in September 2010. This financing has allowed the IAEA Office of Nuclear Security to implement projects in many countries and to improve its own instruments—such as the database on illicit trafficking incidents maintained by the agency.

[27] Abousahl, S. et al., 'Integration of nuclear safeguards and security at the JRC', Paper delivered to the IAEA Safeguards Symposium, IAEA-CN-184/225, Vienna 2010, <http://www.iaea.org/safeguards/Symposium/2010/Documents/PapersRepository/225534454397251313954O.pdf>.

[28] European Commission, Joint Research Centre, 'Enhancing nuclear security: training and international collaboration', News release, 19 Feb. 2011, <http://ec.europa.eu/dgs/jrc/downloads/jrc_20110219_newsrelease_nuclear_en.pdf>.

[29] IAEA, 'Joint press statement of the first EU–IAEA Senior Officials Meeting on 25 January 2013', Press statement, 25 Jan. 2013, <http://www.iaea.org/newscenter/mediaadvisory/2013/ma201302.html>.

[30] European External Action Service, 'Overview of EU support to the International Atomic Energy Agency (IAEA) in the field of nuclear safety, safeguards, security and technical cooperation financed during the current Multiannual Financial Framework, 2007–13', EU Fact Sheet, 25 Jan. 2013, <http://eeas.europa.eu/250113_fact_sheet_eu_support_to_iaea.pdf>.

Some of the financial support offered to the IAEA in the framework of nuclear safety cooperation can be considered as having an impact on strengthening nuclear security. For example, the EU has supported the development of a system for emergency preparedness, including a training programme. The system would be employed in case of a major safety failure regardless of whether the cause was natural or man-made. Similarly, the support given to the development of IAEA safeguards has value for the nuclear security effort. The EU support to build a new and modern material laboratory for the IAEA will help the agency maintain and develop its skills in analysing samples of nuclear material—skills that could have direct application in nuclear security-related activities.

When establishing the current financial framework for the common budget, the EU modified the instruments through which financing of external actions would be delivered in future. As part of that reform the EU created an Instrument for Stability (IFS) and an Instrument for Nuclear Safety Cooperation (INSC). The things that these financial instruments could be used to support include projects relevant to CBRN risk mitigation. The projects that the instruments can support are not limited by geography. In contrast to the previous situation, where some financial instruments were tied to projects in the former Soviet Union, project support under the IFS and INSC can be provided to any country or region.

These financial instruments are managed by the Commission, specifically the DG Development and Cooperation (DEVCO). DEVCO has decided that one of the main initiatives to be financed using the IFS is the development of a CBRN Centres of Excellence (COE) Initiative, a series of eight networks to be established in different regions. Through the regional networks the EU will provide financial support to specific projects intended to mitigate CBRN risks, whether natural or man-made.[31]

At their meeting in January 2013 the EU and IAEA participants agreed, among other things, that they would enhance cooperation and coordination between the EU CBRN COE Initiative and the IAEA Network of Nuclear Security Support Centres.

The EU has been a participant or observer in a number of the most important international cooperation initiatives.[32] The EU was one of the original partners in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction that was created at the 2002 Kananaskis G8 Summit. The EU is an observer in the Global Initiative to Combat Nuclear Terrorism (GICNT), but it plays an active role in the activities of the GICNT Implementation and Assessment Group. In particular, the EU contributes expertise in nuclear detection and response mechanisms, including nuclear forensics.

The European Commission, alongside the member states in their national capacities, is a member of the Financial Action Task Force (FATF)—the body established in 1989 to set standards and promote effective implementation of legal, regulatory and operational measures to combat terrorist financing.

In 2010 the Commission invited the USA to participate in a project called Illicit Trafficking Radiation Assessment Programme (ITRAP+10), which was initiated in August 2009. The project is intended to assist in the detection of radiological and nuclear materials by identifying the technical and functional requirements for detection equipment used at air, land and sea border crossings. Throughout 2011 and 2012 the Joint Research Centre and US partners, under the leadership of the Domestic Nuclear Detection Office (DNDO) of the Department of Homeland Security, tested over 100 detection devices contributed by manufacturers. The joint effort assessed the performance of the equipment, verified that it conformed to international standards and determined which equipment is best suited to which detection tasks.[33]

Several EU contributions have supported IAEA efforts to secure high activity sealed radioactive sources. These contributions have mainly supported work in the Western Balkans, in particular Serbia.

The EU CBRN Centres of Excellence Initiative, noted above, currently envisages work in eight regions: the Middle East; North Africa; the African Atlantic Façade; South Eastern Europe, the Caucasus, Moldova

[31] Mignone, A., 'The European Union's Chemical, Biological, Radiological and Nuclear Centres of Excellence Initiative', EU Non-Proliferation Consortium, Non-proliferation Papers no. 28, June 2013, <http://www.sipri.org/research/disarmament/eu-consortium/publications/nonproliferation-paper-28>.

[32] European External Action Service and European Commission, EU efforts to strengthen nuclear security, Joint Staff Working Document, SWD(2012)70 final, 21 Mar. 2012.

[33] US Department of Homeland Security, 'DHS and European Commission kick-off radiation detection tests in the United States', 7 Oct. 2011, <http://blog.dhs.gov/2011/10/dhs-and-european-commission-kick-off.html>.

and Ukraine; South East Asia; Central and Eastern Africa; Central Asia; and the Gulf Cooperation Council countries. In advance of establishing projects under the various regional secretariats, the EU has supported pilot projects as a 'proof of concept' for the COE Initiative.

The first pilot project was undertaken by the Joint Research Centre of the Commission and was focused on capacity building in countering the trafficking of nuclear materials. The project included Cambodia, Indonesia, Malaysia, Singapore, Thailand and Viet Nam. Subsequently the COE Initiative has developed a further 19 project ideas of which 10 are, in one way or another, relevant for strengthening nuclear security in partner countries, and one of which is directly focused on supporting the development of an integrated national nuclear security system in North Africa.[34]

V. THE CASE FOR INCREASING BILATERAL COOPERATION TO STRENGTHEN NUCLEAR SECURITY

The general survey above illustrates that the EU is already contributing to the international effort to strengthen nuclear security. The boundaries between strengthening nuclear security inside and outside the EU are also becoming harder to draw. Nuclear security building is gradually acquiring both an 'inside-out' and an 'outside-in' dimension. For example, non-EU states are already participating in programmes and initiatives (such as ECURIE and EUSECTRA) developed to strengthen internal security. Member state experts are benefiting directly from cooperation with the USA that was conceived as a contribution to international security efforts.

This section argues that deeper EU collaboration and coordination could be organized as an element in bilateral relations with key partners that would bring significant benefits. Member state efforts could focus on critical issues in nuclear security where the EU lacks authority and detailed knowledge, while the EU effort could emphasize issues where the relevant skills already exist.

The contribution to cooperation at the EU level could build on the existing efforts in functional areas such as nuclear forensic analysis and its application, the management of high activity sealed sources of radioactivity, and nuclear security education, training and capacity building.

Bilateral cooperation frameworks: the South Korean example

The European Union could do much more to exploit the growing number of opportunities for cooperation with key partners in order to strengthen nuclear security. A good example would be the potential for working together with the Republic of Korea. In 2010 the EU and South Korea agreed to elevate their relations into a strengthened partnership and to develop cooperation areas at the bilateral, regional and global levels.[35]

The Framework Agreement says relatively little about how cooperation will be organized. There is a commitment to establish a regular political dialogue and, within that, enhance policy consultations on international security matters. At the EU–South Korea Summit in 2012, the leaders noted the importance of regular summits and expressed their wish to further strengthen EU–South Korea cooperation on bilateral, global and regional issues, but no explanation was given of how that cooperation might be strengthened in practice. In the press statement from the summit the leaders pointed to the successful outcome of the 2012 Seoul Nuclear Security Summit and agreed to 'actively implement their commitments contained in the "Seoul Communiqué"'. However, there was no commitment to do this on a joint basis.[36]

The Framework Agreement established a Joint Committee, consisting of representatives of the members of the Council of the European Union, the European Commission and South Korea, to ensure that the agreement operates properly. However, a large number of complex issues are covered under the Framework Agreement, and to monitor all aspects under a single committee will potentially be very challenging—depending on the scope of activities that are actually developed.

The Euratom Treaty has a specific section on external relations that encourages cooperation with partners on different issues. In this context,

[34] The COE projects are outlined at CBRN Centres of Excellence, <http://www.cbrn-coe.eu/Projects.aspx>.

[35] European External Action Service, Framework Agreement between the European Union and its member states, of the one part, and the Republic of Korea, of the other part, 10 May 2010, <http://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&treatyId=8983>.

[36] European Commission, 'Republic of Korea–EU Summit, Joint Press Statement', Press Statement MEMO/12/224, Seoul, 28 Mar. 2012, <http://europa.eu/rapid/press-release_MEMO-12-224_en.htm>.

the EU currently has a number of different kinds of bilateral agreements that establish a framework for cooperation between Euratom and external partners. Agreements have been required in cases where the EU has a commercial relationship to the external partner, normally through the trade in nuclear materials or joint engagement in cooperative research. Nuclear power plants in Europe depend on external inputs of different kinds in order to keep working, and cooperation agreements with, for example, Australia, Canada, Kazakhstan and Uzbekistan have mainly defined the conditions under which external inputs to European industry will be managed and used.

In some cases, agreements are broad and encompass different issue areas.[37] In other cases, agreements have a narrow scope. In the EU–South Korea case there is a narrow agreement, establishing the rules for collaborative nuclear research.[38]

In July 2011 the EU–South Korea Free Trade Agreement that was originally signed by the parties in October 2009 entered into force.[39] This agreement is expected to create the conditions for a significant expansion in bilateral trade and commerce, including in the nuclear field. The elimination of tariffs and duties on South Korean goods when they enter the EU could make South Korean suppliers of nuclear material, equipment and technology more competitive. In South Korea, the need to support a nuclear reactor building programme that is operating at the limits of capacity could provide European companies with opportunities to sell, for example, dual-use items and materials to South Korean manufacturers unable to source their needs in a timely way from local suppliers.

As nuclear trade and commerce is expected to increase, the feasibility of negotiating a wider bilateral agreement between the EU and South Korea could be explored, establishing a framework for cooperation that includes safety and security issues. One feature that such an agreement would contain would be a commitment to peaceful use of nuclear technology—something that could add another element of stability to the nuclear environment in North East Asia.

In its 2009 Communication on nuclear non-proliferation the Commission concluded that a bilateral Euratom cooperation agreement on peaceful uses of nuclear energy 'should become a priority with all key countries wishing to have significant nuclear trade with the EU Member States and/or EU industry'.[40] Euratom international agreements provide a mechanism for a detailed discussion of how the parties understand their obligations under all relevant international conventions, including the Convention on the Physical Protection of Nuclear Material and the International Convention for the Suppression of Acts of Nuclear Terrorism.

The Euratom agreements also provide a framework for discussing in detail how the parties approach transfers of items covered by the Nuclear Suppliers Group guidelines to third countries as well as bilateral cooperation to strengthen nuclear safety and security in third countries.

Apart from having a better understanding of how each side implements nuclear security-related measures, there are good reasons for the EU and South Korea to explore how they might cooperate in third countries.

To give a practical example of where such cooperation could be valuable, at the Seoul Nuclear Security Summit, Jordan notified partners that it is currently building a counter-nuclear smuggling team linking the domestic intelligence and law enforcement communities. In December 2009 a consortium of South Korean companies won a contract to build a research reactor in Jordan.[41] This was the first occasion on which South Korea won such a contract and the

[37] E.g. the US–Euratom Agreement for Peaceful Nuclear Cooperation includes a number of provisions defining measures that help to reassure all parties that nuclear technologies and materials exchanged across the Atlantic are only being used for peaceful purposes.

[38] In 2006 the Commission signed the Agreement for Cooperation between the Government of the Republic of Korea and the European Atomic Energy Community (Euratom) in the field of Fusion Energy Research. The coverage of this agreement is limited to intensifying research cooperation between the respective fusion programmes in the EU and South Korea to help develop the scientific understanding and technological capability underlying a fusion energy system. Council Decision of 21 November 2006 approving the conclusion, by the Commission, of the Agreement for cooperation between the European Atomic Energy Community represented by the Commission of the European Communities and the Government of the Republic of Korea in the field of fusion energy research, Council document 2011/334/Euratom, *Official Journal of the European Union*, L 154, 6 Nov. 2011, p. 1.

[39] Council Decision of 16 September 2010 on the signing, on behalf of the European Union, and provisional application of the Free Trade Agreement between the European Union and its Member States, of the one part, and the Republic of Korea, of the other part, (2011/265/EU), *Official Journal of the European Union*, L 127, 14 May 2011, pp. 1–4.

[40] European Commission, Communication on nuclear non-proliferation, Communication from the Commisson to the Council and the European Parliament, COM(2009) 143 final, 26 Mar. 2009.

[41] 'Korean consortium for Jordan's first reactor', World Nuclear News, 7 Dec. 2009, <http://www.world-nuclear-news.org/NN-Korean_consortium_for_Jordans_first_reactor-0712097.html>.

success came in the face of competition from suppliers in Argentina, China and Russia. Jordan is also the location of the regional secretariat for the Middle East of the CBRN Centre of Excellence that is being financed by the European Union.

Another practical example is the potential for cooperation in the United Arab Emirates (UAE) and, by extension, in the countries of the Gulf Cooperation Council. In 2012 construction of the Barakah nuclear power plant began in the UAE—the first nuclear power plant in the country. The Korea Electric Power Corporation (KEPCO) will supply the reactors to be installed at the power plant, which is expected to receive its operator licence in 2015 and to become operational in 2017. European countries have been carrying out security-related projects in the UAE for several years, largely to reduce any proliferation risks associated with the large volume of dual-use goods that currently move into and out of ports and airports in the UAE. Over the next few years, as construction continues, the volume of nuclear and nuclear-related dual-use items arriving at UAE ports will grow. South Korea and the EU could work together to reduce any risks that these items will be diverted to unauthorized end-users.

Regular consultations between the Joint Research Centre and the Korea Institute of Nuclear Nonproliferation and Control (KINAC) could also be established, perhaps as a subsidiary element within the work of the Joint Committee overseeing the 2010 Framework Agreement. These bodies are tasked with providing technical support to the Centres of Excellence being established by the EU and South Korea, respectively. A regular exchange of information and views on nuclear security issues would be beneficial.

In high-level meetings in 2012, EU officials drew attention to the relatively weak participation by South Korean researchers in existing cooperative projects. Looking forward, the EU and South Korea agreed to try and strengthen ties. South Korean research institutions were encouraged to join bids under the existing European Union Framework Programme for Research. The President of the European Commission, José Manuel Barroso, noted that relatively few researchers from South Korea participate in EU research programmes compared with other countries, in spite of the fact that the legal framework for bilateral EU–South Korea cooperation is much stronger.[42]

After 2014 the EU will transition to a new research programme, called Horizon 2020, which emphasizes the need to integrate three things that have, until now, been treated separately in programme and project funding. The ambition of Horizon 2020 is to develop programmes and projects that integrate meeting societal challenges with the development of science and technology and the promotion of industrial leadership. Key challenges for the EU research programme between 2014 and 2020 include meeting the concerns of citizens and society in the EU related to climate change, environmental protection and energy security. The role of nuclear energy is certain to be one part of this discussion.

The European Union Education Cooperation Programme (ICI ECP), which operates under the framework of the industrial countries instrument, has taken an initiative together with the National Research Foundation of Korea to promote the use of existing programmes for exchange of researchers between the EU and South Korea.[43] Building on that, it would be worthwhile to organize a meeting of European and Korean scientific foundations to explore the options for including researcher exchanges and defining joint research projects with relevance in the field of security.

The IAEA has established an International Nuclear Security Education Network (INSEN) to facilitate collaboration among universities, research institutes and other stakeholders in the field of higher education in nuclear security. At present there is no South Korean participation in INSEN, although the Multinational Statement on Nuclear Information Security agreed by 31 of the participants at the Seoul Nuclear Security Summit specifically endorsed the further development of national expertise and skill levels in the practice of nuclear security, including information security, 'by drawing on the increasing opportunities offered by the IAEA's International Nuclear Security Education Network'.[44] The EU could use the existing

[42] Howarth, D., 'EU and South Korea agree to deepen research cooperation', University World News, 1 Apr. 2012, <http://www.universityworldnews.com/article.php?story=20120401081417 20>.

[43] European Commission, 'EU-ICI ECP Education Cooperation Programme Australia, Japan, New Zealand and Republic of Korea', <http://eacea.ec.europa.eu/bilateral_cooperation/eu_ici_ecp/index_en.php>.

[44] Reproduced at White House, 'Nuclear Security Summit, Seoul, March 2012: Multinational Statement on Nuclear Information Security', 27 Mar. 2012, <http://www.whitehouse.gov/the-press-

European Nuclear Education Network (ENEN) to encourage South Korea to bring the work of INSEN to the attention of relevant potential partners and facilitate Korean participation in the network. ENEN links together 33 European institutions of higher education that provide full-time teaching and graduate education in nuclear engineering or nuclear sciences in association with a nuclear research centre. The network includes several members (such as the Delft University of Technology in the Netherlands) that already offer courses in nuclear security as part of their curriculum.

VI. CONCLUSIONS AND RECOMMENDATIONS

In order to strengthen cooperation among the different parts of the EU—including by linking internal and external dimensions of nuclear security—it will be necessary to move beyond the historical perspective that nuclear security is an issue reserved to the competence of member states and look for frameworks where EU and member state efforts could be combined in a coherent manner.

The EU, including efforts of member states as well as the common institutions, is already actively helping to strengthen nuclear security in a number of ways, both inside and outside the union. However, the impact of these efforts depends on the quality of their implementation—an area where public assessments are lacking.

The implementation of several important initiatives needs to be evaluated in a more public way than has so far been the case. There may be a role for the European Parliament, which could (for example) commission a comprehensive review and evaluation of the recent efforts to strengthen nuclear security inside and outside the EU compiled in a document for parliamentary review.

Nuclear security building is acquiring an 'inside-out' and an 'outside-in' dimension in the EU. Non-EU states are participating in programmes and initiatives that were developed to strengthen EU internal security, while experts from member states and from common institutions are learning skills and methods through external cooperation that can be directly applied inside the union. The nuclear security activities of the Joint Research Centre of the Commission are particularly prominent in this respect, since the JRC is active both inside and outside the EU.

Areas that are particularly ripe for an EU contribution include the development of joint training and education courses on certain specific aspects of nuclear security—such as nuclear forensic analysis, critical infrastructure protection and emergency response—where the Commission has a great deal of expertise. Establishing a catalogue of certified equipment for detection and analysis to help combat illicit trafficking is another contribution that the EU could make that would add value to the programmes of member states.

The European External Action Service can be instrumental in helping to establish the right environment for cooperation with key partners through high-level political engagement to incorporate nuclear security into existing and future bilateral and multilateral cooperation frameworks. Reviving and strengthening the WMD Monitoring Centre that previously worked under the coordination of the Council Secretariat, or creating a dedicated Nuclear Security Working Group, could both provide a framework in which the relevant parts of the EU could identify ways to work together effectively.

On the international front, an ambitious programme of nuclear security cooperation under the existing EU–South Korea Framework Agreement would have a value in its own right, and could also be a test bed for future efforts in additional countries and regions.

office/2012/03/27/nuclear-security-summit-seoul-march-2012-multinational-statement-nuclear>.

ABBREVIATIONS

CBRN	Chemical, biological, radiological and nuclear
CFSP	Common Foreign and Security Policy
COE	Centre of Excellence
CPPNM	Convention on the Physical Protection of Nuclear Material
DG DEVCO	Directorate General Development and Cooperation
DNDO	Domestic Nuclear Detection Office
ECURIE	European Community Urgent Radiological Information Exchange
ENEN	European Nuclear Education Network
ENSREG	European Nuclear Safety Regulators Group
Euratom	European Atomic Energy Community
EUSECTRA	European nuclear security training centre
GICNT	Global Initiative to Combat Nuclear Terrorism
IAEA	International Atomic Energy Agency
ICSANT	International Convention for the Suppression of Acts of Nuclear Terrorism,
IFS	Instrument for Stability
INSC	Instrument for Nuclear Safety Cooperation
INSEN	International Nuclear Security Education Network
JRC	Joint Research Centre
RDD	Radioactive dispersal device

EU Non-Proliferation Consortium

The European network of independent non-proliferation think tanks

A EUROPEAN NETWORK

In July 2010 the Council of the European Union decided to create a network bringing together foreign policy institutions and research centres from across the EU to encourage political and security-related dialogue and the long-term discussion of measures to combat the proliferation of weapons of mass destruction (WMD) and their delivery systems.

STRUCTURE

The EU Non-Proliferation Consortium is managed jointly by four institutes entrusted with the project, in close cooperation with the representative of the High Representative of the Union for Foreign Affairs and Security Policy. The four institutes are the Fondation pour la recherche stratégique (FRS) in Paris, the Peace Research Institute in Frankfurt (PRIF), the International Institute for Strategic Studies (IISS) in London, and Stockholm International Peace Research Institute (SIPRI). The Consortium began its work in January 2011 and forms the core of a wider network of European non-proliferation think tanks and research centres which will be closely associated with the activities of the Consortium.

MISSION

The main aim of the network of independent non-proliferation think tanks is to encourage discussion of measures to combat the proliferation of weapons of mass destruction and their delivery systems within civil society, particularly among experts, researchers and academics. The scope of activities shall also cover issues related to conventional weapons. The fruits of the network discussions can be submitted in the form of reports and recommendations to the responsible officials within the European Union.

It is expected that this network will support EU action to counter proliferation. To that end, the network can also establish cooperation with specialized institutions and research centres in third countries, in particular in those with which the EU is conducting specific non-proliferation dialogues.

http://www.nonproliferation.eu

FONDATION pour la RECHERCHE STRATÉGIQUE

FOUNDATION FOR STRATEGIC RESEARCH

FRS is an independent research centre and the leading French think tank on defence and security issues. Its team of experts in a variety of fields contributes to the strategic debate in France and abroad, and provides unique expertise across the board of defence and security studies.
http://www.frstrategie.org

PRIF Peace Research Institute Frankfurt — HSFK Hessische Stiftung Friedens- und Konfliktforschung

PEACE RESEARCH INSTITUTE IN FRANKFURT

PRIF is the largest as well as the oldest peace research institute in Germany. PRIF's work is directed towards carrying out research on peace and conflict, with a special emphasis on issues of arms control, non-proliferation and disarmament.
http://www.hsfk.de

IISS

INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES

IISS is an independent centre for research, information and debate on the problems of conflict, however caused, that have, or potentially have, an important military content. It aims to provide the best possible analysis on strategic trends and to facilitate contacts.
http://www.iiss.org/

sipri

STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament. Established in 1966, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.
http://www.sipri.org/