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NUCLEAR ENERGY AGENCY
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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The mission of the NEA is:

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- to provide authoritative assessments and to forge common understandings on key issues, as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

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INTERGOVERNMENTAL ORGANISATION ACTIVITIES

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A common high standard for nuclear power plant exports: overview and analysis of the Nuclear Power Plant Exporters' Principles of Conduct

*by George Perkovich and Brian Radzinsky**

At this time, there is no overarching global framework to regulate the development of the nuclear power industry. Laws concerning the export of nuclear technology vary across jurisdictions, and politically-binding arrangements such as the Nuclear Suppliers Group (NSG) help ensure that weapons-usable or dual-use technologies are not exported, but no single international regime or agreement manages the gamut of potential risks that may arise from the export of civilian nuclear power plants.

Accordingly in 2008, the Carnegie Endowment for International Peace convened internationally-recognised experts in nuclear energy to begin a dialogue with nuclear power plant vendors about defining common criteria for the socially responsible export of nuclear power plants. The goal was to articulate a comprehensive set of principles and best practices that would raise the overall standard of practice for exports of nuclear power plants while enjoying widespread support and adherence.

The outcome of this process is the Nuclear Power Plant Exporters' Principles of Conduct – an export-oriented code of conduct for nuclear power plant vendors. The Principles of Conduct help ensure that the participating companies will proceed with the sale of a new nuclear power plant only after a careful assessment of the legal, political, and technical contexts surrounding potential customers. It comprises six "principles" that each address a major area of concern involved in the export of a nuclear power plant: safety, physical security, environmental protection and spent fuel management, systems of compensation for nuclear damage, non-proliferation and safeguards, and business ethics.

The Principles of Conduct entail vendor responsibilities to apply specific standards or engage in certain practices before signing contracts and during the marketing and construction phases of a nuclear power plant export project. Conformity with the Principles of Conduct is voluntary and not-legally binding, but the vendors have reputational and commercial interests in demonstrating consistent implementation of their commitments. In this way and others, the Principles of Conduct belong to a recent tradition of voluntary corporate self-management related to pressing global challenges.

This paper provides an overview of the rationale and development of the Principles of Conduct. It begins with an overview of some of the challenges facing global nuclear governance which provided the impetus for a voluntary code of conduct for nuclear power plant exporters. It then describes the drafting and implementation processes, which are unique for the nuclear industry and are

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continually evolving. It concludes by outlining expectations for the future of this process and its broader role in the nuclear energy sphere.

Ongoing challenges in nuclear industry

The lasting consequences of the nuclear accident at the TEPCO Fukushima Daiichi nuclear power plant remain unknown. However, developments in Germany and even debates in France and Japan over whether to scale back nuclear energy suggest that another severe nuclear accident, particularly one that results in greater loss of life than the Fukushima accident, could lead to the end of nuclear power as anything other than an infrequently-used energy source.

For the moment, some countries, particularly in Asia and parts of Europe, continue to pursue nuclear power for energy security and climate change reasons. These countries have varying levels of experience with nuclear energy, ranging from the highly developed to the nonexistent. Some countries have steadily expanded the number and technological sophistication of their nuclear power plants over the years. Others, including the United States, are building new nuclear power plants for the first time in decades. A number of countries seek to use nuclear energy for the first time. After the accident at the TEPCO Fukushima Daiichi nuclear power plant, the nuclear industry is confronted with competing political, technological, and financial pressures to expand into new markets but also to cut budgets and shrink workforces. In meeting each of these challenges, competition among vendors of nuclear power plants will be fiercer than ever.

Improvements in nuclear technology promise even higher levels of safety, better performance, proliferation resistance, and lower levels of waste, yet countries facing significant domestic opposition to nuclear energy may be hesitant to be among the first countries to license these new technologies. Regular staffing turnover as well as a renewed interest in nuclear energy have spurred the recruitment and training of a new generation of skilled nuclear workers – but supply has not kept pace with demand.[1] Fiscal austerity, the phasing-out of nuclear energy in Germany, and lacklustre interest among some potential new buyers continue to make hiring new employees difficult. Economically, the low cost of natural gas and coal have made nuclear energy infeasible in most countries.[2] The global financial crisis has severely restricted funding for new nuclear power projects in any case.[3] New players with deeper capital sources see opportunities to supplant the long-standing American and European leaders in nuclear exports. All players are looking towards new markets.

The nuclear energy industry has a long record of quality and a high regard for safety. However, the uncertainties inherent in the global market for nuclear power plants prompt concern that vendors could cut corners in order to lower costs and win contracts. The general public, governments, and civil society in vendor and customer states will question whether exporters are applying the same scrupulousness to projects in foreign markets as they do domestically. A vendor would have reason to be concerned that its competitors are not meeting commonly recognised high standards in the course of pursuing and securing business and relax its own standards as a result. Special care needs to be taken to build confidence that

1. Patel, P. (2011), "The Aging Nuclear Workforce", *IEEE Spectrum*, May, available at: http://spectrum.ieee.org/at-work/tech-careers/the-aging-nuclear-workforce.
2. Hibbs, M. (2012), "Nuclear Energy 2011: A Watershed Year", *Bulletin of the Atomic Scientists*, Volume 68, pp. 10–19.
3. OECD International Energy Agency (2009), World Energy Outlook 2009, p. 160, available at: www.worldenergyoutlook.org/media/weowebsite/2009/WEO2009.pdf.

new or resurgent players will benefit from the lessons others have learnt. The credibility of individual nuclear power plant vendors and the whole industry thus rest on efforts to improve transparency, demonstrate responsibility, and, as a result, ensure public confidence.

Although the Carnegie Endowment does not itself take an institutional position on nuclear energy, the nuclear policy scholars who helped advance this initiative believe that the global public interest is served through strongly promoting efforts to ensure that the use of nuclear power proceeds responsibly. Regulators, governments, operators, and technology vendors each have a role to play in ensuring that nuclear energy develops in a responsible manner. However, vendors often play a unique and leading role in the development of nuclear energy. The Principles of Conduct represent one attempt to demonstrate that vendors recognise their ability to influence positively the development of nuclear energy.

A closer look at the Principles of Conduct

The Principles of Conduct are divided into six thematic sections that address the major areas of vendor competence and responsibility in the export of nuclear power plants. A preamble articulates the participating companies' recognition of their responsibility in ensuring that the expansion of nuclear energy proceeds safely, securely, and ethically. The six principles are:

- safety, health and radiological protection;
- physical security;
- environmental protection and the handling of spent fuel and nuclear waste;
- compensation for nuclear damages;
- nonproliferation and safeguards; and
- business ethics.

In addition to the preamble and the six principles, two appendices provide clarification for other sections. Appendix A of the Principles of Conduct clarifies aspects of principle 5 regarding nonproliferation and safeguards; Appendix B of the Principles of Conduct provides citations for the agreements, conventions, standards, and treaties referenced throughout the text. Appendix B also includes references to important documents, such as the IAEA's Action Plan on Nuclear Safety,[4] that participants have taken note of and consider important.

Each individual section of the Principles of Conduct outlines vendor responsibilities while designing plants, before signing contracts, before fuel is delivered to a new nuclear power plant, and while providing other assistance to customers as warranted or requested.

The Principles of Conduct aggregate existing best practices rather than specify new ones. Many of the provisions reference IAEA standards and conventions as well as international treaties and important documents released by non-governmental organisations such as the World Association of Nuclear Operators (WANO).[5] By virtue of being incorporated into a single document, however, these norms take on the status of representing international best practices for nuclear power plant

4. IAEA (2011), "Draft IAEA Action Plan on Nuclear Safety", GOV/2011/59-GC(55)/14, available at: www.iaea.org/About/Policy/GC/GC55/Documents/gc55-14.pdf.
5. Additional information regarding WANO is available at: www.wano.info.

exports. The significance of the Principles of Conduct as a compendium of norms becomes clearer in comparison to existing regimes for civilian nuclear trade.

How do the Principles of Conduct fit into existing nuclear governance regimes?

The Principles of Conduct are motivated in part by the recognition that no global, overarching framework exists to manage the export of civilian nuclear technology. They are not a substitute for states' powers to enter into treaties or otherwise take steps to improve international oversight, but governments are in some cases unwilling or unable to take certain steps that might otherwise be desirable to improve global nuclear governance.

The Principles of Conduct also represent an attempt to enhance nuclear vendors' voice in international nuclear fora and debates. Vendors play a significant role in the development of nuclear energy programs, but the lack of an international vendors' association and the relatively small number of companies involved mean that operators are much more prominent internationally. The Principles of Conduct are one way to articulate both vendor responsibilities and vendor interests in the responsible development of nuclear energy. The Principles of Conduct review process, discussed below, provides international nuclear stakeholders with a structured way to address vendors as a whole, share information and concerns, and promote best practices.

The scope of the Principles of Conduct is relatively narrow: they are export-oriented and only address issues under the direct control of nuclear power plant vendor companies. However, the specific provisions in the Principles of Conduct involve applying international agreements and standards of various levels of specificity and legality. In this regard, they do not distinguish between good and best practices that are legally-binding on states and those that are considered voluntary.

Some of the provisions in the Principles of Conduct are treaties and conventions acceded to by states and backed by the force of international and domestic implementing laws. For example, before entering into a contract, vendors will expect their customers to have become parties to the Convention on Nuclear Safety[6] before the nuclear power plant begins operation. Other international agreements in the Principles of Conduct are significant but may not have entered into force for every country. For instance, the Principles of Conduct state that before entering into a contract to supply a nuclear power plant, vendors must judge whether the customer state has ratified or will soon ratify the 2005 Amendment to the Convention on the Physical Protection on Nuclear Material (CPPNM Amendment).[7] The CPPNM Amendment, is widely seen as setting an international nuclear security standard but has not been ratified by some advanced nuclear energy states, in some cases for domestic political reasons.[8]

Other norms and standards in the Principles of Conduct are considered international standards and good or best practices but are not legally binding on states or vendors. States' resistance to elevating the stature of these best practices to the level of law is a persistent tension in global nuclear governance. This tension is

6. Convention on Nuclear Safety (1994).
7. Information regarding the CPPNM Amendment (2005) is available at: www.iaea.org/Publications/Documents/Conventions/cppnm.html.
8. The CPPNM Amendment enjoys bipartisan support in the U.S. but ratification entails passing domestic legislation. Efforts to do so have recently progressed in the U.S. House of Representatives but have since stalled in the U.S. Senate. Kagel, B. (2012), "House Passes Nuclear Security Bill", *Arms Control Today*, Volume 42, no. 6, July/August, available at: www.armscontrol.org/2012_07-08/House_Passes_Nuclear_Security_Bill.

exemplified by the development of the international nuclear safety regime, which provides the most robust international framework regarding nuclear matters after that concerning non-proliferation.

The International Nuclear Safety Group (INSAG), a commission of eminent nuclear experts convened by the IAEA, defines the nuclear safety regime as "the institutional, legal and technical framework for ensuring the safety of nuclear installations throughout the world. The objective of this regime is to lead to a world where all nuclear installations are operating safely".[9] Elements of the regime include:

1. Legally binding conventions, such as the Convention on Nuclear Safety.
2. Consensus-based voluntary safety standards, such as the IAEA's safety standards[10] or the International Committee on Radiation Protection's guidelines.[11]
3. Intergovernmental organisations, such as the IAEA[12] and the Organisation for Economic Co-operation and Development (OECD) Nuclear Energy Agency (NEA).[13]
4. Non-governmental organisations of operators and others, such as the World Association of Nuclear Operators (WANO), the World Institute for Nuclear Security (WINS),[14] or the Western European Regulators Association (WENRA).[15]
5. Informal networks of operators, experts and, increasingly, power plant vendors and manufacturers, as created and maintained through conferences, industry meetings and other initiatives.

The international nuclear safety regime has evolved largely in the aftermath of severe accidents, particularly Chernobyl. According to U.S. officials, the Convention on Nuclear Safety, which is the only legally binding nuclear safety agreement, was drafted primarily to rectify the disparity in safety practices and safety cultures between the United States and Western Europe and Eastern Europe, the former Soviet bloc, and developing countries.[16]

The United States and Western European countries may see their participation in the Convention on Nuclear Safety as an example to less advanced nuclear-energy users rather than an integral element in assuring others that they too are meeting high standards of safety. Whether this distinction can be maintained in the aftermath of the TEPCO Fukushima Daiichi nuclear power plant accident remains to be seen. Japan's failure to establish "effective separation" between nuclear regulators and agencies concerned with the promotion of nuclear energy, as required by the Convention on Nuclear Safety, gives some credence to critiques

9. IAEA (2006), *Strengthening the Global Nuclear Safety Regime*, INSAG-21, *A report by the International Nuclear Safety Group*, Vienna, available at: www-pub.iaea.org/MTCD/publications/PDF/Pub1277_web.pdf.
10. Information regarding IAEA safety standards is available at: www-ns.iaea.org/standards.
11. Information regarding the International Committee on Radiation Protection is available at: www.icrp.org.
12. Information regarding the IAEA is available at: www.iaea.org.
13. Information regarding the OECD Nuclear Energy Agency is available at: www.oecd-nea.org.
14. Information regarding WINS is available at: www.wins.org.
15. Information regarding WENRA is available at: www.wenra.org.
16. United States Government Accountability Office (2010), *Convention on Nuclear Safety Is Viewed by Most Member Countries as Strengthening Safety Worldwide*, GAO-10-489 Washington, DC, available at: www.gao.gov/products/GAO-10-489. See also IAEA, *Background on the Convention on Nuclear Safety*, www-ns.iaea.org/conventions/nuclear-safety.asp.

about the limitations of the Convention on Nuclear Safety, which lacks enforcement mechanisms and only stipulates general safety principles.[17]

These critiques are somewhat misleading. The Convention on Nuclear Safety was conceived to secure wide and relatively rapid support among countries with civilian nuclear energy programs. Its framers were mindful of states' hesitance to regulate nuclear energy internationally and left out traditional verification or compliance-enforcing mechanisms. Instead, the Convention on Nuclear Safety attempts to encourage states to improve nuclear safety out of their own enlightened self-interest.[18] The Convention on Nuclear Safety is written in general terms, obligating signatories to take steps to meet general safety principles, such as the creation of an independent regulatory agency and ensuring that there are plans in place for on-site and off-site emergencies at nuclear facilities. The Convention on Nuclear Safety does not stipulate how states must go about meeting these goals.

The IAEA does circulate safety standards that outline internationally recognised good practices for implementing fundamental principles for nuclear safety, such as those in the Convention on Nuclear Safety. These are divided into nuclear safety requirements and safety guides. A largely parallel set of standards exists for spent fuel management, and the Convention on Nuclear Safety has an analogue in the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.[19] Work is underway on a parallel set of IAEA standards for nuclear security.[20]

The majority of these standards is promulgated by the IAEA as suggestions for national regulatory bodies' own rule-making.[21] Because they are developed by the IAEA Commission on Safety Standards,[22] which is composed of senior national regulatory officials, IAEA safety standards represent a consensus among the world's regulators about the steps necessary to ensure a high level of nuclear safety.

Unlike treaties and conventions, such IAEA consensus-based standards for nuclear safety, security, and spent fuel management are not legally binding. A political consensus on the desirability of giving legal weight to these standards remains elusive. Sovereignty concerns loom largest. After Chernobyl, the central debate over the form and content of a legally-binding Convention on Nuclear Safety

17. Handl, G. (2004), "The IAEA Nuclear Safety Conventions: An Example of Successful Treaty Management?" *Nuclear Law Bulletin*, Volume 72, pp. 7–27. Kamminga, M.T. (1995) "The IAEA Convention on Nuclear Safety", *International and Comparative Law Quarterly*, Volume 44, No. 4, pp. 872–882.
18. Jankowitsch-Prevor, O. (1994), "The Convention on Nuclear Safety", *Nuclear Law Bulletin*, Volume 54, p. 9.
19. Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997), available at: www. iaea. org/Publications/ Documents/Infcircs/ 1997/infcirc546.pdf.
20. See IAEA Nuclear Security Series, www-ns.iaea.org/security/nuclear_security_series.asp, accessed 27 October 2012.
21. Other inter-governmental and non-governmental organizations, including the International Organization for Standardization (ISO), also produce consensus-based standards for nuclear power projects, although these are overwhelmingly technical. In contrast, the IAEA's safety standards series provides legislative as well as technical guidance to national governments. Additionally, the International Nuclear Safety Group (INSAG) occasionally comments and circulates recommendations on current and emerging nuclear safety Issues.
22. Information regarding the IAEA Commission on Safety Standards is available at: www-ns.iaea.org/committees.

was whether the Convention on Nuclear Safety's provisions would be general principles or technical standards.[23]

Participants at a 1991 IAEA conference that initiated the drafting process for the Convention on Nuclear Safety rejected a compromise position that would append a technical annex of general principles to the convention.[24] This annex would have been updated without amending the Convention of Nuclear Safety as standards evolved. In rejecting this proposal, the United States argued that technical standards were unnecessary, could infringe on national sovereignty and domestic law, and could stanch diversity among reactor designs. The US was also concerned about signatories committing to a weaker or "lowest common denominator" international standard than those adopted by domestic authorities.[25]

After the accident at the TEPCO Fukushima Daiichi nuclear power plant, there is some renewed interest in establishing legally-binding safety standards, notably from former French President Nicolas Sarkozy.[26] Most states do not share this enthusiasm. Arguably, the benefit of formalising international standards is not in ensuring a common approach to safety. States generally agree on the general principles and practices necessary to ensure a high level of safety. The difficulty lies in assuring that standards, best practices, and relevant lessons are internalised and implemented consistently across countries.

The Principles of Conduct include references to individual IAEA safety standards – requirements and guides – that the expert advisers believed were of particular salience to nuclear power plant exports. For instance, in accordance with the Principles of Conduct, participating vendors commit to design nuclear power plants in accordance with IAEA safety requirements. Before entering into contracts, these vendors must make a reasonable judgement that the customer state has in place or is developing the legislative, regulatory, and organisational infrastructure needed for implementing a safe nuclear power programme in keeping with the guidance of the IAEA Safety Standard "Establishing the Safety Infrastructure for a Nuclear Power Programme."[27] Incorporation of these standards and others provides additional assurance that vendor companies are implementing general safety principles in ways that regulators already agree will contribute to a high level of nuclear safety.

Countries may be willing to give IAEA Safety Standards a greater role in assessing their national regulatory systems. An outcome of the recent Extraordinary Meeting of the Contracting Parties to the Convention on Nuclear Safety is that states party to the Convention on Nuclear Safety are now "encouraged" to report on "how it has taken or intends to take the IAEA Safety Standards (including, in particular, the Safety Fundamentals and Requirements) into account in implementing its obligations under the Convention on Nuclear Safety."[28] However, this falls short of using international best practices as metrics or bases for assessments of national

23. Jankowitsch-Prevor, O. (1994), "The Convention on Nuclear Safety", *Nuclear Law Bulletin*, Volume 54, p. 9.
24. IAEA (1991), *The Safety of Nuclear Power: Strategy for the Future*, STI/PUB/880, 60.
25. United States General Accounting Office, (1993), *Progress Toward International Agreement to Improve Reactor Safety*, Washington, DC, p. 7.
26. Irish, J. (2011), "France says world needs tougher nuclear safety measures". Reuters, September 22, available at: www.reuters.com/article/2011/09/22/us-un-assembly-nuclear-idUSTRE78L42M20110922, accessed 27 October 2012.
27. IAEA (2011), *Establishing the Safety Infrastructure for a Nuclear Power Programme*, SSG-16, available at: www-pub.iaea.org/MTCD/publications/PDF/Pub1507_Web.pdf.
28. IAEA (2012) "Action-oriented Objectives for Strengthening Nuclear Safety", in IAEA (2012) *2nd Extraordinary Meeting of the Contracting Parties to the Convention of Nuclear Safety, Final Summary Report*, CNS/ExM/2012/04/ Rev.2, p. 11, available at: www-ns.iaea.org/ downloads /ni/safety_convention/em-cns-summaryreport310812.pdf.

requirements. Participants at the review meeting also considered proposed amendments to the Convention on Nuclear Safety from Switzerland and Russia. Switzerland's amendments called for, *inter alia,* periodic external reviews of national nuclear regulators and making these assessments public. Russia's proposed amendments, *inter alia*, would require "taking into account IAEA safety standards" in verifying that the physical condition and operation of a nuclear installation continues to conform to its design, national requirements, and operational limits and conditions. A working group was formed to consider these and other proposals and report on ways to strengthen the Convention on Nuclear Safety at the next review meeting in 2015.[29]

Thus far, the international nuclear safety regime lacks the verification frameworks and requirements necessary to assure skeptical citizens and states that would suffer the trans-boundary consequences of a nuclear accident that nuclear – energy is being utilised safely. Just as verification commitments by non–nuclear weapons states and disarmament commitments by nuclear–weapons states help assure the security of all states by preventing the spread of nuclear weapons, greater transparency by national governments, regulators and industry could enhance public support for nuclear energy if accompanied by credible steps to improve on any shortcomings. If contracting parties to the Convention on Nuclear Safety accept these proposed reforms, it could therefore signal the beginning of a fundamental shift in the international nuclear safety regime.

What makes the Principles of Conduct unique?

By compiling such best practices into a single document, the Principles of Conduct function much like a road map or a checklist for vendors when designing nuclear power plants, negotiating contracts, and interacting with customers and other industry parties. In turn, the Principles of Conduct give customers a reference point for judging vendors' implementation of international norms at various stages in the life cycle of a nuclear power plant project. No other voluntary arrangement or legal agreement is as comprehensive as the Principles of Conduct in addressing the major considerations involved in the development of a safe and secure nuclear power programme.

The Principles of Conduct are different from other voluntary industry initiatives in four key ways. First, they were drafted without direct government participation or oversight, although governments generally support the Principles of Conduct and were kept informed throughout the drafting process. Second, the Principles of Conduct are not an industry creation. Rather, they were the product of an intensive drafting process involving industry representatives, international experts, and the Carnegie Endowment, a non-governmental organisation. Third, the Principles of Conduct are more technically detailed and comprehensive than other similar industry initiatives. Fourth, the drafting process was expert-driven: experts devised the initial structure and substance of the Principles of Conduct, which was then refined through intensive dialogue between experts, vendors, and the Carnegie Endowment's project co-ordinators.

The next section of this paper summarises the history of the Principles of Conduct drafting process, including the roles played by the Carnegie Endowment and the project's expert advisers. Here, it is worth noting that the Principles of Conduct were drafted and launched without governmental prodding or oversight,

29. IAEA (2012) *2nd Extraordinary Meeting of the Contracting Parties to the Convention of Nuclear Safety – Final Summary Report*, CNS/ExM/2012/04/Rev.2, p. 9, available at: www-ns.iaea.org/downloads/ni/safety_convention/em-cns-summaryreport310812.pdf.

unlike other successful corporate social responsibility (CSR) initiatives, including the Fair Labor Association (FLA)[30] and the Voluntary Principles on Security and Human Rights. [31] The former was spurred by the Clinton Administration and the latter grew out of collaboration between the US State Department and the United Kingdom's Foreign and Commonwealth Office. The Equator Principles, which were developed for financial institutions, were spearheaded by the International Finance Corporation, which is a member of the World Bank Group.[32]

For a number of reasons, the Principles of Conduct were not developed with government prodding, oversight, or involvement. Because of governments' long standing resistance to international initiatives that could appear to infringe on their sovereign right to regulate nuclear energy within their borders, the Carnegie Endowment and the vendor companies felt that the prospects for success would be improved if only non-governmental participants were involved. Government and industry alike were also hesitant to participate in a process that could be seen as attempting to undermine regulation by proposing a "soft" alternative to it.

Governments were kept informed throughout the drafting process, however, and several regulatory agency heads and government officials have issued public endorsements of the Principles of Conduct, including US Deputy Energy Secretary Daniel Poneman; Cheol Ho Yun, President of the Korea Institute of Nuclear Safety (KINS); André-Claude Lacoste, Chairman of France's *Autorité de Sûreté Nucléaire* (ASN or Nuclear Safety Authority); and others.[33]

Although governments were not involved directly in the drafting process, the Principles of Conduct are not a traditional industry statement of principles. They are more detailed and technically oriented than the World Nuclear Association's Charter of Ethics[34] or the Unmanned Aircraft Systems Operations Industry "Code of Conduct."[35] Participants in the drafting process believed the credibility of the initiative as well as the overall standards of practice for nuclear power plant exports would be best served by a document that identified concrete steps vendors could take at discreet stages in the lifecycle of a nuclear power plant project. This level of specificity is a direct consequence of the participation of the project's expert advisers, who led the drafting of the text, facilitated the negotiations of the final Principles of Conduct, and continue to advise participants in the review process for the Principles of Conduct.

History of the Principles of Conduct drafting process

The Principles of Conduct were drafted through an iterative, discursive and consultative process. The Carnegie Endowment first identified internationally-recognised nuclear energy experts in a range of relevant areas, including safety, security, nuclear law, and nonproliferation. The Carnegie Endowment then

30. Fair Labor Association (2003), *Fair Labor Association First Public Report: Towards Improving Workers' Lives, August 1, 2001–July 31, 2002,* Washington, DC, available at: www.fairlabor.org/sites/default/files/documents/reports/2003_annual_public_report.pdf.
31. Secretariat for the Voluntary Principles on Security and Human Rights, Timeline, available at: voluntaryprinciples.org/timeline/index.php#2000, accessed 27 October 2012.
32. The Equator Principles Association, "History of the Equator Principles", available at: www.equator-principles.com/index.php/about/history-of-the-eps, accessed 27 October 2012.
33. A full list of support statements is available at: www.nuclearprinciples.org/support-statements.
34. Available at: www.world-nuclear.org/about/ethics.html, accessed 27 October 2012.
35. Available at: www.auvsi.org/conduct, accessed 27 October 2012.

convened meetings between these experts and a handful of interested industry representatives to discuss the desirability and notional features of an industry code of conduct for nuclear reactor exports. Working through its contacts and offices abroad, the Carnegie Endowment eventually persuaded all the companies actively marketing or preparing to market nuclear power plants at the time to send representatives to meetings regarding the Principles of Conduct. The project experts drafted a notional code of conduct which was then refined through multiple negotiating rounds over the course of three years. The final Principles of Conduct were adopted by all but one of the original participants and were launched in September 2011.

The drafting of the Principles of Conduct was guided by the conviction that the document had to be credible to a variety of skeptical audiences while nonetheless able to gain high-level support within the adopting companies, which would help ensure effective and consistent implementation of the final set of provisions.

The Carnegie Endowment served as a facilitator and convener of the drafting process. Over time, the Carnegie Endowment was able to convince participants of its commitment to serving in the process as an impartial facilitator. By maintaining the confidentiality of the process during the drafting phase, the Carnegie Endowment was able to ensure that participants were able to discuss issues frankly and without concern about possible misinterpretation by outside audiences. The governments of the vendor companies were kept informed at every step of the drafting process.

Where possible, the companies were represented by either their general counsels or their chief nuclear engineers. The Carnegie Endowment convened regular meetings over a period of three years, roughly every three months, during which the executives themselves would debate and discuss draft text. This process helped cultivate a sense of ownership of the document and its later implementation among the vendor representatives, who then took the lead in educating their organisations and leaders about the Principles of Conduct. The legal and technical expertise of the vendor representatives helped ensure that they would comprehend the provisions drafted by the expert advisers.

The companies entered the drafting process with a wide range of experience with corporate social responsibility initiatives. Some representatives were well versed in the theory and approaches of voluntary corporate self-management; others were highly skeptical of the concept and dismissed its significance. Language barriers occasionally made discussion of text tedious and difficult, even with interpretation services. The drafting process was thus an opportunity to structure a dialogue that has never before been attempted, asking nuclear industry to reflect on its ethical role in global society and to consider ways to raise its stake in the responsible use of nuclear technology. This process proved to be a unique education for the project's facilitators as well.

Timeline

In 2008, the Carnegie Endowment assembled a panel of leading experts in various aspects of nuclear energy to offer guidance on what provisions would be desirable to incorporate into a statement of principles for nuclear power plant exporters. The Carnegie Endowment then began contacting each company that it knew to be exporting nuclear power plants at the time. The list was expanded in response to market developments and research. If, in the future, additional companies seek to export nuclear power plants, they will be invited to subscribe to the Principles of Conduct and participate in their future review and implementation.

The Carnegie Endowment convened meetings roughly every three months between the experts and representatives from nuclear power plant vendors during

which the experts led discussions on best practices and international norms and standards. These discussions were distilled into a first draft of a "code of conduct" for nuclear reactor exporters. The draft was discussed and vigorously debated at each meeting. Language was proposed, rejected, refined, and agreed to. At the end of each meeting, a revised draft text was produced that would form the basis for discussion at the subsequent meeting. Negotiations proceeded in this manner for almost three years.

Meeting venues rotated between the Carnegie Endowment's offices in Europe and the US and the cities in which the vendor companies are headquartered: Brussels, Tokyo, Washington, DC, Paris, Toronto, Seoul, Moscow, and Pittsburgh. Between meetings, Carnegie Endowment staff and the experts would discuss the latest draft text with the companies bilaterally to gather information on long-standing or emerging concerns and explore ways to resolve them. Legal counsel was present for all discussions to ensure that no competitively sensitive information was shared or discussed.

Negotiations on a final text had largely concluded by the sixth drafting meeting held in Seoul in October 2010. By this point, the vast majority of companies that had been intensely involved in the drafting process had committed informally to adopt the text. The document was named the "Nuclear Power Plant Exporters' Principles of Conduct". Informally, the document is referred to as a code of conduct, which is an industry term of art for voluntary statements of corporate responsibility. However, several participants underscored the importance of characterising the document similarly in a variety of languages – in some participants' languages, "code" denotes a legal agreement rather than a set of compiled norms, as it does in English. Through the fall of 2010, the Carnegie Endowment and the companies began preparing for a public announcement in the following spring. The corporations began their final internal reviews of the Principles of Conduct with the aim of adopting the text by the end of the year.

The earthquake and tsunami that crippled the TEPCO Fukushima Daiichi nuclear power plant struck two weeks prior to the scheduled launch of the Principles of Conduct. It quickly became clear that announcing the Principles of Conduct could be perceived as a hastily prepared attempt by nuclear industry to rebuild its image after so great a tragedy. Rather than generate unfavorable and potentially inaccurate media coverage by announcing the Principles of Conduct in March 2011, the public announcement was postponed until the following September.

During the summer of 2011, the Carnegie Endowment convened a meeting to discuss whether the immediate lessons learnt from the TEPCO Fukushima Daiichi nuclear power plant accident affected portions of the Principles of Conduct text sufficiently to merit revisions. Subsequently, a number of revisions were made to acknowledge the importance of designing and constructing nuclear power plants to ensure that operators would have the opportunity to prepare adequate emergency response capabilities. The companies also agreed to update the references to IAEA documents, including a safety standard for the design of nuclear power plants, to reflect recent revisions by the IAEA. A representative from the World Association of Nuclear Operators (WANO) presented on ways for vendors and operators to cooperate on issues of common public concern. Preparations for a September 2011 launch were finalised.

The Principles of Conduct were launched on 15 September 2011 through a press conference at the Carnegie Endowment's offices in Washington, DC. Reporters and other interested parties were able to participate by telephone. The Carnegie Endowment issued a press release to its vast network of contacts; the vendors promoted the announcement of the Principles of Conduct through their own

communications departments. Several news outlets in North America, Europe, and Asia covered the announcement of the Principles of Conduct.[36]

Expert guidance

The experts who guided the negotiation process were chosen for their reputations gained through years of distinguished service in national nuclear regulators, the IAEA, nuclear law practices, or industry. Drafting of the principle on safety, health, and radiological protection was overseen by Richard Meserve and Jukka Laaksonen, the former heads of the US and Finnish regulators, respectively. Frank Saunders, vice president for regulatory affairs for Bruce Power, the largest nuclear generator in Canada, oversaw the drafting of the physical security principle. Jacques Bouchard, former chairman of the Generation IV reactor forum who is also a senior adviser to the chairman and a former senior official of the French *Commissariat a L'Energie Atomique* (CEA) oversaw the drafting of the principle on environmental protection and spent fuel handling. Other experts in nuclear law, including Omer Brown and Nathalie Horbach, provided guidance during the drafting process, as did Pierre Goldschmidt, a former Deputy Director General for Safeguards at the IAEA and Gare Smith, a pioneer in the field of Corporate Social Responsibility who serves as the Carnegie Endowment's legal counsel and is a partner at Foley Hoag LLP.

These experts brought their decades of expertise to the negotiating table, and their gravitas persuaded the industry participants of the seriousness of the initiative and that the provisions that were being proposed were informed by extensive, first-hand knowledge about the nuances of nuclear science, policy, industry and the law.

Experts were mindful of the need for flexibility in phrasing and terminology to allow the companies to converge on language that everyone could be satisfied with, even if it was not always ideal. At the same time, the Carnegie Endowment stressed repeatedly the importance of particular standards or best practices for the wider credibility of the initiative. Several of the companies at first, and all of the adopting companies by the end, came to understand that their own interests were served by adopting industry principles that contained concrete and internationally accepted standards of good practice.

Incentives for compliance

The major incentives the participating vendors have for conforming to the Principles of Conduct are their individual reputations and the reputation of the nuclear industry as a whole. Another severe accident or a terrorist attack at a nuclear power plant could further erode public confidence in nuclear energy and undermine the business prospects of the entire nuclear industry. The companies therefore have a deeply vested interest in implementing the Principles of Conduct consistently in their activities.

Successful implementation of the Principles of Conduct, as with all voluntary codes of conduct, rests on ongoing transparency by companies and scrutiny by participants and a variety of stakeholders, including suppliers, customers,

36. Maclachlan, A. (2011), "Nuclear Vendors Agree To Export Code Of Conduct", *Nucleonics Week*, 15 September; "Nuclear plant manufacturers developed Principles of Conduct" (2011), Denki Shimbun, 21 September; "Nuclear Plant Firms Adopt Landmark Code of Conduct" (2011), *Ottawa Citizen*, 16 September; "Nuclear Power Exporters Back Common Security Measures" (2011), *National Journal*, 16 September.

regulators, financiers, and civil society.[37] After adopting the Principles of Conduct, the companies agreed to develop internal implementation procedures, to be applied at all levels of the corporate hierarchy. The companies agreed to educate their employees and inform their suppliers about the Principles of Conduct.

In general, voluntary corporate self-management initiatives assure compliance through internal and external monitoring by the companies themselves, process secretariats or third-party organisations.[38] Self-assessment by the corporations without a public disclosure of findings is the lowest risk form of internal monitoring but also the least credible. The oldest and largest voluntary corporate self-management initiatives, such as that promoted by the Fair Labor Association, which was founded in 1998, rely on independent external monitors to assure participants and the public of consistent compliance with its initiative.[39]

Currently, Principles of Conduct participant companies assess their implementation internally and present their findings at review meetings. Participants then discuss these internal implementation reports. The companies share successes and innovations in developing concrete ways to apply the provisions in the Principles of Conduct. Challenges are discussed and possible solutions shared. The Principles of Conduct secretariat removes any identifying information and summarises the key points of the discussion in review meetings in the form of a semiannual generic implementation report. These reports are posted to the initiative's website, www.nuclearprinciples.org.[40]

Eventually, participants hope to move towards more fulsome and transparent ways of assuring each other and the public at large that the Principles of Conduct are being implemented consistently. Through an ongoing review process, the companies will develop steps to improve transparency and procedures to address and resolve concerns about implementation.

Towards a robust review process

The companies recognise that the relevance and impact of the Principles of Conduct demand ongoing reflection on the substance of the Principles of Conduct and how the companies are implementing them. Taking cues from other corporate initiatives, such as the Equator Principles (project finance) and the Fair Labor Association (apparel and others), the participants in the Principles of Conduct created a secretariat in January 2011 to coordinate meetings, conduct outreach to governments and other stakeholders, field public communications, and act as a

37. Basu, K. and Palazzo, G. (2008), "Corporate Social Responsibility: a process model of sensemaking", *Academy of Management Review 33*, No. 1, pp. 11–21. See also Kolk, A. and van Tulder, Rob (2004) "Multinationals and Codes of Conduct: Dynamics and Effectiveness", (paper presented at the "Voluntary Codes of Conduct for Multinational Corporations" conference, Zicklin School of Business, Baruch College, City University of New York, May 2004).
38. Kolk, A. and van Tulder, R. (2004) "Multinationals and Codes of Conduct: Dynamics and effectiveness" (paper presented at the International Conference 'Voluntary Codes of Conduct for Multinational Corporations', Zicklin School of Business, Baruch College, City University of New York, New York, May 2004).
39. An explanation of the Fair Labor Association's external monitoring procedures is available at: www.fairlabor.org/blog/entry/independent-external-monitoring-reports.
40. The first implementation report is available at: www.nuclearprinciples.org/wp-content/uploads/2012/05/SECRETARIAT_GENERIC_IMPLEMENTATION_REPORT1.pdf. A second report was forthcoming at the time of publication of this article.

repository and distributor of information for participants and the general public.[41] The secretariat helps maintain the momentum and credibility of this process, in large part by coordinating and convening regular review meetings. The secretariat and review meetings are funded through equal annual contributions by all the participating companies.

Review meetings provide participating vendors with a forum to discuss implementation experiences, share best practices, consider membership and participation issues, reflect on recent events and trends taking place in nuclear industry, and strategise about outreach to important stakeholders. Thus far, participants are meeting every six months in rotating venues. Two meetings have taken place thus far – in December 2011, in Moscow, Russia, and in July 2012, in Pittsburgh, Pennsylvania, United States.

A standing agenda item for each review meeting is a discussion of vendors' internal implementation procedures to date. This discussion provides a rare opportunity for meeting participants – vendors, project experts, and the Carnegie Endowment's facilitators – to discuss and ask questions about each company's presentations. This dynamic echoes the peer review mechanism used in Convention on Nuclear Safety, among other processes. The choice of this discursive format is motivated by the conviction that compliance stems from an expectation of collegial peer scrutiny and a willingness on the part of all participants to learn and continuously improve their own internal corporate processes.

Another standing agenda item at review meetings is an assessment of outreach conducted by the secretariat as well as the Carnegie Endowment and individual companies. Like other voluntary industry codes of conduct, the Principles of Conduct are only relevant if industry stakeholders continuously engage participants on their implementation. A significant outreach and engagement effort preceded the launch of the Principles of Conduct and continued in the weeks that followed. The Principles of Conduct were reviewed and endorsed by governments and senior government officials, regulators, the World Association of Nuclear Operators (WANO), and prominent members of the financial community. Others in the nuclear industry continue to issue statements of support, which are available online.[42]

These endorsements help raise awareness about the Principles of Conduct within the various communities that help support the responsible development of nuclear energy. The companies are working to engage important nuclear industry participants, including emerging vendors of nuclear power plants. The Secretariat is working to build a stronger relationship with the IAEA and other international organisations, including the Organisation for Economic Co-operation and Development (OECD) Nuclear Energy Agency, as well as non-governmental organisations and civil society groups. The Secretariat is also engaging international manufacturers' and standards setting organisations, and is working to engage the financial community through several of the project's expert advisers, who continue to play a role in advising the participating companies. The Carnegie Endowment and the Secretariat also continue to brief customer and supplier state governments about the Principles of Conduct and the emerging review process. By engaging these stakeholders, the Carnegie Endowment hopes to build a substantial base of support

41. For information on the Principles of Conduct secretariat, see www. nuclearprinciples.org/contact. For the Equator Principles' secretariat, see The Equator Principles Secretariat, www.equator-principles.com/index.php/about/the-secretariat, accessed 27 October 2012. The Fair Labor Association hosts an extensive staff on three continents. See www.fairlabor.org/about-us/staff, accessed 27 October 2012.
42. These statements and others are available at: www.nuclearprinciples.org/support-statements.

for the Principles of Conduct and the promotion of best practices for all nuclear commerce.

Conclusion and future challenges

Nuclear energy faces an uncertain future, one which partially depends on building public confidence that nuclear power can be implemented safely and securely. By compiling the best practices in the Principles of Conduct, promoting the Principles of Conduct widely throughout nuclear industry and the general public, and engaging in regular reviews of the document and the implementation experience, nuclear power plant vendors have taken a great step towards demonstrating their commitment to being socially responsible actors.

The future viability of the unique process that produced and now sustains the Principles of Conduct is bright but also faces several challenges. Participants will need to continue to consult extensively with legal counsel to further develop procedures for sharing information and improving implementation that ensure strict adherence to competition laws and antitrust norms. The companies are also closely following the lessons that emerge from various investigations of the TEPCO Fukushima Daiichi nuclear power plant accident. In the coming months, participants will investigate ways to apply these lessons, including through possible revisions of the Principles of Conduct.

Shifts in the nuclear industry and the market for nuclear power plants will also potentially impact the Principles of Conduct review process, challenging vendor companies to adapt to and, in some cases, to internalise new players, new market conditions, and new best practices.

In response to the high capital costs and heavy electrical grid demands of larger power reactors, several companies are developing small reactor designs that promise lower installation and construction costs, improved proliferation resistance, and, if mass produced, economies of scale. These small modular reactor (SMR) producers comprise established nuclear power plant vendors, including several participants in the Principles of Conduct, as well as new companies and companies that have not previously designed and marketed their own reactor designs. No designs have been licensed by a national regulator as of yet, and it is not clear whether SMRs will live up to the promises of their designers.

In response to interest among SMR vendors in expanding into foreign markets, the Principles of Conduct secretariat is engaging these companies in order to begin a dialogue on issues of common concern. In July 2012, SMR and nuclear component manufacturer Babcock & Wilcox announced that it had adopted the Principles of Conduct. Other SMR companies with export ambitions are invited to adopt the Principles of Conduct and undertake the same obligations as current participants. Doing so would assure audiences the world over that the export of SMRs will proceed with the same care and concern for international best practices as the export of larger reactors.

As a financially constrained industry streamlines its commitments and companies seek to grow their market shares, the Principles of Conduct process will face pressures on its ability to sustain broad interest and high-level engagement within participant companies and with other industry stakeholders. At the last review meeting, participants noted that the high level of technical specificity in the Principles of Conduct is a source of confusion for non-technical personnel even as the detail in the Principles of Conduct is a source of their strength. Leadership and personnel changes, corporate restructuring, and even regular turnover will strain the ability of the secretariat and, in some limited ways, the Carnegie Endowment, to cultivate dedicated repositories of knowledge, expertise and institutional memory in

the large companies participating in this initiative. The uncertain prospects for nuclear energy – precarious in some countries and potentially dominant in others – only underscore the importance of sustaining a frank dialogue within the nuclear industry about best practices and how to ensure that they are applied universally.

The latest draft of the Nuclear Power Plant Exporters' Principles of Conduct is reprinted at page 257 in this volume. Additional information about the Nuclear Power Plant Exporters' Principles of Conduct is available online at www.nuclearprinciples.org.

The MCP Altona incident: the Canadian regulatory response and framework for the export of uranium

*By Jacques Lavoie**

Introduction

On 23 December 2010, a cargo ship carrying 350 000 kilograms (kg) of uranium ore concentrates (U_3O_8)[1] belonging to the Canadian resource corporation Cameco[2] left Vancouver, British Columbia, Canada and encountered severe weather conditions between Hawaii and the Midway Islands in international waters *en route* to Zhanjiang, People's Republic of China (PRC). The ship, the MCP Altona, suffered some damage to its hull but was able to continue to operate through the storm. Once the sea had calmed, the crew noticed that some of the containers on the ship had shifted and had been damaged. The captain, however, was unable to secure the necessary authorizations to obtain safe harbour in the area as there were no signs of immediate risk to the health and safety of the ship's crew.[3] On Cameco's recommendation, the ship returned to British Columbia.

This article describes the response of the Canadian Nuclear Safety Commission (CNSC) to this incident. The article also discusses the Canadian policy and regulatory framework for controls on the export of uranium.

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1. Uranium ore concentrate, U_3O_8, commonly referred to as "yellowcake", is the product created when uranium ore has been mined and milled. The fine powder is packaged in steel drums and shipped to refineries for further processing to prepare it for use as fuel in nuclear reactors. It has a very low solubility and remains stable over a wide range of conditions. The concentrate needs to be refined further and converted to a pure, uranium dioxide powder. For most reactors, the uranium also needs to go through an enrichment stage. This is done using concentrate that has been converted to a gaseous form of uranium hexafluoride (UF_6) for the enrichment process. Following enrichment, uranium is converted back to a solid uranium dioxide powder that is pressed into small pellets and put into fuel bundles placed inside reactors.
2. Cameco Corporation is a Canadian uranium producer and nuclear fuel services provider.
3. Under international law, no port may be closed to a foreign ship seeking shelter from storm or bad weather or otherwise compelled to enter it in distress, unless another equally safe port is open to the distressed vessel to which it may proceed without additional jeopardy or hazard. The only condition is that the distress must be real and not contrived and based on a well-founded apprehension of loss of or serious damage or injury to the vessel, cargo, or crew. In general, the distressed vessel may enter a port without being subject to local regulations concerning any incapacity, penalty, prohibition, duties, or taxes in force at that port. See US Navy (2007), The Commander's Handbook on the Law of Naval Operations, Edition July 2007, US Navy, NWP 1-14M, available at: www.usnwc.edu/getattachment/a9b8e92d-2c8d-4779-9925-0defea93325c/1-14M_(Jul_2007)_(NWP).

Regulatory response to the MCP Altona incident

On 3 January 2011, Cameco was notified that some of the sea containers on the MCP Altona that were loaded with drums filled with U_3O_8 had shifted and were damaged.[4] The MCP Altona is a multi-purpose container vessel of Liberian registry built in 2007. A number of the drums had broken open and their contents had dispersed within the containment area. The U_3O_8 was packaged in 55 gallon steel drums which met the requirements of Industrial Packages Type IP-1 of the Canadian Packaging and Transport of Nuclear Substances Regulations[5] and the IAEA Transport Regulations (TS-R-1).[6]

Thirty-five drums were loaded in single layers into 24 International Organization for Standardization (ISO) containers for a grand total of 840 drums for transport on board the MCP Altona. All of the 20 foot containers were located below deck in the bow of the ship in a dedicated enclosed hold, thus isolated from other goods on board the vessel. On 15 January 2010, the ship re-entered Canadian territorial waters and eventually anchored at Ladysmith, British Columbia, where representatives from Cameco, Transport Canada and the Canadian Nuclear Safety Commission (CNSC)[7] conducted a preliminary on board assessment in preparation to enter the ship's hold. Transport Canada subsequently issued a Detention Order under section 17 of the Transportation of Dangerous Goods Act[8] to ensure strict control over the ship and its cargo.

Between January 2011 and May 2012, staff from the CNSC, Cameco and Transport Canada participated in the remediation of the damage to the cargo and the hold of the ship sustained as a result of inclement weather on the high seas. Their focus was to limit the radiological exposure risk resulting from the incident. Ultimately, all nuclear material recovered from the MCP Altona was secured and transported to the Key Lake uranium milling facility in Saskatchewan for recovery of the yellowcake and disposal of the waste material.[9] Cameco provided CNSC staff with a Yellowcake Return - Safe Recovery Plan. The CNSC approved this plan on 24 March 2011 after consultation with other regulatory authorities and allowed Cameco to initiate the

4. In Canada, U_3O_8 is defined as a "nuclear substance" under section 2 of the Nuclear Safety and Control Act (NSCA) (S.C. 1997, c. 9) and a "controlled nuclear substance" under the Nuclear Non-proliferation Import and Export Control Regulations (NNIECR) (SOR/2000-210).
5. SOR/2000-208
6. IAEA (2005), *Safety Standards, Regulations for the Safe Transport of Radioactive Material, Safety Requirements*, 2005 Edition, available at: www-pub.iaea.org/mtcd/publications/pdf/pub1225_web.pdf. This article does not intend to address the applicability of other international conventions such as the Convention on the Physical Protection of Nuclear Materials (CPPNM).
7. In Canada, the Canadian Nuclear Safety Commission (CNSC) regulates the use of nuclear energy and materials to protect the health, safety and security of Canadians and the environment; and to implement Canada's international commitments on the peaceful use of nuclear energy. The CNSC was established in 2000 under the Nuclear Safety and Control Act and reports to Parliament through the Minister of Natural Resources. CNSC was created to replace the former Atomic Energy Control Board (AECB), which was founded in 1946.
8. S.C. 1992, c. 34.
9. Opened in 1983, Key Lake remains the world's largest high-grade uranium mill. Initially built to process uranium ore from two adjacent open pit mines, the mill was converted by 1999 to handle higher grade uranium ore shipped to the operation in slurry form from the McArthur River mine 80 kilometres to the north. (Additional information available at: www.cameco.com/mining/key_lake/)

complete clean-up and decontamination of the MCP Altona under the CNSC's regulatory scrutiny.

Radiation doses to CNSC staff and workers were very low and there were no unplanned doses received by any worker or member of the public as a result of the damage remediation process. In addition, there were no releases of uranium ore concentrate to the environment during this process. The average dose estimate for remediation workers from direct deading dosimeters during the entire recovery and clean-up operation was 0.12 milliSievert (mSv) (which is 0.2% of the CNSC annual dose limit of 50 mSv for a nuclear energy worker), with the highest reading for an individual worker being 0.59 mSv (which is 1% of the CNSC annual dose limit of 50 mSv).

During the remediation process, radiation levels immediately outside the MCP Altona cargo hold on the deck of the ship and in the surrounding pier area were minimal and within background levels of approximately 0.04 microSievert (μSv/h). Radiation doses to CNSC inspectors throughout the remediation operation were also very low, with the highest individual reading being 0.029 mSv (with an average reading of 0.015 mSv). These readings provided assurance that doses to members of the public as a result of the remediation operation did not exceed the CNSC annual public dose limit of 1 mSv, as no one other than those workers directly involved with the remediation process spent more time in the area of the remediation operation than the CNSC inspectors.

As noted above, there was no contamination observed outside the cargo hold, and thus no cross-contamination of other goods on the ship. During the remediation operation, Cameco performed daily contamination checks within the work area inside the cargo hold and outside the cargo hold on the hold covers, the deck and the pier area; CNSC inspectors cross-verified these measurements. Measurements of radiation levels were taken before each transport of containers and drums of yellowcake that had been removed from the ship's hold left the remediation area for disposition at Cameco's Key Lake facility. Dust monitoring results on the deck above the cargo hold were consistently extremely low, showing no measurable levels of uranium dust.[10] All rain water that fell in contaminated areas was collected and stored in double-walled containers which were shipped to Cameco's Key Lake facility. In addition, environmental monitoring of the water surrounding the vessel was conducted on a weekly basis during the remediation operation.

All workers in the hold wore appropriate personal protective equipment (PPE) to prevent exposure to uranium dust and were subject to regular bioassay checks to detect any uranium uptakes during the remediation operation. There were no indications of any uptake of uranium by any worker resulting from the recovery and clean-up operations. Upon termination of the operation, Cameco conducted a final radiation survey of the cargo hold and of the area outside the cargo hold on the hold covers, the deck and in the pier area, to verify that there was no residual contamination above the CNSC-approved surface contamination criterion of 0.4 becquerels per square centimeter (Bq/cm^2) for uranium. CNSC staff verified Cameco's survey results and conducted an independent radiation survey of all affected areas. At the conclusion of the remediation operation, CNSC staff confirmed

10. Update on the shipment of uranium concentrate on board the vessel MCP Altona, "Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Wednesday and Thursday, 8 June and 9 June 2011, beginning at 4:06 p.m. on 8 June in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario", available at: www.nuclearsafety.gc.ca/eng/commission/pdf/Minutes-June8and9-2011-e-Final-Edocs3773469.pdf?CFID=17981011&CFTOKEN=69680487.

that there was no residual contamination from uranium ore concentrates on board the vessel MCP Altona or on the pier.

In light of CNSC staff's finding that no uranium contamination remained on board the MCP Altona following the remediation operation, CNSC staff was satisfied that for the purposes of the Nuclear Safety and Control Act, the marine vessel MCP Altona was no longer a risk or a regulatory concern. The CNSC concluded that there had been no damage done to the environment, the health and safety of the MCP Altona crew, the remediation workers or the general public as a result of this incident or of the decontamination work conducted by Cameco. As a result of these findings, the MCP Altona was ultimately released from all CNSC regulatory control on 5 May 2011.[11]

Canadian policy and regulatory controls on the export of uranium

The Nuclear Safety and Control Act (NSCA)[12] and the Export and Import Permits Act (EIPA).[13]

Canadian regulatory controls on the export of uranium are administered under the Nuclear Safety and Control Act and the Export and Import Permits Act and regulations issued hereunder.

In Canada, the Department of Foreign Affairs and International Trade (DFAIT) has policy and oversight responsibility for Canada's international agreements. It is often the lead government department in implementing Canada's obligations related to these agreements. However, other government departments and agencies such as the CNSC also have delegated or lead responsibility for implementing a number of international agreements. Under Section 3 and Section 9 of the NSCA, the CNSC is responsible for ensuring compliance with measures of control and international obligations to which Canada has agreed with respect to the development, production and use of nuclear energy, including the non-proliferation of nuclear weapons and other nuclear explosive devices.

Section 26(a) of the NSCA prohibits the export or import of uranium without a licence and requires that any such transaction be subject to applicable regulations. Two regulations in particular establish requirements pertaining to authorisations for the import or export of uranium: the General Nuclear Safety and Control Regulations (GNSCR)[14] and the Nuclear Non-proliferation Import and Export Control Regulations (NNIECR).[15] The CNSC has the authority to grant export licences (EL) and import licences (IL) to authorise licensees to carry out uranium export or import activities.

The Minister of Foreign Affairs is responsible for ensuring compliance with the EIPA and must seek the concurrence of the Minister of International Trade on policy issues and decisions related to this particular legislation. Under the EIPA, the Minister of Foreign Affairs may issue a permit to authorise the export of goods or technology on the Export Control List (ECL).[16] The ECL comprises military, dual-use

11. Litigation ensued between Cameco and the owners of the MCP Altona, including the shipping company, before the Admiralty division of the Federal Court of Canada for damages exceeding USD 19 000 000.00 (Federal Court, Admiralty, File no. T-484-11). At the time of the writing of this article, the case was still pending before the Federal Court of Canada.
12. S.C. 1997, c. 9.
13. R.S.C. 1985, c. E-19.
14. SOR/2000-202.
15. SOR/2000-210.
16. SOR/89-202.

and strategic goods and technology, all US-origin goods and technology, and a limited number of items that are controlled for economic reasons. The ECL lists 7 groups of goods controlled for export, including nuclear (Group 3) and nuclear-related dual use (Group 4). Other federal legislation controls specific goods within the ECL, including those administered by the CNSC (nuclear and nuclear-related dual-use items), Environment Canada (endangered species and hazardous waste), Heritage Canada (cultural objects), Health Canada (illicit drug precursors), Natural Resources Canada (explosives) and Fisheries and Oceans (roe herring).

The NSCA and the EIPA provide a legal framework for a shared but independent legal responsibility for regulatory control of the import and export of nuclear and nuclear-related dual-use goods between agencies. The Export Control Branch (TIE) of DFAIT and the CNSC play separate roles in granting such export and import authorisations, but the administration of the licensing and permitting procedures related to such imports and exports is coordinated between these two entities. DFAIT issues Individual Export Permits (IEPs) and General Export Permits (GEPs) under the EIPA; the CNSC issues export and import licences under the NSCA.

DFAIT does not issue import permits for nuclear goods and technology. Rather, imports and exports of nuclear goods such as uranium, reactor equipment and design/manufacturing data are controlled by the CNSC to ensure compliance with Canada's bilateral nuclear cooperation commitments and Canada's international non-proliferation obligations. A coordinated application and authorisation issuance process is in place between the two authorities for the export of items or goods requiring both an IEP from DFAIT and an export licence from CNSC.

Nuclear and nuclear-related dual-use control lists

The commodity control lists in Parts A and B of the Schedule to the Nuclear Non-proliferation Import and Export Control Regulations (NNIECR) under the NSCA and in Groups 3 and 4 of the ECL issued pursuant to the EIPA are both derived from lists agreed by the Nuclear Suppliers Group (NSG) and published as IAEA INFCIRC 254, Parts 1 and 2. However, controls under the NSCA are slightly broader in scope than those adopted by the NSG because Canada maintains stricter controls over the export of nuclear goods than its international commitments require, as evidenced by the NNIECR requirements and Canada's 1986 Tritium Export Guidelines.[17]

For certain nuclear and nuclear-related dual use items listed in Groups 3 and 4 of the Export Control List, that are also listed in the NNIECR, Canadian exporters do not require an Individual Export Permit from DFAIT but can use a General Export Permit (GEP 43 or 44) for such exports. The GEP provides on-going authorisation for the export of certain goods without the need for an application to identify specific information on the shipment, such as end use, end user and destination. In such cases, the CNSC bears responsibility for granting risk-informed GEP export authorisations.

Where the CNSC and DFAIT both bear responsibility for exercising control over an item for export, the CNSC is included in DFAIT's application consultation process. This coordination process is used to inform DFAIT of whether the CNSC has any concerns or objections which may be relevant to the issuance of an export permit. This process recognises the need for CNSC's technical assessment of nuclear and nuclear-related goods. This assessment enables CNSC and DFAIT to take into account any technical or end-use/end-user concerns with respect to certain goods

17. CNSC (2006), "Records of Proceedings, in the Matter of SRB Technologies (Canada) inc., October 25 and November 27 2006", paragraph 116, available at: http://nuclearsafety.gc.ca/eng/commission/pdf/2006-11-27-Decision-SRBT-e.pdf.

which may be identified through the CNSC's risk assessment process. CNSC's involvement also provides assurances that any specific requirements or restrictions on nuclear exports under bilateral Nuclear Cooperation Agreements (NCAs) administered by the CNSC are implemented before an export authorisation is issued. In all instances, the CNSC is responsible through its export licensing process for assuring the peaceful end use of nuclear-related goods and compliance with Canadian nuclear non-proliferation policy and Canada's international obligations and commitments.

Export of U_3O_8 (uranium ore concentrates) subject to Canada's nuclear non-proliferation policy

CNSC granted Cameco two (2) export licences for the shipment to the People's Republic of China of 350 000 kilograms (kg) of uranium ore concentrates on the MCP *Altona*.[18] The uranium ore concentrates were of Chinese origin[19] and Namibian origin.

Canada's nuclear non-proliferation policy establishes the conditions under which Canada is prepared to engage in nuclear cooperation with other countries. The policy requires that transfers to another country of nuclear material, including uranium ore concentrates, be subject to a treaty-level bilateral Nuclear Cooperation Agreement (NCA). The NCA sets out the general expectations agreed to by the respective countries while the requirements for authorisations to export are subject to national law and may require individual approvals or permits on a case-by-case basis. The CNSC is responsible for monitoring the implementation of the provisions of such an NCA and does so primarily through a set of notification and reporting procedures as established in a bilateral Administrative Arrangement (AA) with the NCA partner country. CNSC's responsibility in this area includes the administration of transfer notifications and retransfer consent requests. Such documentation must be processed prior to the issuance of export licensing approvals. The CNSC also maintains a record of the inventory of nuclear material transferred to other countries for the purposes of domestic nuclear material accounting and for reporting to bilateral NCA partners under the terms of the relevant NCA.

Canada abides by to the generally accepted nuclear material accounting principles in its tracking and recording of transfers of uranium, specifically noting the origin of the material (foreign or Canadian) and any obligations placed on the material pursuant to the requirements of one or more bilateral NCAs. However, yellowcake is a fungible commodity and, when mixed with material originating from other countries, it cannot be physically identified and tracked in a practical way. For instance, a quantity of foreign-origin "yellowcake" is for all practical purposes indistinguishable from an identical quantity of Canadian-origin yellowcake.

Exports of uranium from Canada are authorised through licensing processes administered by the CNSC. CNSC creates data records for such material at the time of issuance of import and export licences. Licensees in possession of nuclear material are required to report any subsequent changes in inventory, including changes due to authorised exports or imports, upon each shipment or receipt made under each licence to the CNSC's Nuclear Material Accounting System (NMAS). This notification must identify whether the material is of foreign-origin or Canadian-

18. EL-A1-20142.0/2012 and EL-A1-20141.0/2012.
19. The Chinese-origin uranium was subject to the Agreement Between the Government of Canada and the Government of the People's Republic of China for Co-Operation in the Peaceful Uses of Nuclear Energy of 7 November 1994.

origin. Such licensee reporting is done through forms provided to licensees by the CNSC.[20]

Export of U_3O_8 (uranium ore concentrates) to the People's Republic of China (PRC)

In November 1994, Canada and the PRC signed a bilateral NCA[21] and, on 24 February 1997, the predecessor to the CNSC, the Atomic Energy Control Board (AECB), signed the corresponding Administrative Arrangement with the China Atomic Energy Agency (CAEA).[22] Since 1994, Canada and China have built a successful cooperation in civil nuclear energy programmes. The nuclear cooperation agreement allows Canadian-origin uranium to be exported to China; however, the provisions of the nuclear co-operation agreement allow such shipments to go only to Chinese nuclear fuel cycle facilities subject to China's "voluntary offer" safeguards agreement with the International Atomic Energy Agency (IAEA).

The transfer of foreign-origin uranium ore concentrates was authorised by CNSC in accordance with Canada's nuclear non-proliferation policy. Because the uranium was not of Canadian origin, it was not subject to the provisions of the Canada-China nuclear cooperation agreement and thus required an exceptional CNSC review. In this regard, Canada requested and received special peaceful end use assurances from the Chinese authorities before the CNSC authorised the exports. The requests for such assurances were specific to this shipment of foreign-origin uranium from Canada to China. A proposed export of Canadian-origin uranium to China would have been otherwise subject to the provisions and peaceful use assurances of the bilateral Canada-China nuclear cooperation agreement.

Conclusion

On 19 July 2012, Canada signed a Protocol to the Canada-China nuclear cooperation agreement that is intended to expand the potential for more frequent transfers of Canadian-origin uranium to China. The Protocol is expected to be ratified by both governments in the late fall of 2012. The Protocol provides for additional mechanisms to verify the peaceful end use of uranium provided by Canada to the PRC. Under this Protocol, China will provide additional reports to Canada on supplied uranium when it is in a facility that is not covered by China's "voluntary offer" safeguards agreement with the IAEA. These additional reporting requirements are set forth in a supplementary administrative arrangement between the CNSC and its counterpart, the China Atomic Energy Authority.[23]

The Protocol is in accordance with Canada's longstanding nuclear non-proliferation policy and China's international obligations. The provisions of this

20. CNSC Regulatory Document RD-336: "Accounting and Reporting of Nuclear Materials", available at: www.nuclearsafety.gc.ca/eng/lawsregs/regulatorydocuments/published/html/rd336/.
21. Agreement between the Government of Canada and the Government of the People's Republic of China for Co-operation in the Peaceful Uses of Nuclear Energy (1994). Source: CTS 1994/27. UNTS 34969, available at: www.treaty-accord.gc.ca/details.aspx?id=101776.
22. Source: AECB-R 1997. The AA was signed pursuant to the agreement of 7 November 1994.
23. Additional information available at: www.international.gc.ca/media/aff/news communiques/2012/07/19a.aspx?lang=eng&view=d.

Protocol will ensure that Canadian supplied uranium will be used only in China's civilian nuclear programme and strictly for peaceful non-military purposes.[24]

Under the Nuclear Safety and Control Act and its regulations, Canadian importers and exporters are required to obtain and comply with CNSC licences controlling the international transfer of nuclear and nuclear-related items. Through the licensing process, CNSC takes steps to ensure that nuclear imports and exports are consistent with Canada's nuclear non-proliferation policy. Licensees in turn must respect Canada's nuclear non-proliferation commitments.

Canada's nuclear non-proliferation policy requires that major nuclear exports from Canada must be made subject to a nuclear cooperation agreement between Canada and the importing country. These agreements establish reciprocal obligations that are designed to minimise the risk of proliferation associated with the international transfer of nuclear items. CNSC participates with DFAIT in the negotiation of bilateral nuclear cooperation agreements and implements administrative arrangements with its foreign counterparts to effectively fulfill the terms and conditions of these agreements.

The case of the MCP Altona was an event that raises the broader national and international implications of uranium exportation from Canada to China in the context of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT).[25] The NPT establishes commitments to prevent the spread of nuclear weapons promote cooperation in the peaceful uses of nuclear energy and achieve nuclear disarmament. Canada is an original signatory to the NPT and has centered its nuclear policy around its provisions. The cornerstone of Canada's nuclear non-proliferation policy is to assure Canadians and the international community that Canada's nuclear exports do not contribute to the development of nuclear weapons or other nuclear explosive devices.

24. As required under Canadian law, the protocol was tabled for comments in Parliament this autumn for 21 consecutive sitting days, it will be brought into force upon conclusion of the consultation period through an Order in Council (OIC) and upon completion of an exchange of diplomatic notes between Canada and China. Available at: http://pm.gc.ca/eng/media.asp?id=4643.
25. Treaty on the Non-Proliferation of Nuclear Weapons (1970)

Conflict of law issues related to Switzerland's participation in the Paris Nuclear Third Party Liability Regime

*by Michael Waldner**

Abstract

In spite of the active role Switzerland played during the negotiation process of the Paris Convention, it only recently ratified the Convention including all its amending Protocols. The whole Paris regime will become binding for Switzerland only upon entry into force of the Protocols of 2004. Concurrently, the Federal Council will put into force a revised Swiss Nuclear Liability Act and ratify the Joint Protocol. Being a party to the Paris regime and the Joint Protocol, Switzerland will be in treaty relationships with Paris states and with Vienna states which are party to the Joint Protocol. This paper assesses the legal protection of Swiss victims and the liability risks faced by Swiss operators and other potential defendants (such as suppliers and builders) under the new legal regime with a particular view to conflict of laws issues. For the purpose of this assessment the paper examines which courts will be competent to hear claims of Swiss victims and against Swiss defendants in different scenarios, which law these courts should apply, whether or not the principle of legal channelling will apply and what the applicable liability amounts are. The assessment shows an ambiguous picture: Swiss operators, suppliers and builders clearly benefit from a higher degree of legal certainty. While in the absence of treaty relationships Swiss operators could potentially be sued before any foreign court, there will now be only one court with jurisdiction over claims of victims of convention states; Swiss suppliers and builders for their part will be protected by the principle of legal channelling, which basically exempts them from any liability risk. Swiss victims will benefit from treaty-backed entitlement to compensation from foreign operators; also, the judgements rendered in their favour will be enforceable in the whole convention territory; however, the limitation of the operator's liability in many Paris and Vienna states, raises doubts about whether the available funds will suffice to compensate for all damage in the event of a major incident. Also, with a view to the extended geographical scope of the 2004 Paris Convention and the 1997 Vienna Convention, it could be argued that Swiss victims would be no worse off if Switzerland did not take part in the international conventions at all.

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1. Introduction

1.1 General overview of nuclear liability legislation in Switzerland

As early as 1959 the Swiss legislature enacted its first Atomic Energy Act[1] which contained a section on nuclear liability. The liability regime was based on principles such as strict liability of the operator and legal channelling. Contrary to the general principles of Swiss third party liability law, the Atomic Energy Act provided for the limitation of the operator's liability to CHF 40 million, an arrangement, which was, at the time, considered to be necessary to foster the growth of the new industry.[2]

On 1 January 1984, a new specific law on nuclear liability, the Swiss Nuclear Liability Act of 1983 (1983 Nuclear Liability Act),[3] entered into force, replacing the nuclear liability provisions of the 1959 Atomic Energy Act. While upholding the principles of strict and legally channelled liability, the 1983 Nuclear Liability Act did away with limited liability and declared the operator liable without limitation. Concurrently, it imposed an obligation on the operator to take out insurance coverage of CHF 1.1 billion (including CHF 100 million to cover costs for dispute settlement).[4]

In its capacity as a member of the OECD, Switzerland took part in the negotiation and drafting of both the Paris Convention on Nuclear Third Party Liability[5] and the Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy.[6] Switzerland signed both conventions but ratified neither of them. During the course of the enactment of the 1983 Nuclear Liability Act, the ratification was

1. *Loi fédérale sur l'utilisation pacifique de l'énergie atomique et la protection contre les radiations du 23 décembre 1959*, FF 1959 1381 - 1396.
2. *Message du Conseil fédéral à l'Assemblée fédérale concernant un projet de loi sur l'utilisation pacifique de l'énergie atomique et la protection contre les radiations du 8 décembre 1958*, FF 1958 1549 1561; Debieux, C. (1986), *La responsabilité civile des exploitants d'installations nucléaires et sa couverture, Dissertation*, Fribourg/Tubingen, p. 69; Rausch, H. (1980), *Schweizerisches Atomenergierecht, Schulthess Polygraphischer Verlag*, Zurich, p. 11.
3. *Loi sur la responsabilité civile en matière nucléaire du 18 mars 1983*, RS 732.44, available at: www.admin.ch/ch/f/rs/7/732.44.fr.pdf.
4. See 1983 Nuclear Liability Act, Article 11(1) and 12.
5. Paris Convention on Nuclear Third Party Liability (1960). In this paper, the abbreviation "1960 Paris Convention" is used to refer to the original, non-amended version of the convention. The abbreviation "1982 Paris Convention" refers to the convention as amended by the 1964 Additional Protocol and by the 1982 Protocol. The abbreviation "2004 Paris Convention" refers to the convention as amended by the Protocol to Amend the Paris Convention on Nuclear Third Party Liability of 2004 (2004 Paris Protocol). The abbreviation "Paris Convention" is used to refer to the convention in any non-amended or amended version. The 1982 Paris Convention is available at: www.oecd-nea.org/law/paris-convention-protocol.html, the 2004 Paris Protocol is available at: www.oecd-nea.org/law/paris_convention.pdf.
6. Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy (1963). In this paper the abbreviation "1963 Brussels Convention" is used to refer to the original, non-amended version of the convention. The abbreviation "1982 Brussels Convention" refers to the convention as amended by the 1964 Additional Protocol and by the 1982 Protocol. The abbreviation "2004 Brussels Convention" refers to the convention as amended by the 2004 Protocol to Amend the Brussels Supplementary Convention on Nuclear Third Party Liability (2004 Brussels Protocol). The abbreviation "Brussels Convention" is used to refer to the convention in any non-amended or amended version. The 1982 Brussels Convention is available at: www.oecd-nea.org/law/nlbrussels.html. The 2004 Brussels Protocol is available at: www.oecd-nea.org/law/brussels-supplementary-convention-protocol.html.

under consideration. However, the Federal Council came to the conclusion that the intended introduction of liability without limitation would be incompatible with the limitation of liability provided for in the 1960 Paris Convention.[7] Arguing that the ratification of the 1960 Paris Convention and 1963 Brussels Supplementary Convention would neither significantly improve the protection of Swiss victims nor significantly contribute to a unification of law the Federal Council held that ratification was not desirable.[8]

This assessment of the situation changed with the adoption of the 2004 Paris Protocol and the 2004 Brussels Protocol, which both allow convention states to establish unlimited liability of the operator in their national legislation, rendering participation in the Paris regime an option worth considering. Switzerland had taken part in the negotiation of the protocols as an observer and signed both of them on 12 April 2004.

Upon signing of the 2004 Paris Convention and of the 2004 Brussels Convention, the Federal Council made reservations in respect of Article 8(f) 2004 Paris Convention (reservation to allow revision of final judgements in case of novel facts or evidence) and in respect of Article 9 2004 Paris Convention (liability of operators for nuclear damages caused by an incident directly due to an armed conflict, hostilities or a civil war).[9] Also, on the occasion of the ratification of the 2004 Paris Convention, Switzerland made a reservation to the Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention (Joint Protocol)[10] according to which Swiss operators shall be liable in relation to damages in state parties to the Vienna Convention on Civil Liability for Nuclear Damage[11] and the Joint Protocol on the basis of reciprocity.[12]

With a view to the envisaged participation in the Paris regime, the Swiss Nuclear Liability Act of 2008 (2008 Nuclear Liability Act)[13] was enacted on 13 June 2008 to bring Swiss legislation in line with Switzerland's obligations under the 2004 Paris Convention and the 2004 Brussels Convention.

In order not to create inconsistencies between Swiss legislation and the conventions, the 2008 Nuclear Liability Act declares the self-executing provisions

7. *Message concernant une loi sur la responsabilité civile en matière nucléaire du 10 décembre 1979*, FF 1980 172 183.
8. *Ibid*. p. 191-196; Fischer, U. (1980), *Die Bewilligung von Atomanlagen nach schweizerischem Recht, Energieforum Schweiz*, Bern, pp. 191-192.
9. *Arrêté fédéral concernant l'approbation et la mise en oeuvre des conventions relatives à la responsabilité civile dans le domaine de l'énergie nucléaire*, FF 2008 4843, Article 1(1)(a).
10. Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention (1988), available at: www.oecd-nea.org/law/nljoint_prot.html.
11. Vienna Convention on Civil Liability for Nuclear Damage (1963). In this paper, the abbreviation "1963 Vienna Convention" is used to refer to the original, non-amended version of the convention. The abbreviation "1997 Vienna Convention" is referring to the Vienna Convention as amended by the 1997 the Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage. The abbreviation "Vienna Convention" is referring to both, non-amended and amended versions of the Vienna Convention. The 1963 Vienna Convention is available at: www .iaea.org/Publications/Documents/Infcircs/1996 /inf500.shtml; the text of the 1997 Vienna Protocol is available at: www.iaea.org/ Publications/Decoments/Infcircs/1998/infcirc566.shtml.
12. *Arrêté fédéral concernant l'approbation et la mise en oeuvre des conventions relatives à la responsabilité civile dans le domaine de l'énergie nucléaire*, FF 2008 4843, Article 1(1)(c).
13. *Loi fédérale sur la responsabilité civile en matière nucléaire du 13 juin 2008*, FF 2008 4845 – 4858, available at: www.admin.ch/ch/f/ff/2008/4843.pdf.

(Articles 1-15 of the 2004 Paris Convention) directly applicable and beyond that contains only provisions which are supplementary to those of the convention.[14]

Like its predecessor, the 2008 Nuclear Liability Act provides for unlimited liability of the operator.[15] Compared to the 1983 Nuclear Liability Act, the mandatory insurance cover has been increased from CHF 1 billion to an amount corresponding to the first and second tier cover of the 2004 Brussels Convention[16] (approximately CHF 1.8 billion).[17] As under the 1983 Nuclear Liability Act, but contrary to the 2004 Paris Convention, operators can also be held liable for nuclear incidents directly due to hostilities, armed conflicts or civil wars.[18]

On March 2009, the Federal Council ratified both the 2004 Paris Convention and the 2004 Brussels Convention; Switzerland thus became the first country to ratify the protocols of 2004. The conventions will become binding for Switzerland only when the respective protocols of 2004 enter into force internationally.[19] Ratification of the Joint Protocol is still outstanding but will take place concurrently with the entry into force of the 2004 Paris Convention.

1.2 Scope

History has shown that the impact of a nuclear incident does not necessarily stop at a nation's border. Liability claims arising out of nuclear incidents are therefore likely to involve parties that have their domicile or place of residence in different countries. Having connections to different, competing legal regimes, such claims give rise to conflict of law questions, such as: "Which court(s) is/are competent to hear liability claims? Which law does the court have to apply? Are the judgements enforceable in other states?"

Due to the fragmentation of nuclear liability law at an international level, these questions turn out to be very complex in many situations. These complex questions are to be answered not only by courts when confronted with liability claims but also by prospective contractual partners in the nuclear industry when drafting liability clauses aimed at effectively allocating nuclear third party liability risks among them.

This paper analyses the legal position of Swiss victims, operators and third parties such as suppliers and builders under the new legal regime. Thereby, the overall objective is to assess the extent of legal protection afforded to Swiss victims who have been affected by nuclear damage and the risk exposure of Swiss operators and other potential defendants such as suppliers and builders under the new legal regime. This assessment shall be based on an examination of the following questions:

14. *Message relatif à l'arrêté fédéral concernant l'approbation et la mise en oeuvre des conventions relatives à la responsabilité civile dans le domaine de l'énergie nucléaire du 8 juin 2007*, FF 2007 5125 5146; Tami, R. (2005), « *Die Rezeption der revidierten Pariser und Brüsseler Übereinkommen in das schweizerische Recht* » in Pelzer N. (ed.) (2005), Die Internationalisierung des Atomrechts, Nomos, Baden-Baden, p. 210.
15. 2008 Nuclear Liability Act, Article 3(1).
16. 2004 Brussels Convention, Article 3(b)(i) and (ii).
17. 2008 Nuclear Liability Act, Article 8(2).
18. 2008 Nuclear Liability Act, Article 3(2).
19. The 2004 Paris Protocol will enter into force internationally when ratified or confirmed by two thirds of the state parties, the 2004 Brussels Protocol when ratified or confirmed by all state parties. According to Council Decision 2004/294/EC, European Union member states that are contracting parties to the Paris Convention shall deposit their instruments of ratification simultaneously.

- Which courts have, in the light of the jurisdictional regimes of the Paris Convention and the Vienna Convention, competence to hear claims filed by Swiss victims or claims filed against Swiss defendants?
- Will the competent court apply the substantive provisions of either the Paris Convention or the Vienna Convention or will the action rather be governed by autonomous national law?
- As far as actions against suppliers and builders are concerned, are they or are they not protected by the legal channelling regimes of either the Paris Convention or the Vienna Convention?
- As far as actions falling within the scope of application of the Paris Convention or the Vienna Convention are concerned, which liability limit applies?

The courts of state parties to either the Paris Convention or the Vienna Convention, when confronted with liability claims arising out of nuclear incidents, will first have to answer the above questions on the basis of the respective convention. Section 2 examines how the conventions answer these questions.

Section 3 examines how the Swiss legislature dealt with these issues when translating its obligations under the 2004 Paris Convention and the 2004 Brussels Convention into Swiss legislation. Based on this examination the legal position of three of the main interest groups will be assessed: Swiss operators, Swiss victims and Swiss suppliers. The last section recapitulates the main findings of this work and gives an overall assessment of the legal position of Swiss stakeholders under the new legal regime.

The scope of this paper is limited to liability in connection with incidents occurring *inside nuclear installations*. Liability issues specifically arising in connection with nuclear incidents occurring upon carriage are touched upon only where necessary to increase the understanding or where helpful for the illustration of a concept.

2. Important aspects and basic principles of the international legal regime

In the previous section, questions were identified which will form the basis for the assessment of the Swiss stakeholders' legal position under the new legal regime. This section examines how the Paris Convention and Vienna Convention, and, where applicable, the Joint Protocol, answer these questions. Thereby, this section follows the order in which a court must address these questions when a claim arising out of a nuclear incident is submitted to it.

First, the court has to establish, whether the nuclear incident, and, thus the claim at hand, falls within the scope of application of the relevant convention. Where the applicability of a convention is established, the court has to apply its jurisdictional regime in order to decide whether it is competent to hear the dispute. Where actions against persons other than the operator are concerned, the court has to assess whether or not the defendant is protected by the legal channelling provision of the relevant convention. And finally, the court will have to determine the applicable liability limit and to identify reciprocity requirements which possibly limit or exclude the operator's liability.

2.1 Applicability of the conventions

2.1.1 Paris Convention and Vienna Convention

The Paris Convention and the Vienna Convention both tacitly presuppose a number of prerequisites to be fulfilled in order them to apply to a particular nuclear incident. First and obviously, the occurrence which forms the basis of the case must qualify as a "nuclear incident" in accordance with the terms of the conventions, and the damage arising out of such nuclear incident must fall within the definition of "nuclear damage", in order to trigger the applicability of the conventions.

Apart from these directly evident prerequisites, there is an important additional precondition to be met. In order for the convention regimes to apply, it is necessary that the operator designated liable by the conventions is an operator under the jurisdiction of the respective convention, i.e. the Paris Convention will only apply if the installation of the operator liable pursuant to the relevant provisions of the convention is situated in the territory of a Paris Convention state. The same applies vice-versa to the Vienna Convention.[20]

Although this condition is not expressly stated in the conventions, it becomes ultimately evident taking into account that the conventions can impose obligations only on convention states, their courts and the persons under their jurisdiction. For example, only convention states can be obliged to exert jurisdiction over liable operators, to establish minimum liability amounts, to impose insurance obligations on their operators and to provide access for foreign victims to their courts on a non-discriminatory basis; only convention states might be obliged to recognise and enforce judgements rendered in other convention states.[21]

Thus, in order for the Paris Convention or the Vienna Convention to apply, (i) the incident in question must qualify as a nuclear incident as defined in the conventions, and (ii) the installation of the operator to which liability is channelled under the rules of the conventions must be situated in the territory of a convention state.[22] If these preconditions are met, the application of the conventional legal

20. In relation to the 1997 Vienna Convention, see IAEA (2007), *The 1997 Vienna Convention on Civil Liability for Nuclear Damage and The 1997 Convention on Supplementary Compensation for Nuclear Damage - Explanatory Texts*, IAEA International Law Series No. 3, Vienna, p. 28, available at: www-pub.iaea.org/MTCD/publications/PDF/Pub1279_web.pdf.
21. The precondition that the liable operator must be an operator of a convention state also becomes evident with regard to the conventions' jurisdictional regimes (see below, section 'Jurisdictional Regimes'). According to the basic jurisdictional rule of both conventions, "the courts of the Contracting Party" where the incident occurred shall have exclusive jurisdiction (Article 13(a) of the 2004 Paris Convention, Article XI(1) of the Vienna Convention. Applying this rule to a nuclear incident occurring in an installation situated in a non-convention state would mean that the conventions fail to designate the competent court. Even more strikingly, the Vienna Convention designates the "Installation State" competent in relation to incidents occurring outside the territory of a convention state (Article XI(2) of the Vienna Convention). Applying this rule to incidents where the installation state is a non-convention state would mean that the courts of this non-convention state are designated competent to the exclusion of the courts of convention states. In other words, victims of a convention state would be referred to a court of a non-convention state without any guarantee that this non-convention state will admit their claims and afford them adequate compensation. In that way, victims could end up entirely deprived of any effective legal protection; a result that is, clearly, contrary to the Conventions' intentions.
22. Note that for the Vienna Convention to apply it is sufficient that the liable operator is under the authority of a Vienna Convention-state, even if his installation is situated in the territory of a non-Vienna Convention-state (see IAEA, supra note 20, p.28).

regimes, including their procedural (as to jurisdiction and applicable law) and substantive provisions, is triggered.

Applicability of the conventions to a certain nuclear incident does not necessarily mean that each and every aspect or legal relationship which might arise in connection with this incident is governed by the conventional legal regime. First, the conventions expressly leave the implementation of many subjects to the national legislature's discretion, and, as will be discussed below, there are jurisdictional issues and claims against persons other than the liable operator which are entirely beyond the scope of the conventions' legal regimes.

2.1.2 Joint Protocol

The Joint Protocol has the function of acting as a bridge between the Paris Convention and the Vienna Convention. It aims to ensure that only one convention, and, thus only one jurisdictional regime, applies to a particular nuclear incident. In turn, the Joint Protocol extends the benefits of one convention to the victims in state parties to the other convention and the Joint Protocol.

The Joint Protocol contains no express provision as to which conditions must be fulfilled in order for it to apply. Evidently, the applicability of the Joint Protocol presupposes that either the Paris Convention or the Vienna Convention are applicable to the nuclear incident at hand, i.e. that an operator of a state party to either of these conventions is liable under their respective rules. In this sense the Joint Protocol is accessory to these conventions.

Applicability of either convention is, however, not sufficient to trigger the applicability of the Joint Protocol. The applicability of the Joint Protocol moreover requires that the incident occurs in a state party to the Joint Protocol. This becomes ultimately evident taking into account that the Joint Protocol can only oblige its state parties to extend the benefits of their basis-convention to the victims of state parties to the other basis-convention. In turn, it must be concluded that Joint Protocol-states which are state parties to the other base-convention cannot be required to observe the Joint Protocol in relation to incidents occurring in state parties to the Paris Convention or the Vienna Convention only.

2.2 Jurisdictional regimes

2.2.1 Paris Convention and Vienna Convention

Once the applicability of the Paris Convention or Vienna Convention to the incident at hand is established, the court with which an action is filed must examine whether the relevant convention contains provisions granting it jurisdiction or barring it from hearing the claim.

The Paris Convention and the Vienna Convention both contain provisions regarding jurisdiction in relation to incidents occurring inside nuclear installations and upon carriage of nuclear materials.

The provisions of the Paris Convention and the Vienna Convention governing jurisdiction in relation to incidents occurring in nuclear installations read as follows:

Article 13(a) 2004 Paris Convention:

> "Except as otherwise provided in this Article, jurisdiction over actions under Articles 3, 4 and 6(a) shall lie only with the courts of the Contracting Party in whose territory the nuclear incident occurred".

Article XI(1) Vienna Convention:

> "Except as otherwise provided in this Article, jurisdiction over actions under Article II shall lie only with the courts of the Contracting Party within whose territory the nuclear incident occurred".

These provisions embody the principle of channelling of jurisdiction, which is one of the fundamental principles of nuclear third party liability. By virtue of this provision, the courts in the convention state where the incident occurred are obliged to assume jurisdiction over actions specified in the above provisions while the courts of other convention states are barred from admitting such claims.[23]

Article 3, 4 and 6(a) of the 2004 Paris Convention and Article II of the Vienna Convention, to which the above jurisdictional provisions refer, specify the liability of the operator and are, thus, the legal basis for actions against the operator. By contrast, the above jurisdictional provisions do not cross-refer to actions which might be brought against persons other than the operator e.g. under Article 6(c) of the 2004 Paris Convention and Article IV(7) of the Vienna Convention.[24]

From this notion an important conclusion must be drawn: the conventions' jurisdictional provisions only govern jurisdiction in relation to actions against the liable operator but do not regulate jurisdiction over actions against other persons which might be liable for damages resulting from a nuclear incident, such as constructors, suppliers and others. Also, as the *Exposé des Motifs* to the Paris Convention expressly states,[25] the conventions do not regulate jurisdiction in relation to actions in recourse of the liable operator or for actions against other operators in case of joint and several liability.

In the absence of a provision to the contrary, the conventions neither oblige nor prohibit convention states to establish jurisdiction of their courts in relation to such claims against persons other than the liable operator. However - as will be discussed in the following - courts of convention states which admit actions against persons, other than the liable operator in accordance with their procedural rules, are under an obligation to observe the conventions' legal channelling regime and, if applicable, dismiss the action on the merits.

In short, the conventions' jurisdictional regimes only regulate (and channel) jurisdiction regarding claims against the liable operator but leave it entirely to the convention states to decide whether or not to establish jurisdiction of their courts in relation to actions against persons other than the liable operator.

2.2.2 Joint Protocol

The Joint Protocol does not contain a provision on jurisdiction. Rather, jurisdiction in relation to incidents to which the Joint Protocol is applicable is governed by the jurisdictional rules of the base-convention which is applicable to the incident. In case of an incident occurring in a nuclear installation, the applicable base-convention is that of the state on whose territory the incident occurred.[26]

23. Magnus, U. (2010), "Jurisdiction and Enforcement of Judgments under the Current Nuclear Liability Regime within the EU Member States", in Pelzer N. (ed.) (2009), *Europäisches Atomhaftungsrecht im Umbruch*, Nomos, Baden-Baden, p. 111.
24. Damages for which the operator cannot be held liable under the respective Convention and which were caused by a third person with negligence (Vienna Convention only) or intent (Paris Convention and Vienna Convention).
25. OECD Council, "Exposé des Motifs – Revised text of the Exposé des Motifs approved by the OECD Council on 16th November 1982", section 57, available at: www.oecd-nea.org/law/nlparis_motif.html.
26. Joint Protocol, Article III(2).

Under either of the base-conventions, jurisdiction then lies with the courts of the incident state.[27] Joint Protocol-states which are party to the non-applicable base-convention are, by virtue of Article III(2) of the Joint Protocol, obliged to observe the jurisdictional channelling regime of the applicable convention and are, thus, prohibited from establishing jurisdiction of their courts over actions against the liable operator. In turn, victims suffering damage in such Joint Protocol-state are entitled to get compensation from the liable operator on a non-discriminatory basis.

As seen above, the jurisdictional regimes of the Paris Convention and the Vienna Convention do not prohibit state parties to these conventions from establishing jurisdiction of their courts regarding actions against persons other than the liable operator. The same must apply under the Joint Protocol in relation to Joint Protocol-states which are party to the non-applicable base-convention. Hence, courts in Joint Protocol-states might assume jurisdiction over actions against third persons if their national law so provides. However, as will be discussed below,[28] these courts will be obliged to observe the legal channelling regime embodied in the applicable base-convention and, if applicable, dismiss claims against persons other than the liable operator.

2.3 Legal channelling

2.3.1 Paris Convention and Vienna Convention

The Paris Convention and the Vienna Convention both embody the principle of legal channelling, another fundamental principle of international nuclear liability regimes, according to which only one person, namely the operator of the installation creating the incident, can be held liable to the exclusion of other persons.

The main objective of the concept of legal channelling is to relieve persons other than the operator (e.g. constructors or suppliers) from liability risks to which they would be exposed otherwise under general tort law rules. Relieved from liability risks, such third parties do not have to take out insurance cover for their nuclear activities, thereby decreasing overall insurance costs to be borne by the nuclear industry.[29] Especially in the early years of the civil use of nuclear energy, legal channelling was considered necessary to promote the young industry by shielding suppliers and constructors from what was considered to be an unbearable liability risk. Finally, legal channelling is intended to relieve victims from the onerous process of identifying among many potentially liable persons the one to sue.

The relevant provisions in the Paris Convention and the Vienna Conventions read as follows:

Article 6(b) of the 2004 Paris Convention[30]

> "Except as otherwise provided in this Article, no other person shall be liable for nuclear damage caused by a nuclear incident […]"

27. Paris Convention, Article 13(a), 2004; Vienna Convention, Article XI(1), see section 2.2.1.
28. See section 2.3.2.
29. OECD Council, supra note 25, section 15.
30. Article 6(b) of the 2004 Paris Convention also contains a reservation regarding liability under international conventions in the field of transportation in force or open for signature, ratification or accession at the date of the 2004 Paris Convention. This reservation entails that as an exception, the operator liable under the 2004 Paris Convention and the carrier liable under the existing convention in the field of transportation, can both be sued (see OECD Council, supra note 25, section 36). In the context at hand this reservation is not relevant.

Article II(5) of the Vienna Convention[31]

"Except as otherwise provided in this Convention, no other person shall be liable for nuclear damage caused by a nuclear incident. […]"

These legal channelling provisions are substantive (i.e. not procedural) in nature. They will be applied by any court of a convention state which might admit, in accordance with its procedural laws, a claim against a person other than the liable operator. Unless an exception provided for in the relevant convention applies, the legal channelling regime obliges the court to dismiss such actions.

The Vienna Convention contains similar provisions resulting in analogous limitations to the liability of persons other than the operator.[32]

As seen above, neither the jurisdictional regime nor the legal channelling provisions of the Paris Convention and the Vienna Convention prevent state parties from establishing the jurisdiction of their courts over defendants other than the liable operator. Legal channelling, however, obliges them to dismiss such claims unless an exception applies.

2.3.2 Joint Protocol

As pointed out above, Joint Protocol-states which are party to the non-applicable base-convention are not allowed to establish jurisdiction of their courts over actions against the liable operator but are free to provide for jurisdiction in relation to actions against other persons (such as constructors, suppliers etc).[33] However, courts of Joint Protocol-states assuming jurisdiction over such actions are, by virtue of Article III(2) of the Joint Protocol, under an obligation to observe the rules of the applicable base-convention including its legal channelling regime. Consequently, their courts have to dismiss claims of defendants protected under the relevant legal channelling regime.

By contrast, as the Joint Protocol is applicable only if an operator of a Joint Protocol-state is liable, no legal channelling obligations arise under the Joint Protocol in case of incidents for which an operator of a Paris Convention-only or Vienna Convention-only state is liable. For example, in case of a nuclear incident occurring in Russia (Vienna Convention-only), Swiss courts (Paris Convention/Joint Protocol) would be under no obligation to observe legal channelling in relation to defendants from Poland (Vienna Convention/Joint Protocol) and, vice-versa, Polish courts would not be obliged to observe the legal Vienna Convention-legal channelling regime in relation to Swiss defendants.

2.4 Reciprocity

This section examines whether, under what circumstances and to what degree the Paris Convention and the Vienna Convention base the right to claim compensation from the liable operator on reciprocity. Reciprocity is thereby understood as a rule under which either the right to claim *compensation as such* depends on some preconditions or under which the applicable *liability amount* is limited based on reciprocity.

31. Article II(5) of the Vienna Convention contains the same reservation in relation to existing conventions in the field of transportation as the 2004 Paris Convention.
32. Vienna Convention, Article IV(7).
33. See section 2.2.2.

2.4.1 Paris Convention

Compared to the 1982 Paris Convention which expressly did not apply to damages suffered in the territory of non-convention states,[34] the 2004 Paris Convention features a significantly expanded geographical scope. According to its Article 2(a), the 2004 Paris Convention is applicable not only to damage suffered in convention states[35] but also to damage suffered in non-nuclear states[36] and in nuclear states which have in force legislation that affords equivalent reciprocal benefits and is based on principles identical to those of the Paris Convention.[37] Furthermore, in relation to Paris Convention/Joint Protocol-states, the 2004 Paris Convention also applies to damages suffered in Vienna Convention/Joint Protocol-states.[38]

As far as damages suffered in the territory of a state falling under one of the categories mentioned in Article 2(a) of the 2004 Paris Convention are concerned, the 2004 Paris Convention, principally, does away with the reciprocity rule. This change entails that once a 2004 Paris Convention state has established in its legislation the relevant liability limits in accordance with Article 7(a) and (b) of the 2004 Paris Convention, it will have to apply these amounts to other states listed in Article 2(a) of the 2004 Paris Convention, including other 2004 Paris Convention states, independent of whether these states provide for higher, equivalent or lower liability amounts.[39]

This situation is relevant, for example, in relation to the liability amounts applicable to incidents occurring during carriage or occurring in low-risk installations.[40] Once a 2004 Paris Convention state has established the relevant amounts in accordance with Article 7(b) of the 2004 Paris Convention in its legislation, it will have to apply these amounts to other states listed in Article 2(a) of the 2004 Paris Convention including other 2004 Paris Convention states even if those states have set lower liability amounts.

By the same token, victims from non-nuclear states are entitled to compensation under the 2004 Paris Convention independently of whether or not their state affords mutual benefits for victims of 2004 Paris Convention states and whether or not it has in place nuclear liability legislation at all.

However, there are significant exceptions to the general rule that 2004 Paris Convention states are prohibited from basing their legislation on reciprocity. First, 2004 Paris Convention states are explicitly allowed to deviate from the provisions of the convention insofar as compensation exceeding the amount of EUR 700 million is concerned.[41] If a 2004 Paris Convention state provides in its legislation for compensation exceeding this amount, it is free to base compensation for any victims suffering damage in any other state on reciprocity or to exclude it altogether.

34. 1982 Paris Convention, Article 2.
35. 2004 Paris Convention, Article 2(a)(i).
36. 2004 Paris Convention, Article 2(a)(iii).
37. 2004 Paris Convention, Article 2(a)(iv). The requirement of legislation based on identical principles is to be considered fulfilled by state parties to the Vienna Convention.
38. 2004 Paris Convention, Article 2(a)(ii).
39. The conclusion that 2004 Paris Convention states are, generally, prohibited from basing liability of their operators on the principle of reciprocity can be drawn from Article 7(g) of the 2004 Paris Convention which provides for the possibility to introduce reciprocity only in relation to states falling under Article 2(a)(iv) of the 2004 Paris Convention (nuclear non-Convention states) but not in relation to states falling under other categories of Article 2(a), 2004 Paris Convention.
40. 2004 Paris Convention, Article (7)(b)(i).
41. 2004 Paris Convention, Article 15(b).

Secondly, as far as states falling under Article 2(a)(iv) of the 2004 Paris Convention (nuclear non-convention states) are concerned, convention states are by virtue of Article 7(g) of the 2004 Paris Convention permitted to establish liability amounts lower than the convention's minimum amounts to the extent that these states do not afford reciprocal benefits of equivalent amounts.[42] This provision is particularly relevant in relation to nuclear Vienna Convention-only states, which, in general, fall into the category of Article 2(a)(iv) of the 2004 Paris Convention states (having in place legislation based on the same principles as the Paris Convention but usually setting lower liability limits than Paris Convention states).

Finally, 2004 Paris Convention states which make use of the possibility to extend the geographical scope of the convention pursuant to Article 2(b) of the 2004 Paris Convention must – *a maiore ad minus* – be allowed to make liability conditional on reciprocity or on any other condition they consider appropriate.

2.4.2 Vienna Convention

The 1963 Vienna Convention on Civil Liability for Nuclear Damage contains no provision as to its geographical scope. However, the 1963 Vienna Convention is understood to apply to damage suffered in the territory of state parties to the Vienna Convention only.[43] Between 1963 Vienna Convention states the liability amounts established by the national legislation in accordance with Article V(1) of the 1963 Vienna Convention are to be applied without discrimination on the basis of nationality, residence and domicile,[44] which means that these liability amounts apply even if the 1963 Vienna Convention state where damage was suffered defined lower liability amounts in its legislation. As far as damages suffered in the territory of a non-convention state are concerned, 1963 Vienna Convention states are under no obligation to provide for compensation independently of whether or not such state provides for compensation for the benefit of victims in 1963 Vienna Convention states.

The 1997 Vienna Convention follows another approach. According to its Article IA(1), the 1997 Vienna Convention applies to damage "*wherever suffered*". However, state parties to the 1997 Vienna Convention are allowed to exclude from the application of the convention damage suffered in nuclear non-Vienna Convention-states which do not afford reciprocal benefits.[45] It is not ultimately clear whether such exclusion from the application can only be based on the ground that the non-convention state concerned provides no compensation at all for damage suffered in a 1997 Vienna Convention or whether exclusion can also be based on the ground that the state in question provides for lower liability amounts or does not comply with the principles of the 1997 Vienna Convention. During the drafting process of

42. However, 2004 Paris Convention states are not allowed to generally exclude such states from the geographical scope of the Convention.
43. Cf. IAEA, supra note 20, p. 29; Horbach, N.L.T.J. (1999), "Lacunae of International Nuclear Liability Agreements" in N.L.T.J. Horbach (ed.), *Contemporary Developments in Nuclear Energy Law, Harmonising Legislation in CEEC/NIS*, Kluver Law International, The Hague/London/Boston, p. 63; cf. also Schwarz, J.A. (2010), "Liability and Compensation for Third Party Damage resulting from a Nuclear Incident", in OECD, *International Nuclear Law: History, Evolution and Outlook – 10th Anniversary of the International School of Nuclear Law*, OECD, p. 326; Pelzer, N. (2010), "Main Features of the Revised International Regime Governing Nuclear Liability – Progress and Standstill", in OECD, *International Nuclear Law: History, Evolution and Outlook – 10th Anniversary of the International School of Nuclear Law*, OECD, p. 361 (with additional references).
44. 1963 Vienna Convention, Article 13.
45. 1997 Vienna Convention, Article IA(2) and (3).

the 1997 Vienna Convention, the drafting committee agreed that it would be left to the convention states to decide to which non-state parties the exclusion applies.[46]

As far as compensation for damage exceeding SDR 150 million is concerned, Article XIII(2) of the 1997 Vienna Convention permits convention states to

> "[…] derogate from the provisions of this Convention with respect to damage suffered in the territory […] of another state which, at the time of the incident has a nuclear installation in such territory, to the extent it does not afford reciprocal benefits of an equivalent amount."

This provision allows 1997 Vienna Convention states to limit liability amounts based on the reciprocity principle as far as compensation exceeding SDR 150 million is concerned.[47] Unlike the corresponding Article 15(b) of the 2004 Paris Convention, this provision does not allow 1997 Vienna Convention-states to exclude liability altogether or in respect of any other state but merely allows them to base their legislation on reciprocity in terms of the applicable liability amount and only as far as nuclear states are concerned.[48]

2.4.3 Joint Protocol

The main objective of the Joint Protocol is to mutually expand the benefits of the Paris Convention and the Vienna Convention to victims suffering damage in the territory of a state party to the non-applicable base-convention.

To this end, Article IV Joint Protocol prescribes that the substantive provisions of the Vienna Convention (Articles I - XV) and of the Paris Convention (Articles 1 - 14) are to be applied with respect to state parties of the non-applicable base-convention in the same manner as between Parties to the applicable convention.

Under this provision Paris Convention/Joint Protocol-states are obliged to apply the liability amounts provided for in their legislation (up to the maximum amount of EUR 700 million) to damages suffered in Vienna Convention/Joint Protocol-states, independently of what liability amounts the respective Vienna Convention/Joint Protocol-state provides for.[49] In turn, the 1963 Vienna Convention/Joint Protocol-states would be obliged to apply the liability amounts defined in their national

46. See IAEA, supra note 20, pp. 30-31.
47. The authors of the explanatory texts put forth another interpretation according to which Article XIII(2) of the 1997 Vienna Convention would allow Convention states (only) to derogate from the non-discrimination rule of Article XIII(1) of the 1997 Vienna Convention. Such strict interpretation would - according to the authors - allow a Convention state to exclude compensation completely for nationals of another state which does not afford reciprocal benefits of an equivalent amount (see IAEA, supra note 20, p. 54). Such interpretation clearly conflicts with the wording of Article XIII(2) of the 1997 Vienna Convention which expressly provides for a derogation "with respect to damage suffered in the territory of another state", which seems to exclude a discrimination based on nationality. Furthermore, Article XIII(2) of the 1997 Vienna Convention subjects the possibility to derogate from the Convention "to the extent that it does not afford reciprocal benefits of equivalent amount", which clearly indicates that the derogation from the Convention envisaged by this provision is limited to a derogation regarding the liability amounts and only, as far as the other state does not afford compensation of an equivalent amount whereby the minimum liability shall not be less than SDR 150 million; cf. Horbach, supra note 43, p. 64.
48. See IAEA, supra note 20, p. 53.
49. See von Busekist, O. (1989), "A Bridge between Two Conventions on Civil Liability for Nuclear Damage: the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention", *Nuclear Law Bulletin*, Volume 43, p. 24. Available at: www.oecd-nea.org/law/nlb/NLB-43-EN.pdf.

legislation - not less than USD 5 million (gold standard)[50] - in relation to damages suffered in Paris Convention/Joint Protocol-states. The same applies to 1997 Vienna Convention/Joint Protocol-states, which would, in principle, have to apply their liability amount of at least SRD 300 million to damages suffered in Paris Convention/Joint Protocol-states. An exception however would apply in relation to damages occurring in low-risk installations and incidents during carriage for which a nuclear Paris Convention/Joint Protocol-state in question has defined liability amounts lower than SDR 300 million.[51] In this case, the above mentioned Article XIII(2) of the 1997 Vienna Convention allows 1997 Vienna Convention/Joint Protocol-states to limit the liability amount based on reciprocity, whereby the minimum liability amount would in any case be not less than SDR 150 million.[52]

3. Implementation of the Conventions in Switzerland

Section 2 discussed the scope of application of the international conventions governing third party liability in connection with nuclear incidents. It showed which obligations and restrictions these conventions impose on state parties regarding jurisdiction, application of legal channelling and reciprocity.

This section 3 examines how the Swiss legislature translated these obligations under the 2004 Paris Convention and the Joint Protocol into Swiss law and how it used the scope of discretion left to it by the conventions. The jurisdiction of Swiss courts will be considered first (section 3.1) followed by an examination of the applicable law and the scope of application of legal channelling under Swiss law (section 3.2). As the question of reciprocity is directly relevant only in relation to the liability of operators, the reciprocity rules of Article 27 of the 2008 Nuclear Liability Act will be discussed in detail not in this section but in section 4.1.

3.1 Jurisdiction of Swiss courts

3.1.1 Jurisdiction under the 2004 Paris Convention and the 1987 Swiss Private International Law Act

When adopting the 2008 Nuclear Liability Act, the Parliament also amended and partially revised the provisions of the Swiss Private International Law Act of 1987 (1987 Swiss Private International Law Act)[53] in relation to nuclear incidents. The revised Article 130 of the 1987 Swiss Private International Law Act, which governs in terms of a *lex specialis* jurisdiction of Swiss courts in relation to actions arising in connection with nuclear incidents, reads as follows:

> "1. Jurisdiction over actions concerning nuclear incidents shall be governed by the Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, as Amended by the Additional Protocol of 28 January 1964, by the Protocol of 16 November 1982, and by the Protocol of 12 February 2004 (Paris Convention).
>
> 2. If under the provisions of this Convention jurisdiction lies with the courts of Switzerland, the action is to be filed in the Canton where the incident occurred

50. The amount of USD 5 million is defined by reference to the value of gold on 29 April 1964. The amount is considered to have a value of approximately USD 50 million today (Schwarz, J.A. (2006), "International Nuclear Third Party Liability Law: The Response to Chernobyl", in OECD, *International Nuclear Law in the Post-Chernobyl Period*, OECD, p. 43).
51. Based on Article 7(b) of the 2004 Paris Convention.
52. 1997 Vienna Convention, Article XIII(2).
53. *Loi fédérale du 18 décembre 1987 sur le droit international privé, RS 291*, available at: www.admin.ch/ch/f/rs/2/291.fr.pdf.

or, if the place of the incident lies outside the territory of the state parties or if it cannot be determined with certainty, in the Canton in whose territory the installation of the liable operator is situated. If according to these rules several places of jurisdiction exist, the action is to be filed in the Canton which, in terms of Article 13(2)(f) of the Convention is most closely related to and affected by the consequences of the incident.

3. The jurisdictional regime of paragraph 2 applies by analogy to actions arising out of nuclear incidents to which the Convention is not applicable. If, with respect to such action, neither the place of the incident nor the installation lies within Switzerland, the action might be brought in the Canton in whose territory the claimed damage was suffered. If damage was suffered in several Cantons, the Canton that was most affected by the consequences of the incident is competent."

Article 130(1) of the 1987 Swiss Private International Law Act declares the jurisdictional regime of the 2004 Paris Convention directly applicable in Switzerland. As seen above, the 2004 Paris Convention, including its provisions on jurisdiction, only applies to incidents for which an operator of a convention state is liable. If this condition is met, Swiss courts are, by virtue of Article 130(1) of the 1987 Swiss Private International Law Act and Article 13(a) of the 2004 Paris Convention, competent to hear claims against the liable operator relating to incidents occurring in Switzerland and, by virtue of the same provisions, prevented from admitting claims against the liable operator in case of incidents occurring in other 2004 Paris Convention states.

Apart from this, the 2004 Paris Convention and, thus, Article 130(1) of the 1987 Swiss Private International Law Act do not establish further rules as to the jurisdiction of Swiss courts. Notably, the 2004 Paris Convention contains no rules as to the jurisdiction of Swiss courts over actions against any party other than the liable operator, and even more obviously, it does not regulate their jurisdiction in the case of nuclear incidents to which the 2004 Paris Convention is not applicable. Thus, Article 130(1) of the 1987 Swiss Private International Law Act neither forms a basis for Swiss courts to admit claims against third parties such as suppliers and constructors nor does it allow them to hear claims against the liable operator in cases where the 2004 Paris Convention does not apply, i.e. in cases where liability lies with an operator of a non-2004 Paris Convention state.

Whether or not Swiss courts are competent to hear actions against third parties such as suppliers and constructors and against operators of non-2004 Paris Convention states is, in consequence, to be determined on the basis of Article 130(3) of the 1987 Swiss Private International Law Act. Article 130(3) of the 1987 Swiss Private International Law Act stipulates that the jurisdictional regime of Article 130(2) of the 1987 Swiss Private International Law Act shall apply by analogy *"to actions arising out of nuclear incidents to which the Convention is not applicable"*. From the official French version of Article 130(3) of the 1987 Swiss Private International Law Act it can be inferred that the subordinate clause "*to which the Convention is not applicable*" relates to the word "*actions*" not to "incidents". Article 130(3) of the 1987 Swiss Private International Law Act, thus, applies to "*actions* […] *to which the Convention is not applicable*."

The term "*actions* […] *to which the Convention is not applicable*" potentially covers a broad range of actions. First, it quite clearly includes actions against operators and third parties arising out of a nuclear incident to which the 2004 Paris Convention is not applicable, i.e. for which an operator of a non-2004 Paris Convention state is liable. Moreover, it could be argued that even if the nuclear incident at hand falls within the scope of application of the 2004 Paris Convention, the term "*actions* […] *to which the Convention is not applicable*" nevertheless includes actions against persons other than the liable operator. For, the jurisdictional regime of the 2004 Paris

Convention only governs jurisdiction over actions against the liable operator but not over actions against third persons.

Interpreted that way, Article 130(3) of the 1987 Swiss Private International Law Act in conjunction with Article 130(2) of the 1987 Swiss Private International Law Act could potentially form the basis for jurisdiction of Swiss courts over a number of different actions:

- actions against any third person in case of an incident to which the 2004 Paris Convention is applicable;
- in relation to damage wherever suffered if the place of the incident or the place of the installation is in Switzerland (Article 130(2) of the 1987 Swiss Private International Law Act);
- in relation to damage suffered in Switzerland if neither the place of the incident nor the installation are in Switzerland (Article 130(3) of the 1987 Swiss Private International Law Act);
- actions against the liable operator in case of incidents to which the PC-20004 is not applicable;
- in relation to damage wherever suffered if the place of the incident is in Switzerland (i.e. incident upon carriage) (Article 130(2) of the 1987 Swiss Private International Law Act);
- in relation to damage suffered in Switzerland if the place of the incident occurred outside Switzerland (Article 130(3) of the 1987 Swiss Private International Law Act);
- actions against any third person in case of incidents to which the 2004 Paris Convention is not applicable;
- in relation to damage wherever suffered if the place of the incident or the place of the installation are in Switzerland (Article 130(2) of the 1987 Swiss Private International Law Act);
- in relation to damage suffered in Switzerland if neither the place of the incident nor the installation are in Switzerland (Article 130(3) of the 1987 Swiss Private International Law Act).

It is, however, doubtful whether the legislature when adopting Article 130(3) of the 1987 Swiss Private International Law Act had all these possible actions in mind and wanted to provide a forum for all of them.

Clearly, the legislature intended to establish jurisdiction of Swiss courts in relation to actions against operators of non-2004 Paris Convention states. This can be concluded from Article 138a of the 1987 Swiss Private International Law Act, which expressly governs the applicable law in relation to actions against operators of non-state parties. The regulation of the law applicable to these actions makes sense only if Swiss courts are competent to hear them. Article 130(3) of the 1987 Swiss Private International Law Act read in conjunction with Article 130(2) of the 1987 Swiss Private International Law Act, thus, establishes jurisdiction of Swiss courts over actions against operators of non-2004 Paris Convention states if either

the incident occurred in Switzerland[54] (which is relevant in the case of carriage) or if the damage was suffered in Switzerland.[55]

Whilst the legislature undoubtedly intended to establish jurisdiction over actions against operators of non-2004 Paris Convention states, it is not clear whether he had the same intention as regards actions against third persons such as suppliers and constructors. In fact, neither the 2008 Nuclear Liability Act nor the Federal Council in its communication mentions the possibility of suing persons other than the liable operator. To the contrary, the Federal Council in its communication repeatedly stated that the operator shall be exclusively liable and that no person except him can be held liable.[56]

These statements suggest that the Federal Council was under the impression that legal channelling is to be applied without exception, i.e. even in situations where Switzerland is under no international obligation to do so. Thus, from the Federal Council's point of view there was no reason to elaborate on the question of jurisdiction for actions against third parties, which anyway could not successfully be sued. In consequence, it must be concluded that Article 130(3) of the 1987 Swiss Private International Law Act is not intended to form a basis for actions against persons other than the operator. However, this does not mean that the legislature intended to exclude jurisdiction of Swiss courts over actions against persons other than the operator altogether. Rather, such actions might still be brought before Swiss courts based on Article 129 of the 1987 Swiss Private International Law Act which forms the general basis of Swiss courts' jurisdiction over actions in tort.[57]

As will be discussed below, it is not ultimately clear whether the Federal Council consciously intended to deprive (Swiss) victims of the possibility to sue potentially liable third persons although this would be reconcilable with Switzerland's international obligations.

3.1.2 Relationship to international conventions

Restrictions to the jurisdiction of Swiss courts under the 2004 Paris Convention and the 1987 Swiss Private International Law Act arise out of the Joint Protocol. As shown above, state parties to the Joint Protocol which are party to the non-applicable base-convention are, by virtue of Article III(2) of the Joint Protocol, obliged to observe the jurisdictional channelling regime of the applicable convention. Consequently, in the case of an incident to which the Vienna Convention is exclusively applicable under the Joint Protocol, Swiss courts are obliged to observe the jurisdictional channelling regime of the Vienna Convention and are, thus, prohibited from exerting jurisdiction over the liable Vienna Convention/Joint Protocol-state operator. Arising out of an international treaty, these obligations arising out of the Joint Protocol take precedence over the 1987 Swiss Private International Law Act.[58]

Difficult questions also arise regarding the relationship between the jurisdiction of Swiss courts pursuant to Article 130(1) of the 1987 Swiss Private International Law Act and jurisdiction under the Convention on jurisdiction and the recognition and

54. 1987 Swiss Private International Law Act, Article 130(2).
55. 1987 Swiss Private International Law Act, Article 130(3).
56. *Message relatif à l'arrêté fédéral concernant l'approbation et la mise en oeuvre des conventions relatives à la responsabilité civile dans le domaine de l'énergie nucléaire du 8 juin 2007*, supra note 14, p. 5135 and 5149.
57. Waldner, M. (2011), *Die internationale Zuständigkeit schweizerischer Gerichte zur Beurteilung von Deliktsklagen aus Nuklearunfällen, Schweizerische Zeitschrift für Internationales und Europäisches Privatrecht*, Volume 21, Issue 1, p. 18.
58. 1987 Swiss Private International Law Act, Article 1(2).

enforcement of judgements in civil and commercial matters of 30 October 2007, also known as the revised Lugano Convention (Lugano Convention)[59] (which applies between Switzerland and the European Union Member States, Switzerland not being member of the European Union). Whereas the 2004 Paris Convention and, thus, Article 130(1) of the 1987 Swiss Private International Law Act, provide for exclusive jurisdiction of a single court in either the accident or the installation state, the Lugano Convention provides for jurisdiction of the courts at the seat of the defendant[60] and, concurrently, at the place where the damage was caused and where it was suffered.[61]

These rules of the 2004 Paris Convention and the Lugano Convention diverge and, thus, potentially conflict with each other. The Lugano Convention resolves such potential conflicts by granting precedence over the Lugano Convention to international conventions which govern jurisdiction in relation to specific matters. Pursuant to Article 67(1) of the Lugano Convention,

> "[t]his Convention shall not affect any conventions by which the Contracting Parties and/or the States bound by this Convention are bound and which in relation to particular matters, govern jurisdiction or the recognition or enforcement of judgments."

The objective of Article 67(1) of the Lugano Convention is to avoid that contracting parties have to violate other international obligations in order to comply with the Lugano Convention.[62] To this end, the Lugano Convention not only grants precedence to pre-existing international obligations but allows state parties to become parties to new conventions of that kind.[63]

The 2004 Paris Convention is one of the special conventions falling under Article 67(1) of the Lugano Convention.[64] The 2004 Paris Convention, and thus Article 130(1) of the 1987 Swiss Private International Law Act, generally enjoy priority over the jurisdictional rules of the Lugano Convention.[65] As a consequence, if the 2004 Paris Convention is applicable to a certain nuclear incident and local jurisdiction lies, pursuant to Article 130(2) of the 1987 Swiss Private International Law Act, exclusively with the Swiss courts at the place of the incident or at the place of the installation, these rules prevail over the potentially diverging rules of Article 5(3) of the Lugano Convention. In particular, Swiss courts at the place where the damage was suffered are not allowed to assume jurisdiction based on Article 5(3) of the Lugano Convention.

If, on the other hand, jurisdiction over actions against the liable operator lies according to Article 13 of the 2004 Paris Convention with the courts of another state party, this rule also takes priority over the Lugano Convention. If, for example, a nuclear incident for which a Swiss operator is liable occurs upon carriage in the territory of another Paris Convention-state, the courts of that state will have

59. Convention on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters of 30 October 2007, RS 0.275.12, available at: www.admin.ch/ch/d/sr/i2/0.275.12.de.pdf.
60. Lugano Convention, Article 2.
61. Lugano Convention, Article 5(3).
62. Jenard, P. (1979), "Report on the Convention on jurisdiction and the enforcement of judgments in civil and commercial matters signed at Brussels, 27 September 1968" (Official Journal C 59 of 5 March 1979), Article 57; Kropholler, J. (2005), *Europäisches Zivilprozessrecht - Kommentar*, 8th ed., Verlag Recht und Wirtschaft GmbH, Frankfurt a.M, Article 71 N 4; Domej, T. (2008), in F. Dasser and P. Oberhammer, Paul (eds.), *Kommentar zum Lugano-Übereinkommen (LugÜ)*, Stämpfli Verlag, Bern, Article 57 N 2.
63. Lugano Convention, Article 67(1) 2nd sentence.
64. See Jenard, supra note 62, Article 57.
65. See Kropholler, supra note 62, Article 71 N 5.

exclusive jurisdiction according to Article 13(a) of the 2004 Paris Convention. In such a situation the 2004 Paris Convention, taking priority over the 2004 Lugano Convention, excludes the possibility that Swiss courts at the seat of the liable operator assume jurisdiction under Article 2 of the Lugano Convention.

3.2 Legal channelling and the applicable Swiss law

3.2.1 Applicable law pursuant to the 1987 Swiss Private International Law Act

If jurisdiction of Swiss courts is established, the question arises which law is to be applied. When adopting the 2008 Nuclear Liability Act the Parliament also approved a new Article 138a of the 1987 Swiss Private International Law Act which is relevant in this regard. Article 138a of the 1987 Swiss Private International Law Act reads as follows:

> "1. Claims arising in connection with nuclear incidents shall be governed by Swiss law.
>
> 2. If the nuclear installation is situated in a State party of the Paris Convention, the law of this state shall determine
>
> a. whether liability of the operator extends beyond the scope of application defined by Article 2(b) of the Convention;
>
> b. whether and to what extent nuclear damage is compensable in cases falling under Article 9 of the Convention.
>
> 3. Subpara. 2 shall apply by analogy to operators of nuclear installations which are not situated in the territory of a State party to the Paris Convention if this state affords with respect to Switzerland a regime which is at least equivalent."

3.2.2 The law applicable to actions against operators of 2004 Paris Convention states

Pursuant to Article 138a(1) of the 1987 Swiss Private International Law Act, the basic rule as regards applicable law is that Swiss law shall apply. This basic rule, however, only applies to the extent it is not in conflict with prevailing international law. In case of incidents to which the 2004 Paris Convention applies, i.e. for which an operator of a 2004 Paris Convention state is liable, the applicable law is principally governed directly by the convention. The 2004 Paris Convention contains both substantive provisions which directly regulate a certain issue and conflict of law rules which determine the national law applicable to some other issues.

Where the 2004 Paris Convention contains either substantive or conflict of law provisions, these provisions prevail over the general Swiss laws (i.e. the 1987 Swiss Private International Law Act). Correspondingly, the Federal Council in its communication stated that as far as incidents falling in the scope of application of the 2004 Paris Convention are concerned, Article 138a(1) of the 1987 Swiss Private International Law Act determines the applicable law only where the 2004 Paris Convention contains no prevailing provision.[66]

In case of nuclear incidents occurring in an installation of a Swiss operator, the place of the incident and the place of the installation coincide and the conflict of laws provisions of the 2004 Paris Convention designate substantive Swiss law applicable to the exclusion of Swiss conflict of laws.[67] Thus, exerting jurisdiction

66. *Message relatif à l'arrêté fédéral concernant l'approbation et la mise en oeuvre des conventions relatives à la responsabilité civile dans le domaine de l'énergie nucléaire du 8 juin 2007*, supra note 14, p. 5175.
67. 2004 Paris Convention, Article 14(b).

over a Swiss operator, Swiss courts will have to apply the substantive provisions of the 2004 Paris Convention supplemented by the substantive provisions of the 2008 Nuclear Liability Act.

3.2.3 The law applicable to actions against operators of non-2004 Paris Convention states

As discussed above, Swiss courts also have jurisdiction over claims against liable operators of non-Paris Convention states. Being not applicable to incidents for which an operator of a non-Paris Convention state is liable, the substantive provisions of the 2004 Paris Convention as well as its conflict of laws provisions are not directly applicable to such actions. Rather, the applicable law is to be autonomously determined by Swiss conflict of laws (i.e. the 1987 Swiss Private International Law Act). Accordingly, the basic rule of Article 138a(1) of the 1987 Swiss Private International Law Act then applies, which designates Swiss law applicable to nuclear incidents.

This raises the question of which Swiss law to apply: the Nuclear Liability Act or the general Swiss law of torts? Arguably, the 2008 Nuclear Liability Act was enacted to supplement the 2004 Paris Convention if the Paris Convention is applicable. Indeed, many of the obligations imposed on the operator by the 2008 Nuclear Liability Act – notably the obligation to take out insurance – are ineffective when it comes to operators of non-Paris Convention states. It could be argued that 2008 Nuclear Liability Act is to be applied only if the 2004 Paris Convention is applicable and that in case of accidents to which the 2004 Paris Convention is inapplicable general Swiss law of torts should be applied.

When commenting on the new jurisdictional regime, the Federal Council in its communication set out that

> "Article 130(3) Swiss Private International Law Act determines the place of jurisdiction of actions which are only based on the [2008 Nuclear Liability Act] (and not on the Paris Convention)."[68] *(emphasis added)*.

And in relation to Article 138a of the 1987 Swiss Private International Law Act the Federal Council held that

> "[Article 138a of the 1987 Swiss Private International Law Act] also applies to actions which are based on the 2008 Nuclear Liability Act and in situations in which the Convention is to be applied as intrastate law (Article 1 Subparagraph 2 of the Draft)."[69]

According to these statements, the Federal Council held the view that there must be actions which are "*only based on the 2008 Nuclear Liability Act*". This suggests that the legislature intended the 2008 Nuclear Liability Act to be applied not only to actions against operators of 2004 Paris Convention states but also to actions against other operators. Moreover, it must be concluded that the legislature intended that the 2004 Paris Convention should be applied to such claims in terms of intrastate law. General Swiss tort law is thus not applicable to actions against operators of non-2004 Paris Convention states. This is insofar stringent and benefits possible

68. *Message relatif à l'arrêté fédéral concernant l'approbation et la mise en oeuvre des conventions relatives à la responsabilité civile dans le domaine de l'énergie nucléaire du 8 juin 2007*, supra note 14, p. 5174.
69. *Ibid*. p. 5175.

victims as it results in strict liability of the operator whereas under general tort law liability would be fault-based.[70]

3.2.4 To which third persons does the legal channelling regime apply?

The discussion of the international legal channelling regime showed that, whenever the Paris Convention is applicable, it obliges state parties such as Switzerland to observe legal channelling in favour of third persons of convention states. By contrast, there is clearly no obligation to apply legal channelling in the case of incidents to which the 2004 Paris Convention is not applicable, i.e. for which no operator of a 2004 Paris Convention state is liable.

As seen in sections 3.2.2 and 3.2.3, the legislature intended the 2008 Nuclear Liability Act and the 2004 Paris Convention to be applied to actions against operators from 2004 Paris Convention states and from non-2004 Paris Convention states alike. The question then arises whether the general applicability of the 2004 Paris Convention to actions against the liable operator also entails that the legal channelling provision of Article 6(b) of the 2004 Paris Convention is to be generally applied, i.e. in situations when Switzerland is not obliged to do so?

As discussed above, the statements of the Federal Council in its communication and the fact that the communication makes no reference to possible actions against third persons suggest that the Federal Council believed that legal channelling was to be applied without exception.

From the Federal Council's Communication on the draft 2008 Nuclear Liability Act, it is not clear whether this conclusion was based on a comprehensive assessment of the international legal regime, i.e. in the knowledge that the extension of legal channelling deprives victims of claims against third parties although Switzerland was under no obligation to do so.

In particular, it is not clear that the Federal Council and the Parliament wanted to deprive victims of possible actions against third persons in case of incidents to which the 2004 Paris Convention does not apply, i.e. incidents for which an operator of a non-2004 Paris Convention state is liable.

The extension of legal channelling to these situations might significantly impair the legal position of victims. Indeed, Swiss legislation provides for a forum for claims against operators of non-2004 Paris Convention states and for strict liability of the operator. However, liability of the non-2004 Paris Convention operator is likely to prove insufficient if the operator has no adequate insurance cover, and if the judgement is not enforceable in the state where the operator is domiciled. In this situation, victims would be better off if they could sue liable third persons such as suppliers and constructors.

On the other hand, with a view to the fall-back compensation regime established under Article 14 of the 2008 Nuclear Liability Act, it could be argued that the legislature in fact put victims in a better position than they were had the legislature granted them the right to sue third parties of non-2004 Paris Convention state parties in Switzerland.

Pursuant to Article 14(1)(b) of the 2008 Nuclear Liability Act, persons suffering damage in Switzerland shall be compensated by the Confederation out of public funds if the nuclear incident occurred in an installation situated outside Switzerland and if they cannot obtain compensation equivalent to that under the 2008 Nuclear Liability Act.

70. *Loi fédérale complétant le Code civil Suisse du 30 mars 2011*, RS 2002 , available at: www.admin.ch/ch/f/rs/2/220.de.pdf.

By virtue of this provision, Swiss legislation grants victims general indemnification for nuclear damages sustained in Switzerland.[71] If under Swiss legislation it was possible to sue third parties in Switzerland, victims suffering damage in Switzerland could be required to exhaust this possibility before they would be admitted to sue the Confederation based on Article 14(1)(b) of the 2008 Nuclear Liability Act. As a result, a right to sue third parties in Switzerland could turn out not to better but to worsen the victims' position by hampering their right to sue the Confederation under Article 14(1)(b) of the 2008 Nuclear Liability Act. Against this backdrop, one might conclude that the legislature, in the victims' interest, only provides for a forum for actions against the liable operator and apart from this protects the victims' interests by granting them access to state funds under Article 14(1)(b) of the 2008 Nuclear Liability Act.

It will eventually be the task of Swiss courts to determine whether legal channelling is to be applied under any circumstance and for the benefit of any third person or whether exceptions exist. Courts might deal with this issue as a preliminary question.

4. Implications for Swiss operators, victims and suppliers

4.1 Operators

4.1.1 Liability for damages suffered in Switzerland

Liability of Swiss operators for damages suffered in Switzerland will be governed by the 2008 Nuclear Liability Act, the 2004 Paris Convention and (from its entry into force) the 2004 Brussels Convention. In the event that the 2004 Paris Convention is suspended or terminated, its self-executing provisions (Articles 1-15) will stay in force as intrastate law[72] and thus continue to regulate Swiss victims' claims against domestic operators.

As actions of Swiss victims against Swiss operators are not international in nature, the jurisdiction of Swiss courts over such claims is governed by the Swiss Code of Civil Procedure.[73] When adopting the 2008 Nuclear Liability Act, the Parliament also approved an amendment bringing the Swiss law in line with Switzerland's obligations under the 2004 Paris Convention. Whereas before Swiss victims had four different places of jurisdiction at their disposal to sue Swiss operators for domestic damages,[74] this number will be reduced to one venue at the place where the incident occurred.[75] Each canton has to designate one single competent cantonal court.[76]

The liability of the operator is unlimited in relation to damages suffered in Switzerland. The 2008 Nuclear Liability Act obliges the operator to obtain coverage

71. The predecessor of this provision, Article 16(1)(e) of the 1983 Nuclear Liability Act, became relevant in connection with the Chernobyl disaster. In its only published decision in the field of nuclear liability the Swiss Federal Tribunal upheld a Cantonal Court's decision obliging the Confederation to pay compensation to a vegetable farmer based on Article 16(1)(e) of the 1983 Nuclear Liability Act (ATF 116 II 480).
72. 2008 Nuclear Liability Act, Article 1(2).
73. *Code de procédure civile* du 19 décembre 2008, RS 272 available at: www.admin.ch/ch/d/sr/2/272.de.pdf.
74. These are: (1) at its place of residence, (2) at the domicile of the operator, (3) at the place where damage was caused and (4) where damage was suffered.
75. Swiss Code of Civil Procedure, Article 38a Annex 2.
76. 2008 Nuclear Liability Act, Article 21.

for damages up to an amount corresponding to the 1st and 2nd tier cover under Article 3(b)(i) and (ii) of the 2004 Brussels Convention plus 10% to cover procedural costs arising out of claims settlement. The cover is composed of private insurance cover of at least CHF 1.1 billion[77] and insurance provided by the Confederation for the remaining amount.[78] Once the 2004 Brussels Convention will have entered into force, additional funds from the 3rd tier will become available to compensate for damages.[79]

The proceeds from insurance and (if available) the 2004 Brussels Convention 3rd tier cover will not be reserved to compensate for damages suffered in Switzerland, but will be, under the conditions set out in the international conventions and in Article 27 of the 2008 Nuclear Liability Act, available for victims in other states as well. If the overall damage exceeds the available insurance and 2004 Brussels Convention 3rd tier cover, the operator will be personally fully liable in relation to damages suffered in Switzerland due to his unlimited liability.

As to the kinds of compensable damages, the operator will be exposed to new liability risks. Whereas liability under the 1983 Nuclear Liability Act was limited to physical injury, property damages and economic damage, the operator is now, by virtue of the directly applicable Article 1(a)(vii)(3) and (4) of the 2004 Paris Convention, liable – "*to the extent determined by the law*" – for the "*costs for reinstatement of impaired environment*" and "*loss of income deriving from a direct economic interest in any use or enjoyment of the environment*".

4.1.2 Liability for damages suffered in Paris Convention-only states

Jurisdiction over actions of victims suffering damage in state parties to the Paris Convention lies with the Swiss courts exclusively[80] and is exercised by the competent court designated by the canton where the nuclear incident occurred.[81] Their claims will be governed by the 2004 Paris Convention supplemented by the 2008 Nuclear Liability Act.[82]

Pursuant to Article 27(1)(a) and (c) of the 2008 Nuclear Liability Act, the applicable liability limit of Swiss operators towards victims in state parties to the Paris Convention is not uniform but depends on whether the respective state provides for limited or unlimited liability of its operators.

First, under Article 27(1)(a) of the 2008 Nuclear Liability Act, Swiss operators are liable without limitation for damage suffered in *state parties to the Paris Convention which provide for unlimited liability* towards Switzerland. With this reciprocity rule the Swiss legislature voluntarily improves the situation of victims in the states concerned. Under the 2004 Paris Convention, state parties are free to derogate from the principles of the convention as far as liability of the operator exceeding EUR 700 million is concerned.[83] Thus, liability of the operator could have been limited, in relation to 2004 Paris Convention States, to CHF 700 million, while, at the same time legislation would provide for unlimited liability in relation to damages suffered in Switzerland.

Unlimited liability under Article 27(1)(a) of the 2008 Nuclear Liability Act in particular applies in relation to Germany as the German Atomic Energy Act of 1959

77. 2008 Nuclear Liability Act, Article 9(1).
78. 2008 Nuclear Liability Act, Article 10(1) and (2).
79. 2008 Nuclear Liability Act, Article 15.
80. 2004 Paris Convention, Article 13(a).
81. 1987 Swiss Private International Law Act, 130(2).
82. See section 3.2.2.
83. 2004 Paris Convention, Article 15(2).

(G-AEA)[84] contains a provision which is equivalent to Article 27(1)(a) of the 2008 Nuclear Liability Act and under which German operators are liable without limitation for damages suffered in states that provide for unlimited liability towards Germany.[85]

Regarding victims suffering damage in state parties to the Paris Convention with limited liability towards Switzerland, Article 27(1)(c) of the 2008 Nuclear Liability Act provides for limitation of the Swiss operator's liability to the amount provided for by that state party. Thus, liability towards other Paris Convention-states which limit the liability in terms of the applicable liability amount is based on the principle of *reciprocity*.

Under the Paris Convention, limitation of the operator's liability is the rule, not the exception. Indeed, all convention states to the 1982 Paris Convention, except Germany, have set liability limits in their national legislation.[86] In this regard, the 2004 Paris Convention provides that "*the liability of the operator in respect of nuclear damage caused by any one nuclear incident shall not be less than 700 million euro*".[87] State parties are, thus, free to limit liability to EUR 700 million or to any higher amount they consider appropriate. By the same token the 2004 Paris Convention provides that convention states may set *lower liability limits* in respect of low-risk installations and in relation to the carriage of nuclear substances.[88]

Under the reciprocity rule of Article 27(1)(c) of the 2008 Nuclear Liability Act, the liability of a Swiss operator for damages suffered in another convention state will generally be limited to EUR 700 million or any higher liability amount which that state provides for in its national legislation.

The meaning of Article 27(1)(c) of the 2008 Nuclear Liability Act is not obvious when it comes to convention states that make use of the possibility to set lower liability limits in relation to low-risk installations and carriage. Does the reciprocity rule of Article 27(1)(c) of the 2008 Nuclear Liability Act limit Swiss operator's liability towards victims of those states? And, if so, under what circumstances?

The only interpretation that makes sense seems to be that the liability of the Swiss operator shall be limited whenever and to the extent his liability would be limited under the legislation of the respective convention state. Thus, the liability of a Swiss operator whose installation would qualify as a low-risk installation under the other convention state's legislation would be limited to the amount that state's legislation provides for in relation to such low-risk installations. By contrast, the liability of a Swiss operator of an installation that would not qualify as a privileged installation under the other state's legislation would not be lowered.

The reciprocity principle under Article 27(1)(c) of the 2008 Nuclear Liability Act is unproblematic as long as it results in a liability of the operator of EUR 700 million or more. As pointed out above, the 2004 Paris Convention allows convention states to deviate from the convention principles in relation to liability exceeding the standard

84. *Gesetz über die friedliche Verwendung der Kernenergie und den Schutz gegen ihre Gefahren vom 23. Dezember 1959*, BGBl I p. 1565, last amended on 8 December 2010 (BGBl I p. 1817), available at: bundesrecht.juris.de/bundesrecht/atg/gesamt.pdf.
85. G-AEA, Article 31(2).
86. OECD Nuclear Energy Agency (2009), "Nuclear Operator Liability Amounts & Financial Security Limits as of December 2009", available at: www.nea.fr/law/2009%20table%20liability-coverage-limits.pdf.
87. 2004 Paris Convention, Article 7(a).
88. 2004 Paris Convention, Article 7(b).

EUR 700 million.[89] Thus, a state must be allowed to introduce a reciprocity rule as far as liability over EUR 700 million is concerned.

The reciprocity rule is, by contrast, problematic where it results in a liability of the Swiss operator of less than EUR 700 million.

As seen above, the Paris Convention is generally based on the principle that once a state party has defined the liability limits in accordance with the convention, these limits have to be applied without discrimination to the victims in any other state party and without insisting on reciprocity in terms of the liability amount.[90]

As the 2008 Nuclear Liability Act generally provides for unlimited liability of Swiss operators even in relation to low-risk installations and carriage,[91] legislation would be required under the 2004 Paris Convention to afford liability of not less than EUR 700 million without discrimination to any convention state even if under the legislation of a convention state the operator's liability would be less by virtue of an exception under Article 7(b) of the 2004 Paris Convention.

As Switzerland did not make a reservation to the 2004 Paris Convention which would cover this deviation from the convention's principles, it is questionable whether the reciprocity rule of 27(1)(c) of the 2008 Nuclear Liability Act would validly limit the liability of a Swiss operator to an amount of less than EUR 700 million.

4.1.3 Liability for damages suffered in 2004 Brussels Convention states

The 2004 Brussels Convention does not contain self-standing provisions on jurisdiction. Consequently, jurisdiction is, by virtue of the general reference of Article 1 of the 2004 Brussels Convention, governed by the 2004 Paris Convention, which means that Swiss Courts in the Canton where the nuclear incident occurred will have exclusive jurisdiction over claims of victims suffering damage in state parties to the 2004 Brussels Convention.[92]

The applicable liability amount of Swiss operators towards victims in 2004 Brussels Convention-states is dealt with in Article 27(1)(a) and (b) of the 2008 Nuclear Liability Act, which makes a distinction between those 2004 Brussels Convention states providing for unlimited and those providing for limited liability towards Switzerland.

Regarding damages suffered in *2004 Brussels Convention-states with unlimited liability* towards Switzerland, Article 27(1)(a) of the 2008 Nuclear Liability Act provides likewise for the unlimited liability of Swiss operators.[93] As far as liability surpassing EUR 1.5 billion is concerned, Switzerland would have been under no obligation to provide for any liability at all (i.e. not even based on reciprocity) as Article 3(f) of the 2004 Brussels Convention in conjunction with Article 15(b) of the 2004 Paris Convention allow deviation from the conventions' principles in respect of liability exceeding that amount.[94]

Given that among all convention states to the 1982 Brussels Convention only Germany currently provides for unlimited liability (based on reciprocity), unlimited

89. See section 4.1.2.
90. See section 2.4.1.
91. The Federal Council might limit the insurance cover to the amounts defined in Article 7(b) of the 2004 Paris Convention (Article 8(3) of the 2008 Nuclear Liability Act). Such limitation will not affect the unlimited liability, however.
92. See section 4.1.2.
93. 2008 Nuclear Liability Act, Article 27(1)(a).
94. 2004 Brussels Convention, Article 3(f).

liability under Article 27(1)(a) of the 2008 Nuclear Liability Act will apply in relation to victims in Germany only.[95]

Regarding damages suffered in 2004 Brussels Convention-states which provide for limited liability, the liability of Swiss operators is generally limited to the amount provided for in Article 3(b)(iii) of the 2004 Brussels Convention (i.e. EUR 1.5 billion).[96] The Swiss legislature, thus, made use of the possibility offered by Article 3(c)(i) of the 2004 Brussels Convention, which allows convention states to declare the operator liable for an amount not less than the 3rd tier compensation amount of the Brussels regime. Funds to cover this liability will be composed of the insurance proceeds from private insurers[97] and the Confederation[98] and, where applicable, the funds made available by all the 2004 Brussels Convention States.[99]

Where a convention state to the 2004 Brussels Convention provides for a liability limit higher than EUR 1.5 billion in relation to Swiss victims, the liability of Swiss operators will be increased correspondingly.[100] This reciprocity rule is unproblematic, as 2004 Brussels Convention states are – as mentioned above – permitted to deviate from the 2004 Paris Convention and the 2004 Brussels Convention's principles as far as the operator's liability exceeding EUR 1.5 billion is concerned.[101]

4.1.4 Liability for damages suffered in Vienna Convention/Joint Protocol-states

Once Switzerland has become a state party to the Joint Protocol, jurisdiction over claims against Swiss operators arising out of *damage suffered in Vienna Convention/Joint Protocol-states* will be vested exclusively in the Swiss courts.[102]

As the Joint Protocol provides for the applicability of that base-convention to which the state where the incident occurred is a party, the claims of victims in Vienna Convention/Joint Protocol-states against Swiss operators will be governed by the 2004 Paris Convention (and the 2008 Nuclear Liability Act) to the exclusion of the Vienna Convention.

The applicable liability amount for damages suffered in Vienna Convention/Joint Protocol-states is governed by Article 27(1)(a) and (c) of the 2008 Nuclear Liability Act. As in relation to Paris Convention states the 2008 Nuclear Liability Act makes a distinction depending on whether the Vienna Convention/Joint Protocol-state in question provides for unlimited or limited liability of its operators towards Switzerland.

Regarding damages suffered in *Vienna Convention/Joint Protocol-states with unlimited liability amounts*, Swiss operators will be liable without limitation as well.[103] Again, as in relation to 2004 Paris Convention states, the Swiss legislature would not have been obliged to prescribe unlimited liability for damages suffered in Vienna Convention/Joint Protocol-states. With a view to Article 15(b) of the 2004 Paris Convention it would have been permitted to limit the liability to EUR 700 million even though the Vienna Convention/Joint Protocol-state in question provides for unlimited liability.

95. See section 4.1.2. Finland, Sweden and Denmark have adopted but not yet put in force new national legislation providing for unlimited liability (cf. Pelzer, supra note 43, p. 367).
96. 2008 Nuclear Liability Act, Article 27(1)(b).
97. 2008 Nuclear Liability Act, Article 9(1).
98. 2008 Nuclear Liability Act, Article 10(1) and (2).
99. 2008 Nuclear Liability Act, Article 15(1) and (2).
100. 2008 Nuclear Liability Act, Article 27(1)(b).
101. See section 4.1.3.
102. Joint Protocol, Article 3(1) and (2), in conjunction with Article 13(a) of the 2004 Paris Convention.
103. 2008 Nuclear Liability Act, Article 27(1)(a).

As to damages suffered in *Vienna Convention/Joint Protocol-states with limited liability*, the liability of Swiss operators is limited to the amount to which the respective state limits the liability of its operators towards Switzerland.[104] This provision results in a significant reduction of Swiss operators' liability in relation to Vienna Convention/Joint Protocol-states compared to liability for damages suffered in Paris or Brussels Convention states. State parties to the 1963 Vienna Convention may limit the liability of operators to no more than USD 5 million (gold standard).[105] Minimum liability limits have been increased under the 1997 Vienna Convention but still are significantly lower than under the 2004 Paris Convention (SDR 300 million). This amount may be lowered to SDR 150 million for any installation and to SDR 5 million for low-risk installations under the condition that the installation state makes public funds available to cover the difference between the so lowered liability amount and SDR 300 million.

Whenever a Vienna Convention/Joint Protocol-state makes use of these provisions and limits the liability of its operators, the liability of Swiss operators will, by virtue of Article 27(1)(c) of the 2008 Nuclear Liability Act, be limited to the same amount. If a 1997 Vienna Convention state limits the operators' liability to less than SDR 300 million but provides for additional public funds up to that amount, the question arises as to whether the liability of the Swiss operator will be limited to SDR 300 million or to the (lower) liability amount of the operator.

With a view to the wording of Article 27(1)(c) of the 2008 Nuclear Liability Act which provides for a limitation of Swiss operators' liability in relation to "*states which provide for a limitation of liability of the operator*"[106] it could be argued that liability of Swiss operators is limited to the liability amount imposed on operators of that state, regardless of whether or not that state provides additional public funds.

The Federal Council did not elaborate on that question in its Communication on the draft 2008 Nuclear Liability Act. However, in order to motivate the reciprocity rule in relation to Vienna Convention/Joint Protocol-states, the Federal Council pointed out that in some of these states the "*minimum amount of cover*" (*covertures minimales*) is lower than the EUR 700 million under the 2004 Paris Convention.[107] This suggests that the main concern was not the lower liability of the operators in these states but the possibly lower amount of funds available to compensate for damages. From this point of view it could validly be argued that the relevant liability amount under the reciprocity rule of Article 27(1)(c) of the 2008 Nuclear Liability Act is that including the state-provided funds (i.e. generally SDR 300 million).

As the reciprocity rule of Article 27(1)(c) of the 2008 Nuclear Liability Act is intended to apply in relation to Vienna Convention/Joint Protocol-states only, it potentially conflicts with Article IV(2) of the Joint Protocol according to which "*Articles 1 to 14 of the Paris Convention shall be applied, with respect to the Contracting Parties to this Protocol which are Parties to the Vienna Convention, in the same manner as between Parties to the Paris Convention*".

Given that the minimum liability amounts of the 1963 Vienna Convention and the 1997 Vienna Convention are significantly lower than the EUR 700 million established under the 2004 Paris Convention, Switzerland is not the only state facing this problem. Other Paris Convention-states, notably Germany, wish to establish reciprocity rules equivalent to Article 27(1)(c) of the 2008 Nuclear Liability Act in their national legislation.

104. 2008 Nuclear Liability Act, Article 27(1)(c).
105. See supra note 50.
106. « *[…] Etats qui limitent le montant de la responsabilité de l'exploitant* » (2008 Nuclear Liability Act, Article 27(1)(c)).
107. Message relatif, supra note 14, p. 5147.

In order to allow 2004 Paris Convention states to achieve this objective without being in conflict with the Joint Protocol the Paris Convention-states adopted a joint declaration. This declaration provides that 2004 Paris Convention states accept a reservation made by any other 2004 Paris Convention state according to which the state party making the reservation reserves the right to establish in respect of nuclear damage suffered in the territory of any other state amounts of liability lower than the minimum amount established under Article 7(a) of the 2004 Paris Convention to the extent that such other state does not afford reciprocal benefits of an equivalent amount. As the national reciprocity rules established in conformity with such reservation would apply not only in relation to Vienna Convention/Joint Protocol-states but also between 2004 Paris Convention states, they are arguably compatible with Article IV(2) of the Joint Protocol.

Switzerland agreed to this joint declaration but did not make a respective reservation to the 2004 Paris Convention upon its ratification. Instead, Switzerland intends to make a reservation to the Joint Protocol directly.[108]

4.1.5 Liability for damages suffered in other states

As discussed above, the 2004 Paris Convention extends the liability of state party operators to damages suffered in non-nuclear non-state parties[109] and in nuclear non-state parties which have in place nuclear liability legislation that affords equivalent reciprocal benefits and is based on identical principles.[110]

Article 27(2) of the 2008 Nuclear Liability Act translates these obligations towards victims suffering damage in Vienna Convention-only states and in states which are party to neither of the two base-conventions (non-convention states) into Swiss law.

In relation to *non-nuclear Vienna Convention-only states and to non-nuclear non-convention states,* Article 27(2) of the 2008 Nuclear Liability Act provides – corresponding to the 2004 Paris Convention minimum requirements – for compensation of EUR 700 million or any lower amount established by legislation in accordance with Article 7(b) of the 2004 Paris Convention[111] (low-risk nuclear installations and carriage). This provision will in particular apply in relation to Austria. Unlike under the 1983 Nuclear Liability Act, compensation for damages suffered in non-nuclear states no longer requires that the state in question provides for equivalent reciprocal benefits in relation to Switzerland.[112]

As to *nuclear Vienna Convention-only states and nuclear non-convention states,* Article 27(2) of the 2008 Nuclear Liability Act stipulates that compensation is only payable if the preconditions set out in Article 2(a)(iv) of the 2004 Paris Convention are met, i.e. if the state in question has nuclear liability legislation in force which affords equivalent reciprocal benefits and which is based on principles identical to those of the 2004 Paris Convention. As far as state parties to the 1963 Vienna Convention or the 1997 Vienna Convention are concerned, the prerequisite of legislation based on the principles identical to those of the 2004 Paris Convention should generally be considered as met.

By virtue of Article 27(2) of the 2008 Nuclear Liability Act, the legislature merely translated the minimum requirements arising out of the 2004 Paris Convention into

108. Arrêté fédéral concernant l'approbation et la mise en œuvre des conventions relatives à *la responsabilité civile dans le domaine de l'énergie nucléaire du 13 juin 2008, Article 1(1)(c), FF 2008 4843*.
109. 2004 Paris Convention, Article 2(a)(iii).
110. 2004 Paris Convention, Article 2(a)(iv).
111. Such legislation is not in place at this time.
112. 1983 Nuclear Liability Act, Article 34.

Swiss law. Notably, the legislature did not make use of the possibility to extend the geographical scope of the 2004 Paris Convention to damage suffered in states which do not fall within one of the four categories of Article 2(a) of the 2004 Paris Convention.[113]

Jurisdiction over these actions lies with a single court in the canton where the nuclear incident occurred.[114]

The jurisdiction of Swiss courts under the 2004 Paris Convention and the 1987 Swiss Private International Law Act is not exclusive. In the lack of treaty relationships with Switzerland, and, hence, in the lack of jurisdictional channelling, non-convention states might provide for concurring competence of their courts. The respective judgements against the Swiss operator will in general not be enforceable in Switzerland, however.[115]

4.2 Victims

4.2.1 Compensation for damages arising from nuclear incidents in Switzerland

Swiss victims suffering damage from a *nuclear incident in Switzerland* will be able to sue the operator for damages before a single court in the canton where the incident occurred.[116] In addition to suing the operator victims have a direct right of action against the private insurers and the confederation (acting as a complementary insurer).

As discussed above, the Swiss legislature arguably intended to have legal channelling applied without exception, i.e. even in situations where no international obligation to observe the legal channelling principle exists.[117] Accordingly, Swiss victims would have no possibility to sue persons other than those mentioned above before Swiss courts.

The claims against the liable operator will be governed by the 2008 Nuclear Liability Act and the 2004 Paris Convention. As under the 1983 Nuclear Liability Act, the Swiss operator is liable without limitation for damages sustained in Switzerland.[118] However, compared to the 1983 Nuclear Liability Act, the insurance cover has been significantly increased from CHF 1 billion to CHF 1.8 billion. Moreover, in the case of damages exceeding the insured amount, additional funds from 3rd tier of the 2004 Brussels Convention will be made available to cover damages.[119]

All in all, the minimum amount to which Swiss victims will have access to cover their damages has been increased from CHF 1 billion to approximately CHF 2.25 billion. However, it should be noted that – compared to the situation under the 1983 Nuclear Liability Act – this amount will have to be shared with a potentially much larger number of victims in Paris Convention and Vienna Convention/Joint Protocol-states.

113. 2004 Paris Convention, Article 2(b).
114. See 1987 Swiss Private International Law Act, new Article 130(2) and (3).
115. 1987 Swiss Private International Law Act, Article 149(2)(f). As to the enforcement under the Lugano Convention, see Waldner, supra note 57, p. 21-24.
116. 2008 Nuclear Liability Act, Article 21, in conjunction with Article 38a Annex 2 of the Swiss Code of Civil Procedure.
117. See section 3.2.4.
118. 2008 Nuclear Liability Act, Article 3(1).
119. 2008 Nuclear Liability Act, Article 15(1) and (2).

In the event of a major incident (*sinistre majeur*) with damages exceeding the funds available from insurers, the 2004 Brussels Convention 3rd tier and the proceeds of the liquidation of the operator's assets, the confederation will establish a compensation scheme[120] and provide, if need be, additional funds to compensate for uncovered losses.[121]

4.2.2 Compensation for damages arising from nuclear incidents in Paris Convention and Vienna Convention/Joint Protocol-states

Jurisdiction over victims' claims relating to *incidents occurring in Paris Convention or Vienna Convention/Joint Protocol-states* lies with the courts of that state. The courts apply the applicable base-convention as supplemented by their national implementation law. Swiss courts neither have jurisdiction over claims against the liable operator nor over claims against other potentially liable persons.

In relation to *incidents occurring in a 2004 Paris Convention State*, Swiss victims may claim compensation from the liable operator up to EUR 700 million[122] or any higher amount, if the national law of the respective 2004 Paris Convention state so provides. In the case of low-risk installations and carriage the convention states may limit the liability of the operator at EUR 70 million and EUR 80 million, respectively.[123] It should be noted that these are the overall amounts which will be made available on a non-discriminatory basis to all victims which are entitled to compensation under Article 2(a) of the 2004 Paris Convention, so that the share being apportioned to Swiss victims might be significantly smaller.

In the case of an *incident in a state party to both the 2004 Paris Convention and the 2004 Brussels Convention,* Swiss victims will have access on a non-discriminatory basis to additional compensation up to EUR 1.5 billion. Depending on the respective state's national implementation law, victims either have to sue the liable operator for the full liability amount of EUR 1.5 billion[124] or will be compensated through other channels for damage exceeding EUR 700 million.[125] The additional funds available under the 2004 Brussels Convention will be apportioned on a non-discriminatory basis[126] to all victims suffering damage in a 2004 Brussels Convention State,[127] which might considerably reduce the share of the compensation apportioned to Swiss victims.

In the event of an *incident occurring in a Vienna Convention/Joint Protocol-state* victims suffering damage in Switzerland will be entitled to claim compensation up to at least SDR 300 million[128] in the case of a 1997 Vienna Convention state and up at least SDR 5 million in the case of a 1963 Vienna Convention state.[129] State parties of both conventions may provide on a voluntary basis for higher liability limits of the operator or for additional compensation in another form. Again, as under the Paris Convention regime, the available funds will be apportioned on a non-discriminatory

120. 2008 Nuclear Liability Act, Article 25(1).
121. 2008 Nuclear Liability Act, Article 25(4)(b).
122. 2004 Paris Convention, Article 7(a).
123. 2004 Paris Convention, Article 7(b).
124. 2004 Brussels Convention, Article 3(c)(i).
125. 2004 Brussels Convention, Article 3(c)(ii).
126. 2004 Brussels Convention, Article 8.
127. Unlike the 2004 Paris Convention, the 2004 Brussels Convention excludes damages suffered in non-Contracting states from its geographical scope (Article 2(a) of the 2004 Brussels Convention). The funds of the 2nd and 3rd tier are therefore reserved for victims suffering damage in state parties to the 2004 Brussels Convention.
128. 1997 Vienna Convention, Article 5(1).
129. 1963 Vienna Convention, Article 5(1).

basis to all victims entitled to compensation under the Vienna Convention/Joint Protocol-regime.

4.2.3 Compensation for damages arising from nuclear incidents in Vienna Convention-only and non-convention states

As discussed above, the 1963 Paris Convention is generally considered as not to apply to damage suffered in the territory of a non-convention state.[130] Thus, whether or not victims suffering damage in Switzerland from an *incident in a 1963 Vienna Convention state* could successfully sue the operator before the courts in that Vienna Convention-1963 state entirely depends on the applicable national law of that state.

Likewise, in the case of an *incident occurring in a non-convention state*, whether or not Swiss victims would are entitled to compensation from the liable operator is determined solely on the basis of its national law.

By contrast, the 1997 Vienna Convention applies, pursuant to its Article IA(1), to damage "wherever suffered", whereby state parties are permitted to exclude from the geographical scope damages suffered in nuclear non-state parties which do not afford equivalent reciprocal benefits.[131] As under the relevant provisions of the 2004 Paris Convention and the 2008 Nuclear Liability Act - which are based on reciprocity as well - victims in 1997 Vienna Convention states would be entitled to compensation from a liable Swiss operator,[132] Swiss victims should vice-versa be entitled to obtain compensation from the liable operator under the 1997 Vienna Convention.[133] The applicable liability amount would depend on the legislation of the 1997 Vienna Convention-state in question and lie between SDR 150 million (the minimum liability amount under the 1997 Vienna Convention) and EUR 700 million (the maximum liability amount of Swiss operators towards victims in 1997 Vienna Convention states).[134]

In addition to suing the liable operator before its national courts, Swiss victims could also start lawsuits against the operator *before Swiss courts*.[135] Pursuant to Article 138a of the 1987 Swiss Private International Law Act such actions would be governed by Swiss law, i.e. the 2008 Nuclear Liability Act.[136]

For the sake of completeness it should be noted that in the case of nuclear incidents in Vienna Convention-only and in non-convention states, the 2004 Brussels Convention is not applicable[137] and, in consequence, no additional funds to compensate Swiss victims will become available through that channel.

130. See section 2.4.2.
131. 1997 Vienna Convention, Article IA(3).
132. 2008 Nuclear Liability Act, Article 27(2) in conjunction with Article 2(a)(iv) and 7(g) of the 2004 Paris Convention; see section 4.1.5.
133. It should be noted, however, that by extending the geographical scope to victims suffering damage in non-Convention states Article IA(1) of the 1997 Vienna Convention does not create an international right in favour of Switzerland. Moreover, it is the courts of the incident state which decide whether a non-Convention state is deemed to provide "reciprocal benefits". If the courts of the 1997 Vienna Convention conclude that the Swiss legal system does not provide reciprocal benefits, Switzerland could not challenge that decision (cf. IAEA, supra note 20, p. 31, fn. 93).
134. 2008 Nuclear Liability Act, Article 27(2).
135. 1987 Swiss Private International Law Act, Article 130(3).
136. See section 3.2.3.
137. 2004 Brussels Convention, Article 2(a).

4.2.4 Additional public funds to compensate Swiss victims

Article 14 of the 2008 Nuclear Liability Act, whose predecessor in the 1983 Nuclear Liability Act[138] became relevant in the aftermath of the Chernobyl disaster, provides for an additional source of compensation available to victims suffering damage in consequence of a nuclear incident occurring abroad:

Article 14(1) of the 2008 Nuclear Liability Act reads as follows:

"1. Moreover, the Confederation pays compensation out of public funds and within the limits defined in Article 8 for nuclear damages

a. […]

b. if a person suffering damage in Switzerland in consequence of a nuclear incident for which an operator of an installation situated in another state is liable cannot obtain compensation equivalent to that under this Act."

By virtue of this provision Swiss legislation provides for general indemnification of victims suffering damage in Switzerland.

Under Article 14(1)(b) of the 2008 Nuclear Liability Act, the Confederation compensates victims suffering damage in Switzerland from a nuclear incident abroad if they are unable to obtain compensation equivalent to that under the 2008 Nuclear Liability Act. Such compensation will be paid from public means and is limited to EUR 1.5 billion.[139]

The 2008 Nuclear Liability Act does not set out under what conditions compensation is to be deemed "equivalent". The wording of Article 14(1)(b) of the 2008 Nuclear Liability Act however suggests that the benchmark for equivalence is the compensation the Swiss victim would effectively have obtained had the 2008 Nuclear Liability Act applied to the accident in question.

From this point of view the fact that the incident state is party to the Paris Convention or the Vienna convention and that its legislation, thus, is based on the same principles like the 2008 Nuclear Liability Act is in no way sufficient to qualify the compensation as equivalent. Whereas the 2008 Nuclear Liability Act provides for unlimited liability of the operator and a cover of EUR 1.5 billion (+ 150 million) the liability and insurance amounts of other state parties to the Paris Convention and the Vienna Convention are significantly lower. Such lower liability and coverage amounts possibly result in curtailment of Swiss victims claims while unlimited liability and higher coverage amounts under the 2008 Nuclear Liability Act would have allowed the victim to obtain a higher compensation. Likewise, even if the liable operator is sued in Switzerland based on the 2008 Nuclear Liability Act, the compensation cannot be qualified equivalent if the judgement is not enforceable in the state where the liable operator's assets lie or if the enforcement is illusory because the operator has not sufficient insurance cover.

Another question is whether victims have to (unsuccessfully) sue the liable operator before they can claim compensation from the Confederation or whether the possibility to obtain compensation can be assessed by the Swiss courts abstractly based on the relevant state's legislation and court practice. In its only published decision on nuclear liability so far, in which the Federal Tribunal had to decide whether Swiss Farmers could claim compensation from the Confederation

138. 1983 Nuclear Liability Act, Article 16(1)(e).
139. 2008 Nuclear Liability Act, Article 14(1) in conjunction with Article 8(2).

based on Article 16(1)(d) of the 1983 Nuclear Liability Act (the predecessor of Article 14(1)(b) of the 2008 Nuclear Liability Act), the court left this question open.[140]

Generally, the question of whether or not a victim is (legally) entitled to get compensation from an operator is a question of law which is to be decided by the court as a preliminary question. If this assessment shows that Swiss victims are not entitled to compensation under the relevant national legislation or that a judgement against the operator rendered by a Swiss court will not be enforceable in the state of the liable operator, the court should admit the claim against the Confederation without requiring the victim to start a pointless lawsuit against the liable operator first.

If, however, the assessment of the legal situation shows that the relevant legislation entitles Swiss victims to compensation from the operator (which is particularly true in relation to 2004 Paris Convention and Vienna Convention/Joint Protocol-states), the request is to be dismissed and the victims are to be required to exhaust their rights to sue the operator first.

4.3 Suppliers

4.3.1 Liability in connection with nuclear incidents occurring in Switzerland

Swiss suppliers are clearly be protected by the legal channelling regime of the 2004 Paris Convention if actions in relation to *incidents occurring in Switzerland* were brought before Swiss courts.

The legal channelling regime of the 2004 Paris Convention also protects Swiss suppliers if claims against them are brought before the *courts of a Paris Convention-only or a Vienna Convention/Joint Protocol-state* in relation to damage suffered in those countries. Except in cases where the supplier could be held liable under the relevant national legislation in accordance with Article 6(c) of the 2004 Paris Convention, the courts would have to dismiss the claims against the Swiss supplier by virtue of Article 6(b) of the 2004 Paris Convention.

By contrast, Swiss suppliers might be successfully sued before the *courts of a Vienna Convention-only or a non-convention state* where damage was suffered. As pointed out above, Vienna Convention-states are not obliged to apply the convention – and its legal channelling regime in particular – in relation to claims against potentially liable persons situated outside the conventional territory. The same applies to other states.

Judgements against Swiss suppliers would, however, not be enforceable in Switzerland, generally.[141]

4.3.2 Liability in connection with nuclear incidents occurring in Paris Convention only or Paris Convention/Joint Protocol-states

In the event of an *incident occurring in a Paris Convention-only or Paris Convention/Joint Protocol-state*, Swiss suppliers, again, would directly be protected by the legal channelling regime of the 2004 Paris Convention if such claims were brought before Swiss courts or courts in Paris Convention-only and Paris Convention/Joint Protocol-states.

140. ATF 116 II 480 c. 2a. The judgment was based on Article 16(1)(d) of the 1983 Nuclear Liability Act.

141. 1987 Swiss Private International Law Act, Article 149(1)(a).

Even if the applicable national private international law of one of these states provided for jurisdiction of its courts for actions against Swiss suppliers, these courts would have to dismiss the action based on Article 6(b) of the 2004 Paris Convention unless an exception under Article 6(c) of the 2004 Paris Convention applies.

The question of whether Swiss suppliers are exposed to liability risks is more complex in relation to claims brought before the *court of a Vienna Convention/Joint Protocol-state* where damage was suffered. The result is likely to depend on whether the state where the incident occurred is a Paris Convention-only state or a Paris Convention/Joint Protocol-state.

In the latter case (incident in a Paris Convention/Joint Protocol-state), victims in the Vienna Convention/Joint Protocol-state where the damage was suffered would be entitled to receive compensation from the liable operator in the Paris Convention/Joint Protocol-state where the incident occurred. In turn, the courts in the Vienna Convention/Joint Protocol-state, if they were to hear a claim against a Swiss supplier, would be obliged to apply the legal channelling regime of Article 6(b) of the 2004 Paris Convention and to dismiss the claim.[142] Swiss suppliers would, thus, be protected in this constellation.

The situation is different if the incident occurred in a Paris Convention-only state. In that situation, victims suffering damage in a Vienna Convention/Joint Protocol-state would not be entitled to compensation from the liable Paris Convention-state operator. As discussed above, the Joint Protocol is applicable only if an operator of a Joint Protocol-state is liable under the relevant base-convention.[143] This is not the case if an incident occurs in a Paris Convention-only state. Consequently, a Swiss supplier might be successfully sued before a Vienna Convention/Joint Protocol-states court.

Moreover, victims suffering damages in Vienna Convention-only or non-convention-states might successfully sue Swiss suppliers before the courts of these states. As discussed above, Vienna Convention-only and other states are under no international obligation to provide for legal channelling to the benefit of Swiss suppliers.

However, judgements against Swiss suppliers rendered in Vienna Convention/Joint Protocol-, Vienna Convention-only or non-convention states would not be enforceable in Switzerland[144] generally. In any case the liable supplier would acquire by way of subrogation a right to be compensated against the liable Paris Convention-state operator.[145]

4.3.3 Liability in connection with nuclear incidents occurring in Vienna Convention/Joint Protocol-states

The Joint Protocol, like the Paris Convention and the Vienna Convention, does not restrict Joint Protocol-states in establishing the jurisdiction of their courts over persons other than the liable operator, but only obliges them to observe the legal channelling regime of the applicable base-convention. Thus, Switzerland, as any other Joint Protocol-state, is entitled to – and in fact does[146] – provide for the jurisdiction of its courts in relation to claims against Swiss suppliers in connection

142. See section 2.3.2.
143. See section 2.1.2.
144. 1987 Swiss Private International Law Act, Article 149(2)(f).
145. 2004 Paris Convention, Article 6(d).
146. 1987 Swiss Private International Law Act, Article 129; Waldner, supra note 57, p. 18.

with damages suffered as a result of a nuclear incident in a Vienna Convention/Joint Protocol-state.

If a *Swiss court* is to admit a claim against a Swiss supplier, it has to observe the legal channelling regime of the (applicable) Vienna Convention and, thus, dismiss the claim unless an exception under Article IV(7) of the 1997 Vienna Convention applies.

The legal channelling regime of the Vienna Convention also has to be observed by the *courts of other Joint Protocol-states* - Paris Convention/Joint Protocol and Vienna Convention/Joint Protocol alike - which might, under the rules of their private international law, have jurisdiction over claims against Swiss suppliers.

The legal situation differs in relation to claims brought before courts in Paris Convention-only, Vienna Convention-only or non-convention states.

An incident occurring in a nuclear installation in a Vienna Convention/Joint Protocol-state does not fall within the scope of the Paris Convention. A court in a Paris Convention-only state which, under its private international law, is competent to hear claims against Swiss suppliers would, thus, not be obliged to apply the legal channelling regime of the Paris Convention. Not being a court of a Vienna Convention-state, it would neither have to apply the legal channelling regime of the Vienna Convention.

Finally, the courts of non-convention-states are generally not restricted by the legal channelling regime of any convention.

Consequently, courts in Paris Convention-only, Vienna Convention-only or other states would, from an international law perspective, be free to admit and approve claims against Swiss suppliers relating to nuclear incidents occurring in Vienna Convention/Joint Protocol-states.

4.3.4 Liability in connection with nuclear incidents occurring in Vienna Convention-only and other states

As Switzerland is not in a treaty relationship with Vienna Convention-only and non-convention states, Swiss victims have no guarantee of obtaining adequate compensation from the liable operator if an incident occurs in such a state. As discussed above the Swiss legislature arguably intended the legal channelling principle to be applied without exception even in this situation and to refer victims if need be to the fall-back compensation scheme provided under Article 14(1) (b) of the 2008 Nuclear Liability Act.[147] Thus, suppliers and contractors could not be successfully sued before Swiss courts in the event of an incident occurring in a Vienna Convention-only or non-convention state.

Swiss suppliers might, however, face actions brought before the courts of any other state, if the international private law of the court in question so provides. As neither the Paris Convention nor the Joint Protocol[148] apply to incidents for which an operator of a Vienna Convention-only or a non-convention state is liable, neither Paris Convention-, nor Paris Convention/Joint Protocol-states would be under an obligation to observe the legal channelling regime of either convention.

Finally, being in no treaty relationship with Switzerland, Vienna Convention-only and non-convention states are generally under no international obligation to apply legal channelling in favour of Swiss defendants. Consequently, Swiss suppliers might also be sued before their courts.

147. See section 3.2.1.
148. See section 2.1.2.

5. Conclusions

5.1 *Core findings*

The discussion of the international nuclear liability regime and its implementation into Swiss national law revealed the following core findings:

- To be applicable, the Paris Convention and the Vienna Conventions presuppose that an operator under the territorial jurisdiction of a state party (i.e. an operator of a state party) is liable under the rules of the respective convention. If there is no operator of a convention state who can be held liable under the convention's rules, the convention does not apply to the incident in question, and, hence, does not impose any obligations on the state parties e.g., to observe jurisdictional or legal channelling.

- The Paris Convention and the Vienna Convention only govern jurisdiction over claims against the liable operator. Channelling of jurisdiction, which is a core principle of both conventions, obliges the state party whose courts are designated competent to admit claims against the liable operator whereas other state parties are obliged to deny jurisdiction. The conventions, by contrast, do not regulate jurisdiction over claims against persons other than the liable operator, such as suppliers and constructors. State parties might establish jurisdiction over claims against such third persons at their own discretion.

- The legal channelling provisions, which embody a core principle of the Paris Convention and the Vienna Conventions, are substantive in nature. They do not prohibit convention states from establishing jurisdiction over claims against third parties other than the liable operator, however, they impose an obligation on their courts to dismiss such claims if brought against a protected person unless an exception provided for in the convention applies.

- In the case of incidents to which the 2004 Paris Convention applies, the Swiss courts have jurisdiction over claims against the liable operator pursuant to the convention's jurisdictional rules. Moreover, the 1987 Swiss Private International Law Act provides for the jurisdiction of Swiss courts over actions against the liable operator in the case of incidents to which the 2004 Paris Convention is not applicable.

- In the case of incidents to which the 2004 Paris Convention is applicable, actions against the liable operator are governed by the 2004 Paris Convention supplemented by the 2008 Nuclear Liability Act. The 2008 Nuclear Liability Act also applies to claims against the liable operator in the case of incidents to which the 2004 Paris Convention is not applicable. By virtue of Article 1(2) of the 2008 Nuclear Liability Act the substantive provisions of Articles 1 – 15 of the 2004 Paris Convention then apply in addition to the 2008 Nuclear Liability Act in terms of intra-state law.

- The Federal Council's communication on the draft 2008 Nuclear Liability Act suggests that the legislature was under the assumption that legal channelling was to be applied without exception to the benefit of any third party.

5.2 *Appraisal*

Although a considerable number of states are party to either the Paris Convention or the Vienna Convention regime, the fragmentation of international

nuclear liability law is still significant in terms of applicable conventions, applicable liability amounts, applicable reciprocity rules and many other subjects.

From a Swiss perspective, participation in the 2004 Paris Convention and the Joint Protocol will partly reduce this complexity in relation to those states with which Switzerland will establish treaty relationships, i.e. Paris Convention-only and Vienna Convention/Joint Protocol-states. The principles of jurisdictional and legal channelling apply without restrictions between Switzerland and these states, clarifying where victims have to claim damages and whom they have to sue. The risk of contradictory judgements is, principally, eliminated and judgements rendered in either of those states will be enforceable in any other state taking part in the relevant conventional regime. Thus, with regard to legal certainty and the efficiency of law enforcement, accession to the Paris Convention regime and the Joint Protocol will clearly produce benefits for all stakeholders concerned.

These advantages, which are rather procedural by their nature, are as important or even more important than the substantive benefits gained through participation in the 2004 Paris Convention and the Joint Protocol. First, the applicable liability amounts and the insurance amounts which endorse the operator's liability vary greatly among the states with whom Switzerland will enter into treaty relationships. Within Europe, liability amounts range from the unlimited liability imposed, for example, on German operators to liability amounts of approximately EUR 50 million imposed on Bulgarian operators.[149] The liability amounts at the lower end of the range are likely to prove insufficient to compensate for all the damages in case of an incident which has the size to affect victims in Switzerland. Moreover, with a view to the extended geographical scope of the 2004 Paris Convention and the 1997 Vienna Convention, it could be argued that Swiss victims would be entitled to compensation on a non-discriminatory basis in these states even if Switzerland was not party to any of the international conventions, supposing that Swiss national nuclear liability legislation is equivalent to the Paris Convention and Vienna Convention regimes, thus, excluding the applicability of Article 7(g) of the 2004 Paris Convention and XIII(2) of the 1997 Vienna Convention.

Turning to the question of how Switzerland's accession to the Paris Convention regime will affect the position of operators, victims and suppliers in particular, the following conclusions can be drawn.

Operators

Switzerland's accession to the Paris Convention regime has a profound impact on the legal situation of operators. This impact is characterised by a higher degree of legal certainty on the one hand and increased exposure to liability risks on the other hand.

Swiss operators clearly benefit from a higher level of legal certainty, in particular in relation to jurisdictional matters. Without treaty relationships, claims against Swiss operators could potentially be brought before the courts in any state where nuclear damage occurred as a consequence of an accident in a Swiss installation. The treaty links established with Paris Convention-only and Vienna Convention/Joint Protocol-states under the new regime ensure that jurisdiction over claims suffered in these convention states will be channelled to a single Swiss court (at least as far as nuclear incidents in installations are concerned). In turn, judgements rendered against Swiss operators will be enforceable in Switzerland, Paris Convention-only and Vienna Convention/Joint Protocol-states.

149. OECD Council, supra note 86.

In substance, Swiss operator's financial burden and risk exposure increase. While Swiss operators' liability was already unlimited under the liability regime of the 1983 Nuclear Liability Act, the insurance cover operators have to obtain is significantly increased from CHF 1.1 billion to approximately CHF 1.8 billion (+ 180 million) in keeping with Switzerland's obligations under the 2004 Paris Convention and the 2004 Brussels Convention. Moreover, a wider range of victims will be entitled to claim compensation from Swiss operators; notably, victims of non-nuclear states will now be entitled to damages regardless of whether their state has in place legislation equivalent to Swiss legislation.[150] Also, to the extent provided for by Swiss law, a wider range of damages will be covered including environmental damage and costs for preventive measures.[151]

In spite of the participation in the 2004 Paris Convention and the Joint Protocol, there will be a significant number of states to which no treaty links will be established. These states are under no obligation towards Switzerland to observe the legal channelling principle so that their courts may admit claims of victims suffering damage from an accident at a nuclear installation in Switzerland. While, generally, judgements rendered against Swiss operators in such states are not enforceable in Switzerland,[152] difficult questions as to enforceability arise when judgements rendered in state parties to the Lugano Convention are concerned.[153]

Victims

The legal position of Swiss victims is affected in terms of procedural and substantive matters.

While before the accession to the Paris Convention regime Swiss courts in principle had jurisdiction to hear claims against any foreign operator, Swiss victims will now have to sue operators of Paris Convention-only and Vienna Convention/Joint Protocol-states before the courts where their installations are located. In turn, judgements rendered by the competent court of a Paris Convention/Joint Protocol- or Vienna Convention/Joint Protocol-state in favour of Swiss victims will be enforceable in any other Paris Convention/Joint Protocol- or Vienna Convention/Joint Protocol-state, judgements of Paris Convention-only in any other Paris Convention-state. By contrast, the enforceability of Swiss judgements under the old regime would have been doubtful whereby it could be argued that at least the Lugano Convention provided a basis for enforcement in its state parties.

In substance, the applicable liability limits and insurance covers vary significantly from state to state, questioning in some cases the actual relevance of the newly established treaty links from the victims' point of view. In particular, 1963 Vienna Convention states may limit the liability of their operators to no more than USD 5 million (gold standard).[154] Keeping in mind that this amount will have to be shared among the victims in all Vienna Convention/Joint Protocol and Paris Convention/Joint Protocol-states the formal entitlement to compensation is likely to turn out worthless in the event of a serious accident.

150. By contrast, under the reciprocity rule of Article 34 1983 Nuclear Liability Act legislation equivalent to that in Switzerland was a prerequisite for compensation to victims suffering damage abroad.
151. 2004 Paris Convention, Article 1(vii). Economic loss (Article 1(vii)(3) of the 2004 Paris Convention) was also compensable under the 1983 Nuclear Liability Act (ATF 116 II 480 c.4).
152. 1987 Swiss Private International Law Act, Article 149(1).
153. Waldner, supra note 57, p. 21 – 24.
154. 1963 Vienna Convention, Article 5(1); see supra note 50.

Possible gaps and deficiencies existing in the new liability regime are mitigated by Article 14(1)(b) of the 2008 Nuclear Liability Act according to which Switzerland compensates victims for damage suffered in Switzerland to the extent they cannot obtain compensation equivalent to that under the 2008 Nuclear Liability Act before a foreign court. Thus, if Swiss victims have to comfort to be adequately compensated in case of a nuclear accident occurring abroad it is due not only to Switzerland's participation in the 2004 Paris Convention and the Joint Protocol but, in no small part, to the autonomous decision of the Swiss legislature to adequately compensate victims out of public funds, if need be.

Suppliers

While the assessment of the new legal regime is at least ambivalent from the point of view of operators and victims, suppliers and constructors are clearly better off. In the absence of treaty relationships, other states were under no obligation to observe the principles of jurisdictional and legal channelling towards Swiss suppliers and constructors. Thus, subject to the applicable national law, victims were principally free to bring claims before any court in a state where damage was suffered and sue Swiss suppliers and constructors based on general tort law. At least as far as damages sustained in Paris Convention-only and Vienna Convention/Joint Protocol-states are concerned, Swiss suppliers and constructors will be effectively shielded against claims for damages.

Risk exposure persists when it comes to damages suffered in Vienna Convention-only and other states without treaty links. While judgements rendered against suppliers and constructors will generally not be enforceable in Switzerland, they might be enforced abroad, which poses a relevant risk to globally acting suppliers and constructors whose assets are dispersed in many places.

The impact of the Additional Protocol and Strengthened Safeguards: effects on the International Atomic Energy Agency and on states

by Benjamin Katzenberg[*]

The paper was prepared on the basis of interviews conducted by the author with former and current staff members of the International Atomic Energy Agency (IAEA) who were involved in the development of the Model Additional Protocol (INFCIRC/540) or who currently participate in activities related to the implementation of Additional Protocols. It is also based on publicly available information provided by representatives of member states at IAEA symposia or workshops in connection with the implementation of their Additional Protocols.

Introduction

Additional Protocols (APs) to Comprehensive Safeguards Agreements (CSAs) are part of the process of strengthening the safeguards system of the IAEA. This process was initiated as a response to weaknesses which were identified in this system following the discovery in 1991 that the Iraqi Government had a clandestine weapons programme. This paper will examine the changes which have occurred in the Department of Safeguards at the IAEA and to the way safeguards are implemented in states which have concluded APs to their CSAs. It will present these changes in order to show that this process has resulted in substantial improvements to the effectiveness and efficiency of the IAEA's safeguards implementation.

This paper is divided into 3 sections. Section 1 will provide a background and history of the strengthened safeguards programme.

Section 2 will argue that the AP has made safeguards implementation by the IAEA more effective by shifting the role of the IAEA's inspectors from "accountants" to "analysts", moving from a facility oriented approach to safeguards implementation to a state-centred approach and making safeguards decision-making an information-driven process. Section 2 will also argue that, over time, the AP has probably made safeguards more efficient because the use of integrated safeguards supports efforts to optimise the use of resources at the IAEA, however, many factors make it difficult to conclude that there really have been gains in efficiency.

Section 3 reflects various experiences gained by states in implementing their APs. This section will examine the process of implementing safeguards in states with APs to their CSAs for states with significant nuclear activities and states with limited or no nuclear activities.

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The paper will conclude on two points on the AP's effect, in the context of strengthened safeguards. Firstly, the AP has contributed to developments which indicate improved effectiveness, and possibly efficiency in the implementation of safeguards by the IAEA, and secondly, that the AP has presented challenges to many states but has also provided substantial benefits and has contributed to the strengthening of regional and global security and trust by enabling the IAEA to provide credible assurances about the absence of undeclared nuclear material and activities in those states.

Section 1: History of the Additional Protocol

Background

Despite the fact that atomic weapons were first developed over sixty years ago, only a small handful of countries today have acquired them. This state of affairs is the direct result of a remarkably successful treaty signed by 190 countries, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Compliance with the obligations contained in this treaty has been ensured by an international inspection regime administered by the IAEA. The IAEA was created by its Statute in 1957 with the objective to "seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. It shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose."[1] Eleven years after it was founded, the NPT obligated the non-nuclear weapon states (NNWSs) party to the treaty, that is, states which had not manufactured and exploded a nuclear weapon prior to 1 January 1967,[2] to conclude safeguards agreements with the IAEA which require the application of safeguards on all source or special fissionable material[3] "in all peaceful nuclear activities within the territory of the state, under its jurisdiction or control anywhere."[4] Soon after the entry into force of the NPT in 1970, the IAEA's Board of Governors approved a document entitled "The Structure and Content of Agreements between the IAEA and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons"[5] and requested the Director General to use this document as the basis for negotiating safeguards agreements between the IAEA and NNWSs party to the NPT. Until the early 1990s, the implementation of safeguards under CSAs was focused on declared nuclear material and activities. This was because, although pursuant to a CSA the IAEA had the obligation to ensure

1. Statute of the International Atomic Energy Agency (1956), Article II.
2. Treaty on the Non-Proliferation of Nuclear Weapons (1968), Article IX.
3. Under the IAEA Statute, the term "special fissionable material" means plutonium-239; uranium-233; uranium enriched in the isotopes 235 or 233; any material containing one or more of the foregoing; and such other fissionable material as the Board of Governors shall from time to time determine; but the term "special fissionable material" does not include source material. The term "source material" means uranium containing the mixture of isotopes occurring in nature; uranium depleted in the isotope 235; thorium; any of the foregoing in the form of metal, alloy, chemical compound, or concentrate; any other material containing one or more of the foregoing in such concentration as the Board of Governors shall from time to time determine; and such other material as the Board of Governors shall from time to time determine. Statute of the International Atomic Energy Agency (1956), Articles XX(1) and XX(3), respectively.
4. Treaty on the Non-Proliferation of Nuclear Weapons (1968), Article III(1).
5. IAEA (1972), "The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons", IAEA Document INFCIRC/153 (Corr.).

safeguards were applied to *all* nuclear material in a state, it had limited access to information and locations not declared by the state.

Under a CSA, the IAEA may conduct ad hoc, routine and special inspections and design information verification (DIV) as provided for in the CSA.[6, 7] However, the IAEA's right of access under the provisions for special inspections to information or locations in addition to the access under ad hoc and routine inspections has been highly politicised by IAEA member states and therefore has been rarely used by the IAEA. Thus, for the first three decades of safeguards implementation under CSAs, the IAEA was not fully equipped to verify, on a routine basis, the absence of undeclared nuclear material and activities.

A trio of events in the early 1990s prompted the IAEA and the international community to re-evaluate the safeguards system. By far the greatest catalyst for the re-evaluation came from the discovery of a clandestine weapons programme in Iraq in 1991. The realisation that, despite decades of safeguards implementation, the IAEA had been unable to detect the presence of a nuclear weapons programme, revealed a fundamental weakness in the safeguards system and prompted the IAEA to seek to develop measures which would improve its ability to detect the diversion of nuclear material from peaceful uses.

Another catalyst was South Africa's decision to accede to the NPT, conclude a CSA and renounce its nuclear weapons programme. As a part of this process, other African states asked the IAEA for assurances that South Africa had, in fact, dismantled all of its nuclear weapons and would not continue its programme. The IAEA's Board of Governors instructed the Director General to verify the completeness of the state's initial report, which would thereafter become a routine part of safeguards implementation. Prior to 1991, the IAEA for the most part only actively verified that declarations received from states with CSAs were correct. Only after the IAEA was asked to verify the dismantling of South Africa's nuclear weapons programme did it become common practice to verify completeness of states' declarations as well.[8] In doing so, it became clear that verification of completeness of a state's declarations was a major undertaking, only achievable through close cooperation with and a high degree of transparency of the state. To verify completeness on a more routine basis, the IAEA required increased access to information and locations under the CSA, or an expanded legal authority.

Additionally, the discovery of inconsistencies in the Democratic People's Republic of Korea's (DPRK) initial declarations under the CSA reaffirmed the IAEA's need to verify completeness as well as correctness. When the DPRK submitted its initial report under its CSA in 1992, the DPRK was unprepared for the level of scrutiny which it would receive as a result of the new emphasis on verifying the completeness of declarations. The discovery by the IAEA of incomplete declarations made by the DPRK reaffirmed the IAEA's resolve to systematically evaluate

6. "Facility" means: (a) A reactor, a critical facility, a conversion plant, a fabrication plant, a reprocessing plant, an isotope separation plant or a separate storage installation; or (b) Any location where nuclear material in amounts greater than one effective kilogram is customarily used. INFCIRC/153 (Corr.), paragraph 106.
7. "Material balance area" means an area in or outside of a facility such that: (a) The quantity of nuclear material in each transfer into or out of each "material balance area" can be determined; and (b) The physical inventory of nuclear material in each "material balance area" can be determined, when necessary, in accordance with specified procedures, in order that the material balance for Agency safeguards purposes can be established. INFCIRC/153 (Corr.), paragraph 110.
8. Hooper, R. (2003) "The Changing Nature of Safeguards", *IAEA Bulletin*, Volume 45, Number 1, p. 8.

completeness and correctness, and would provide an impetus for the strengthening of the safeguards system as a whole.[9]

In the fall of 1991 the Director General of the IAEA, Hans Blix, increased the size of the IAEA's Standing Advisory Group on Safeguards Implementation (SAGSI) from fourteen to twenty members, with a mandate to provide the Director General with recommendations on more effective and efficient safeguards. In 1993, SASGI reported these recommendations to the Director General, who in turn reported them to the Board of Governors. The Board's response was to ask the Director General to commission a study that would develop and examine the legal, financial, and technological means to carry out SAGSI's recommendations. This study, which was conducted over the course of roughly eighteen months beginning in early 1993, would become known as programme "93+2", so named because the programme's goal was to develop ways for the IAEA to improve its ability to detect clandestine nuclear activities in the two years from the programme's inception to the 1995 NPT review and extension conference. The programme produced a two-part strategy for upgrading the IAEA's safeguards implementation. The first set of measures developed by programme 93+2 involved using the IAEA's existing authority under the CSA to the fullest possible extent. This included modifying the subsidiary arrangements with states in order to obtain early design information about planned facilities,[10] the collection of environmental sampling and remote monitoring data, and an increased usage of unannounced routine inspections.[11]

The second set of measures developed under programme 93+2 required "complementary legal authority" for the IAEA.[12] The IAEA lacked the authority under CSAs to compel states, on a routine basis, to provide the IAEA with the kinds of information that the IAEA would need in order to verify the absence of undeclared nuclear material and activities. This was because, the IAEA's experience in Iraq had shown that the provision of information by a state was the essential starting point for verification.[13] Of course, under a special inspection (or for example, the extraordinary authority that was granted to the IAEA by the UN Security Council in its Chapter VII resolutions on Iraq following the first Gulf war) the IAEA had the right of access to any facility or location, but this tool was difficult to use effectively without a declaration against which to conduct verification activities.[14] With a declaration, the IAEA would have a basis on which to draw a conclusion. The new kinds of information the IAEA needed included information about, and inspector

9. Rockwood, L. (April 2002) "The IAEA's Strengthened Safeguards System", *Journal of Conflict and Security Law*, Volume 7, Issue 1, p. 125.
10. Under the old subsidiary arrangement Code 3.1, states were required to provide design information on facilities no later than 180 days before the introduction of nuclear material into a facility. Under the new modified Code 3.1, states were required to provide design information as soon as the decision to construct or to authorise construction of a facility was made. IAEA (2009), "Meeting of the Board of Governors 2009: Statement by Legal Advisor" [online]. Available at: www.armscontrolwonk.com/file_download/162/Legal_Adviser_Iran.pdf.
11. Rockwood, L. (April 2002) "The IAEA's Strengthened Safeguards System", *Journal of Conflict and Security Law*, Volume 7, Issue 1, pp. 123, 125.
12. See generally IAEA (1995), "Report by the Director General to the IAEA Board of Governors: Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System: Proposals for a Strengthened and More Efficient Safeguards System", IAEA Document GOV/2807.
13. Pacific Northwest National Laboratory (2005), "Safeguards in the Nuclear Age, A Retrospective on INFCIRCs 153 and 540: With Myron Kratzer, Rich Hooper and Ambassador Norm Wulf" Video Series Foundations of International Safeguards, a collection of dialogues centered on the immense role played by the IAEA, and in particular how the Agency supports nuclear non-proliferation through the practice of safeguards.
14. *Ibid*.

access to, all aspects of states' nuclear fuel cycles, from uranium mines to nuclear waste; any other location where nuclear material intended for non-nuclear use is present; information about, and inspection of, nuclear fuel cycle-related research and development; information on, and short-notice inspector access to, all buildings on a state's nuclear sites; information on the manufacture and export of sensitive nuclear-related technologies and inspector access at manufacturing and import locations; the collection of environmental samples at locations other than those declared by the state when deemed necessary by the IAEA; and administrative arrangements that improve the process of designating inspectors, the issuance of multiple-entry visas (necessary for routine unannounced inspections), and IAEA access to modern means of communications, such as satellite systems.[15]

Programme 93+2 concluded there were three potential avenues for the IAEA to obtain the expanded authority it needed. Each path presented advantages, as well as disadvantages. The first was to reinterpret the text of INFCIRC/153. The second was to amend the text of INFCIRC/153, and the third was to create a new legal instrument which states would become party to. The first option, reinterpretation, was considered to be easier than the others in some sense, mainly because it would have been binding automatically without the need for the conclusion of new agreements which many, or at least some states, might not choose to become party to. However, after extensive study, it was concluded that it would not be politically possible to secure the Board of Governor's consent to such an approach.[16]

The second possible approach would have been to amend the text of INFCIRC/153. While this would have the advantage of simplicity, it would be problematic in that it would have opened up INFCIRC/153 for renegotiation as a whole, presenting the danger that the IAEA's rights under CSAs could have been diluted, and it would have required renegotiation of all CSAs. Many states had incentives to argue for less restrictive safeguards measures, and there was a real concern that amending INFCIRC/153 could lead to a kind of "robbing Peter to pay Paul" scenario, where the kind of authority the IAEA sought would only be granted at the expense of a loss of other kinds of rights provided to the IAEA under CSAs.[17]

The third approach, and the one ultimately selected, was a new instrument. The main drawback to this approach was known then, and it persists to the present day: states were under no obligation to conclude an additional legal instrument, but like the choice to become party to the NPT, must undertake this course of action voluntarily.[18] Nevertheless, the benefits of a new instrument outweighed the negatives. The IAEA could create a broader range of authority without ceding any of the authority it already possessed under a CSA. The resulting document, the Model

15. Rockwood, L. (April 2002) "The IAEA's Strengthened Safeguards System", *Journal of Conflict and Security Law*, Volume 7, Issue 1, p. 126.
16. Pacific Northwest National Laboratory (2005), "Safeguards in the Nuclear Age, A Retrospective on INFCIRCs 153 and 540: With Myron Kratzer, Rich Hooper and Ambassador Norm Wulf" Video Series Foundations of International Safeguards, a collection of dialogues centered on the immense role played by the IAEA, and in particular how the Agency supports nuclear non-proliferation through the practice of safeguards.
17. *Ibid*.
18. Compare Asada, M. (2011) "The Treaty on the Non-Proliferation of Nuclear Weapons and the Universalization of the Additional Protocol", *Journal of Conflict and Security Law*, Volume 16, Issue 1, p. 34 (arguing that because the 2010 NPT Review Conference did not advocate that adherence was mandatory under the NPT, it cannot be considered an obligation under Article III of the NPT), with Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (2010), "Implementation of the Treaty on the Non-Proliferation of Nuclear Weapons: Submission by Austria", NPT Review Conference Document NPT/CONF.2010 (noting that Austria has interpreted Article III of the NPT as requiring mandatory adherence to the AP under international law).

Protocol Additional to the Agreement(s) Between State(s) and the International Atomic Energy Agency for the Application of Safeguards, was approved on 15 May 1997 by the IAEA's Board of Governors. The number of states concluding APs to their CSAs has increased over time at a steady rate. Currently over 125 states have signed an AP to their CSA.[19] U.S. Ambassador Norm Wulf, among others, has argued that the AP is in the process of becoming a norm under customary international law.[20]

The AP broadens the IAEA's authority in two main, interrelated ways. Firstly, it expands the obligations of states to make declarations regarding their nuclear material and activities. States which have concluded an AP to their CSA with the IAEA must provide information on nuclear fuel-cycle related research and development not involving nuclear material, certain manufacturing activities, uranium mining and uranium and thorium concentration plants, information about activities in all buildings on the site of nuclear facilities and locations outside facilities where nuclear material is customarily used, nuclear material exempted from safeguards, further processing of intermediate and high-level waste containing plutonium or U-233 or U-235 on which safeguards have been terminated, imports and exports of certain source material, specified equipment and non-nuclear material, and official state plans for nuclear programme development over the succeeding ten-year period.[21]

Secondly, the AP expands the type of access which the IAEA has in a state. This type of access is called complementary access (CA), so named because it is meant to be "complementary" to the IAEA's access under CSAs.[22] Under Article 4 of the AP, CA may be used by the IAEA to gain access to any place on a site, any location specified in Article 2 AP declarations, decommissioned facilities and/or locations outside facilities, and any location were nuclear material is customarily used. It may be used to resolve questions or inconsistencies relating to the correctness and completeness of Article 2 declarations and to carry out location specific environmental sampling at any location specified by the IAEA.[23] Notice for CA must be typically 24 hours in advance, but if sought in conjunction with routine inspections, ad hoc inspections, or design information verification under a CSA it may be given with 2 hours in advance or less.

Conclusion

As originally presented to the IAEA Board of Governors in 1995, the proposals for a strengthened and more efficient safeguards system rested on three, interrelated principles: broad access to information, increased physical access, and the optimal

19. Cooley, J. (2011), "Safeguards and Non-Proliferation Concepts and Practices", presentation given at the IAEA Nuclear Law Institute, Vienna, Austria, on 28 November 2011, slide 35.
20. Pacific Northwest National Laboratory (2005), "Safeguards in the Nuclear Age, A Retrospective on INFCIRCs 153 and 540: With Myron Kratzer, Rich Hooper and Ambassador Norm Wulf", Video Series Foundations of International Safeguards, a collection of dialogues centered on the immense role played by the IAEA, and in particular how the Agency supports nuclear non-proliferation through the practice of safeguards.
21. IAEA (1997), "Model Additional Protocol to the Agreement(s) Between State(s) and the International Atomic Energy Agency for the Application of Safeguards", IAEA Document INFCIRC/540 (Corr.), Article 2.a (i)-(x).
22. Pacific Northwest National Laboratory (2005), "Safeguards in the Nuclear Age, Legal Foundations of Safeguards: Discussions with Laura Rockwood on INFCIRCs 153 and 540" Video Series Foundations of International Safeguards, a collection of dialogues centered on the immense role played by the IAEA, and in particular how the Agency supports nuclear non-proliferation through the practice of safeguards.
23. INFCIRC/540 (Corr.), Article 5(c).

use of existing legal authority.[24] The report included a table which showed what could be accomplished under existing legal authority (so called "Part 1" measures), and what would require complementary legal authority (so called "Part 2" measures). The report concludes that the implementation of measures under complementary legal authority would be integrated with the measures introduced under existing legal authority.[25] The additional IAEA activities under APs were a symbiotic part of a strengthened safeguards process, one which cannot be observed separately from the Part 1 measures. Thus, while this report will be discussing how the AP has changed both the IAEA and states over time, the conclusions drawn will necessarily be similar if not identical to those which would be drawn under an analysis of the impact of strengthened safeguards as a whole.

Section 2: The impact of safeguards implementation under the Additional Protocol to safeguards agreements on the IAEA

Introduction

This section will provide arguments that the AP, together with Part 1 measures from programme 93+2, has made the safeguards system more effective, and more efficient. Effectiveness is a measure of the extent to which the IAEA meets its safeguards objectives. Efficiency is a measure of how well the human and financial resources needed for this are used.[26] Although this process is evolving, changes in the IAEA's approach to safeguards implementation show gains in both areas.

This section will then provide arguments that the IAEA's experience in implementing safeguards under APs has made safeguards more effective over time, as envisioned under programme 93+2 because: professional development and staffing requirements in the Department of Safeguards reflect an increasing emphasis over time on investigative skills and information analysis for IAEA inspectors; safeguards have become increasingly state-centred as opposed to being facility oriented; and a much broader range of information is being analysed by the IAEA, and the analysis of this information is increasingly driving the way in which safeguards are implemented.

This section will provide arguments that the IAEA's experience in implementing safeguards under APs has made safeguards more efficient over time because integrated safeguards may result in a decrease in the overall verification activities in the field, but that efficiency gains are difficult to measure, and fewer inspections does not necessarily mean more efficient safeguards.

Part A: Human resources developments

Prior to the introduction of measures under programme 93+2, IAEA inspectors could be considered as accountants. They were checking the books and the inventory of the facilities and locations outside of facilities (LOFs) they inspected to make sure the amount of nuclear material declared at a facility or LOF was the amount of nuclear material present. Part of the goal of programme 93+2 was to

24. See generally IAEA (1995), "Report by the Director General to the IAEA Board of Governors: Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System: Proposals for a Strengthened and More Efficient Safeguards System", IAEA Document GOV/2807.
25. *Ibid*. at paragraph 55.
26. Cooley, J. (2003), "*Integrated Nuclear Safeguards: Genesis and Evolution",* VERITC*, Verification Research, Training and Information Centre (VERTIC) Verification Yearbook*, VERTIC, p. 29, n. 1.

make the IAEA's inspectors into analysts who would elicit a broader range of information and evaluate this information more critically.[27]

Making the role of IAEA inspectors more analytical was required as part of the strengthened safeguards programme's goals of making safeguards more effective and more efficient. The IAEA has been increasingly training its inspectors, analysts and technical experts on a broader range of skills including information analysis, familiarity with new technologies, and both observing and eliciting information. The IAEA is also looking for potential applicants to demonstrate competence in these skills prior to hiring.

The IAEA offers its inspectors, analysts and technical experts a number of training courses. The changes to the safeguards departmental training programme from 1990 to the present indicate that, as a result of the strengthened safeguards programme, the IAEA is now training its inspectors and other safeguards staff in a wider range of disciplines than it did under the traditional safeguards system.

In 1990, the training programme only offered courses in verification and nuclear material accountancy. For example, courses in "Material Balance Evaluation and Reporting", "Safeguards Criteria Training Seminars" and "Comprehensive Training on CANDU Systems" were offered.[28] The course description for the "Safeguards Criteria Training Seminar" offers a good example that safeguards prior to programme 93+2 were focussed at the facility-level and criteria driven.[29] "Criteria" at this time were the same for all similarly situated facilities, regardless of the state they were located in. They did not, for the most part, take into account factors such as how developed the nuclear fuel cycle of the state was. The course description describes the main principles of the inspection goal attainment criteria used for state evaluations, with a view to deciding on inspection activities necessary to meet the inspection goal in these situations.

The Safeguards Training Programme for 1999, in contrast to the 1990 programme, shows a shift in focus to a more holistic, state-centred approach to safeguards. This is firstly reflected in the cover of the programme itself, in which all levels of courses offered (Advanced, Basic, Refresher and Member State[30]) are enclosed within a wider circle which is labelled "Strengthened Safeguards". This visual conveys a message that all training in the Department of Safeguards will occur within the context of the strengthened safeguards programme. As an example, in 1999 there was no longer a course offered in "safeguards criteria". In fact, the term "criteria" does not appear in any course titles. Instead, and reflecting the IAEA's new state-level approach to safeguards, there was a course offered in "Performing State Evaluations". The course objective is listed as "To enable the participants to effectively integrate and evaluate the wide variety of information available to the IAEA in order to produce a State Evaluation Report. The compilation and maintenance of the Country File will also be stressed". As an additional example of the IAEA's new approach to safeguards training, there was a course offered in

27. Pacific Northwest National Laboratory (2005), "Safeguards in the Nuclear Age, A Retrospective on INFCIRCs 153 and 540: With Myron Kratzer, Rich Hooper and Ambassador Norm Wulf" Video series Foundations of International Safeguards, a collection of dialogues centered on the immense role played by the IAEA, and in particular how the Agency supports nuclear non-proliferation through the practice of safeguards.
28. IAEA Department of Safeguards Training Section (1990), Safeguards Training Programme for 1990.
29. IAEA (2010), "Safeguards Symposium Overview", p. 2, available at: www.iaea.org/OurWork/SV/Safeguards/Symposium/2010/resources/docs/Overview_2010-11-30.pdf.
30. The Agency's staff are typically not trained in courses under the member state heading; rather, these are used to train professionals in the member state working in safeguards related fields.

"Enhanced Observational Skills", which stated in its description that: "Enhanced observational skills training addresses the inspector's ability to look for, recognise, remember and draw inferences from observations of physical structures, equipment, human behaviour and other conditions that could be indicative of an inconsistency in a State's nuclear declaration". Another example is a course titled "The Nuclear Fuel Cycle and Proliferation Indicators". Additionally, reflecting the importance of new technology to the IAEA's strengthened safeguards programme, a course in environmental sampling was taught.[31] The presence of these new courses in the training programme indicates that, shortly after the advent of the strengthened safeguards system, inspectors, analysts and technical experts of the IAEA were being trained in a wider range of disciplines than they had been previously. These disciplines were geared towards a new focus on evaluating states as a whole, rather than facilities.

The trend of offering training on a wider scope of activities has continued over time. In the training programme for 2003, "Environmental Sampling" was offered under the "basic" heading, whereas it had been an "advanced" course in 1999. The same is true for a course in "Enhanced Observational Skills". A new course on "Enhanced Communication Skills" was offered, in order for participants to "adapt their communication styles to planning, conducting and reporting on inspections". Among the skills the course hoped to improve in participants was "eliciting information". A seminar was organised on "The Strengthened Safeguards System", but there were no courses organised on "Safeguards Criteria Training". There was also a workshop organised on "Performing State Evaluations". New courses included "Analytical Skills Development" and a "Cost/Benefit Analysis" workshop. Reflecting the focus on new technology, a course on satellite imagery awareness and remote monitoring was organised. And, as an indication that the AP was, by now, playing a significant role in the way the IAEA conducted safeguards-related activities, there were courses in "Complementary Access Roles and Responsibilities" and an "Additional Protocol Exercise".[32]

The training programme for 2011 indicates the expanding impact of the strengthened safeguards programme on training at the IAEA. The "strengthened safeguards system", in addition to "basic" and "advanced" (though advanced is referred to now as "specialised"), is now a subheading under which eleven courses are organised, including "Advanced Training in Nuclear Fuel Cycle Facilities", "Complementary Access Roles and Responsibilities", a "Complementary Access Exercise", "Enhanced Communication Skills", "Enhanced Observational Skills", "Environmental Sampling", "Nuclear Fuel Cycle and Proliferation Indicators", "Satellite Imagery Awareness" and "State Evaluation Strategy". Perhaps most interestingly, as an example of the IAEA's increasing focus on all aspects of the nuclear fuel cycle, there were two courses organised in uranium mining; a seminar, and a scientific visit to a mine.[33]

Courses organised under the "specialised" training heading in 2011 also reveal the widening breadth of the IAEA's approach to safeguards implementation. Under this heading there were three courses organised in analytical skills and tools, one course on export/import information, one on negotiation skills, two workshops on open sources, and a proliferation analysis workshop. In total, 19 out of the 49

31. IAEA Department of Safeguards Training Section (1999), "Safeguards Training Programme for 1999".
32. IAEA Department of Safeguards Training Section (2003), "Safeguards Training Programme for 2003".
33. IAEA Department of Safeguards Training Section (2011), "Safeguards Training Programme for 2011".

courses offered by the Safeguards Training Section (about 38%) in 2011 covered subject matter which can be traced to the strengthened safeguards system.[34]

The development of the IAEA's training programme over time indicates that while nuclear material accounting and control has remained central to verification, safeguards implementation has expanded to cover many additional areas. Courses in satellite imagery and open source analysis show an interest in information outside of facilities themselves. Courses in communication, observation, analytical skills and negotiation show an expanded role and profile for inspectors, analysts and technical experts. Additionally, courses on complementary access, unannounced inspections and uranium mines show that, in implementing APs to CSAs, the IAEA is now preparing its staff to evaluate all aspects of the nuclear fuel cycle.

Vacancy notices for inspectors show how, over time, the strengthened safeguards process led the IAEA to search for applicants with skills important to strengthened safeguards measures, though skills in traditional nuclear material accounting were still important. These changes happened slowly over the course of time, as the IAEA gained more experience in the implementation of safeguards under the strengthened safeguards system. A vacancy notice for 1996 did not reveal an expectation of any additional skills which would be needed to assist in the implementation of safeguards under the strengthened safeguards system beyond what would be necessary for traditional nuclear material accounting.[35] When this notice is contrasted with a notice from 2004, there is a striking difference. The vacancy notice for the same post in 2004 is a full page longer. The vacancy notice from 1996 lists inspector duties as, inter alia, "To analyse and evaluate data collected from various sources including facility records, design information and reports submitted by the States, inspection results and computerised databases". However, the notice from 2004 listed these duties as "analyse, review and evaluate data collected from various sources including facility records, design information and reports submitted by States, inspection results, computerised databases and *open sources* [emphasis added]."[36] Additionally the vacancy notice from 2004 described the inspector's duties as preparing state evaluation reports, and serving as a "country officer", meaning they were being assigned to the state evaluation of a specific country. The vacancy notice in 2004 also stated that inspectors should be skilled in negotiation and handling unexpected situations, as well as analysing new concepts.

Vacancy notices for 2011 show this trend continuing. In the section on organisational setting, the notice describes the various divisions within the Department of Safeguards and describes their mission as drawing well substantiated, credible safeguards conclusions for states. Additional skills sought beyond those listed in 2004 include knowledge of satellite imagery, intellectual alertness and creativity.[37] Technical qualifications for IAEA inspectors are still essential. All vacancy notices for safeguards inspectors require them to have degrees in physics, chemistry or engineering and substantial experience working in nuclear fuel-cycle-related facilities. However, today, as a result of the IAEA's strengthened safeguards programme, inspectors are expected to demonstrate competence in other areas, including the ability to work with open source information.

The change, over time, in the IAEA's vacancy notices and training programmes provides an indication of the changing role of the IAEA inspector. This changing role was best summarised by Greg Schulte in a recent issue of *Foreign Affairs*: "Whereas IAEA inspectors once played the role of accountants, recording nuclear material at

34. *Ibid*.
35. IAEA (1996), Nuclear Safeguards Inspector Vacancy Notice.
36. IAEA (2004), Nuclear Safeguards Inspector Vacancy Notice.
37. IAEA (2011), Nuclear Safeguards Inspector Vacancy Notice.

known nuclear facilities, they are increasingly required to act as detectives, looking for suspicious patterns in information from multiple sources."[38]

Part B: The state-centred approach

Moving from a facility-oriented approach to safeguards implementation to one which evaluated the state as a whole was one of the major goals of programme 93+2.[39] This meant developing a "Coherent and comprehensive approach to the acquisition, management and analysis of the information available to the IAEA"[40] including evaluating the nuclear programme of each country against a model for the possible acquisition of a nuclear weapon (known as the "proliferation critical path").[41] A later report by the Director General to the Board articulated the approach: "The purpose of the work on improved analysis is the establishment of a *comprehensive approach* towards the acquisition, procession and *evaluation* of information available to the IAEA about a State's *nuclear activities*… [emphasis added]."[42] The benefits to this approach were described in the same report: "The broad based and systematic analysis of information regarding a State's nuclear programme is geared towards the identification, at an early stage, of any instance where the available information might suggest the conduct of activities inconsistent with the State's declaration to the IAEA."[43]

The process through which the IAEA would be evaluating states was fully described for the first time in the IAEA's annual report for 1997: "Regular evaluations of information related to States' nuclear programmes commenced during 1997. These are based on information related to a State's nuclear programme, and provide an independent assessment of the completeness and consistency of information available to the IAEA. These evaluations will have a key function in the implementation of additional protocols."[44] The 1998 annual report stated that several of these evaluations had taken place.[45] And in the 1999 report, the IAEA gave a formal name to the process "The State Evaluation Report" (SER). The report described SERs, and their progressively increasing use by the IAEA, as follows: "As a first step in the strengthened evaluation process, the nuclear programmes of all States with comprehensive safeguards agreements in force are being evaluated. In 1999, evaluations in 18 States had been reviewed, compared with ten in 1998 and four in 1997. In the second stage, these evaluations will provide a benchmark against which information submitted later under Article 2 of an additional protocol will be evaluated. *To ensure continuing confidence in the conclusions of the evaluations, they will be updated as warranted by changing circumstances, and State Evaluation Reports reviewed annually* [emphasis added]". This report made clear that the IAEA was now taking

38. Schulte, G. (2010) "Stopping Proliferation Before it Starts: How to Prevent the Next Nuclear Wave", *Foreign Affairs*, Volume 89, Issue 4, p. 85.
39. See e.g. IAEA, The Safeguards System of the International Atomic Energy Agency, paragraph 2, available at: www.iaea.org/OurWork/SV/Safeguards/documents/safeg_system.pdf. ("[T]he traditional approach to safeguards implementation focused on verifying that declared nuclear material was not diverted from peaceful use at individual facilities. The strengthened approach considers a State's nuclear programme as a whole.")
40. *Ibid*. at paragraph 68.
41. *Ibid*. at paragraph 73.
42. IAEA (1995), "Report by the Director General to the IAEA Board of Governors, Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System", IAEA Document GOV/2784, paragraph 56.
43. *Ibid*. at paragraph 60. The report notes at paragraph 63 that comprehensive safeguards agreements require the Agency to draw conclusions from its verification activities under paragraph 90 of INFCIRC/153 (Corr.).
44. IAEA (1998), "IAEA Annual Report for 1997", IAEA Document GC(42)/5, p. 50.
45. IAEA (1999), "IAEA Annual Report for 1998", IAEA Document GOV/1999/28, p. 64.

what would later be called a "State-Level Approach"[46] in drawing safeguards conclusions. While material accountancy would continue to be the standard by which the IAEA assessed the correctness of a state's declaration, consideration of information for the "State as a whole" would be the way in which the IAEA drew a conclusion of completeness.[47]

By 2003, the state-level approach was the accepted paradigm for safeguards implementation.[48] Safeguards are now being routinely implemented in a process which looks at the state as a whole.

However, there is still progress to be made. The IAEA Secretariat has called for these approaches to be applied for all states with which the IAEA has concluded safeguards agreements.[49] While today safeguards are conceptually state-oriented rather than facility oriented, they are still being implemented in a facility oriented, criteria driven manner. In order for the state-level concept to become meaningful, state-evaluations should drive the verification effort in states, with a focus on proliferation risk, and not on the level of nuclear activities.[50]

Additionally, the IAEA, through the state-level approach, is concluding the absence of undeclared nuclear material and activities for an increasingly greater number of states.[51]

Part C: Information-driven safeguards

Through over fifteen years of improvement, a "checklist" approach to safeguards has been replaced by a state-level approach. An all-source evaluation of information and an analytical approach characterises safeguards implementation by the IAEA today. Currently, safeguards implemented by the IAEA are said to be "information-driven". Information-driven safeguards have been described as safeguards "whose planning, conduct and evaluation are based on an on-going analysis of all safeguards-relevant information available to the IAEA about a State to focus verification activities in the field and at Headquarters."[52] This process ensures credible and up to date safeguards conclusions, and a flexible approach to implementation. As new information becomes available, the IAEA actively adjusts

46. See e.g. Drobysz, S. and Sitt, B. (2011), *Optimizing the IAEA Safeguards System*, Centre for International Security and Arms Control Studies (CESIM), p. 16 ; Gyane, E. (2010), "Information-Driven Safeguards: A Country Officer's Perspective", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, Vienna, Austria, 1-5 November 2010, p. 1.
47. Hooper, R. (2003) "The Changing Nature of Safeguards", *IAEA Bulletin*, Volume 45, Number 1, p. 9.
48. *Ibid*. at 9 ("Changes in structure and practices of the Department of Safeguards have been accompanied by a change in culture that is more of a revolution than an evolution. The introduction of SERs means that, for the first time, the Department has systematically documented the basis for its safeguards conclusions. Senior management review of SERs and the identification of follow-up actions have improved consistency of approach and greatly increased accountability.").
49. Nackaerts, H. (2011), "The Future of Safeguards: Adapting to Change", IAEA: Our Work: Safeguards [online]. Available at: www.iaea.org/OurWork/SV/Safeguards/DDG-Corner/dg-statements-repository/TheFutureOfSafeguards.html.
50. *Ibid*.
51. Cooley, J. (2011), "Safeguards and Non-Proliferation Concepts and Practices", Presentation at the IAEA Nuclear Law Institute, Vienna, Austria, on 28 November 2011.
52. Gyane, E. (2010), "Information-Driven Safeguards: A Country Officer's Perspective", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, Vienna, Austria, 1-5 November 2010, p. 2.

its verification activities in response.[53] This can include asking a state for clarifications, increasing or decreasing the frequency and scope of inspections, or asking the state for access to locations outside of their declaration.[54]

As an example of the ways in which safeguards implementation has become information-driven, the IAEA is regularly reviewing scientific literature as part of a state-level analysis. Scientific publications provide a good indication of the types of research and development activities related to the nuclear fuel cycle in a state. A publication on reprocessing nuclear waste involving plutonium extraction, for example, indicates research is being conducted in this area. It would trigger follow-up action by the IAEA's Department of Safeguards in a state which had not reported any plans to extract plutonium from spent fuel. The tools available to the IAEA in its follow-up efforts would depend on the nature of its safeguards agreement with the state.

Another example of a shift to information-driven safeguards is the increasing use and analysis of satellite imagery by the IAEA. Satellite imagery of nuclear sites is regularly reviewed by IAEA inspectors.[55] Though it has limitations,[56] such as the fact that most imagery depends on favourable weather conditions, and cannot reveal much about what is going on inside a building, when combined with the IAEA's other tools for verification it can be a formidable component of the safeguards arsenal. For example, images showing a great deal of human activity at a facility which was declared to be closed-down or decommissioned could give rise to doubts about that status. Satellite imagery can also play a role in verifying third-party information provided to the IAEA.

Perhaps the best example of the expanded role the collection and analyses of information plays in modern safeguards implementation is provided in the report by the Director General of the IAEA to the IAEA's General Conference on "Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System and the application of the Model Additional Protocol":[57] "The Secretariat's safeguards conclusions are based upon an *evaluation of all information available* to the IAEA. Key to the process by which safeguards conclusions are drawn and the requisite verification activities are determined is the State evaluation process. This is a dynamic, iterative process in which evaluation results constitute the basis for planning safeguards activities, assessing their results and identifying any follow-up actions (e.g. additional information collection/analysis or verification activities) required for drawing soundly-based safeguards conclusions. *Safeguards*

53. See e.g. Sylvester, K. and Pilat, J. (2010), "The Evolution of Information-Driven Safeguards", slideshow presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, Vienna, Austria, 1-5 November 2010 (noting that acquisition pathway analysis is tailored to State specific information), slide 9.
54. This last measure would involve special inspections, the use of which was confirmed by the Board as a right of the IAEA.
55. Gyane, E. (2010), "Information-Driven Safeguards: A Country Officer's Perspective", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, International Atomic Energy Agency, Vienna, Austria, 1-5 November 2010, p. 4.
56. See e.g. Berriman, A., Leslie, R. and Carlson, J. (2004), "Information Analysis for IAEA Safeguards", p. 3, paper presented at the Institute of Nuclear Materials Management Annual Meeting, Orlando, Florida, USA, 18-22 July 2004, p. 3.
57. The General Conference is one of the two policymaking organs of the IAEA.

implementation at the State level can, therefore, be described as 'information driven' [emphasis added]."[58]

Part D: Efficiency

Integrated safeguards

Improving the cost-effectiveness of safeguards implementation was one of the primary goals of programme 93+2.[59] The argument that the AP has made safeguards more efficient is supported by the IAEA's introduction, and subsequent expansion, of "Integrated Safeguards" (IS). The concept of IS was first introduced in a report to the Board of Governors in 2000, where it was defined as "the optimum combination of all safeguards measures available to the IAEA under comprehensive safeguards agreements and APs which achieves the maximum effectiveness and efficiency within available resources in fulfilling the IAEA's right and obligation in paragraph 2 of INFCIRC/153."[60, 61]

IS are designed to lead to the application of some safeguards measures at a reduced level. This is because safeguards are based on a concept of "timely detection". "Timely detection" is the idea that the goal of safeguards is to identify the diversion of a significant quantity (enough to manufacture a nuclear explosive device) of nuclear material before enough time for that material to be converted into a form which could be used to manufacture a nuclear explosive device has elapsed.[62] In states which have CSAs with the IAEA but have not concluded APs to those CSAs, the IAEA lacks the tools it needs to conclude that there is no indication of "undeclared nuclear material or activities."[63] However, when an AP is in force and fully implemented, the IAEA is able to draw a conclusion that there is no undeclared nuclear material or activities in a state.[64, 65]

58. IAEA (2011), "Report by the Director General to the IAEA Board of Governors: Strengthening the effectiveness and improving the efficiency of the safeguards system and the application of the Model Additional Protocol", IAEA Document GC(55)/16, paragraph 10.
59. See generally IAEA (1995), "Report by the Director General to the IAEA Board of Governors: Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System: Proposals for a Strengthened and More Efficient Safeguards System", IAEA Document GOV/2807.
60. IAEA (2000), "Report by the Director General, The Development of Integrated Safeguards", IAEA Document GOV/INF/2000/4, paragraphs 7, 9.
61. "The Agreement should provide for the Agency's right and obligation to ensure that safeguards will be applied, in accordance with the terms of the Agreement, on all source or special fissionable material in all peaceful nuclear activities within the territory of the State, under its jurisdiction or carried out under its control anywhere, for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices.", IAEA Document INFCIRC/153 (Corr.)
62. Cooley, J. (2003), "Integrated Nuclear Safeguards: Genesis and Evolution", in *VERTIC, Verification Research, Training and Information Centre (VERTIC) Verification Yearbook,* VERTIC, p. 33.
63. *Ibid.*
64. Note that this conclusion can only be inferred. See e.g. IAEA (2000), "Report by the Director General, The Development of Integrated Safeguards", IAEA Document GOV/INF/2000/4, paragraph 8.

Problems in measuring efficiency gains

Efficiency gains in the safeguards system are difficult to assess because there is no comparator to measure against. Moreover, in order to maintain effectiveness, the safeguards system must adapt to technological, political, and cultural changes occurring throughout the world. The extent to which IS, once introduced, may make safeguards implementation more efficient depends on the nuclear infrastructure of each particular state, and how the state cooperates with the IAEA. For example, the IAEA was able to substantially reduce the number of in-field person days of inspection (PDIs) for many states, following the implementation of IS in those states.[66] On the other hand, in states in which the IAEA did not have to maintain a substantial inspection effort prior to the introduction of IS, a reduction of the inspection effort may be counteracted by the increased information analysis the IAEA must undertake.[67]

An argument that IS have not made safeguards more efficient is that a substantial portion of the IAEA's budget still goes to verification in just three states: Canada, Japan and Germany.[68] Though these states have substantial nuclear infrastructure, they have demonstrated a long history of transparency with the IAEA. Finding ways to reduce the verification effort in these states further, which some have called a "transparency dividend", has been suggested as a way to remedy this problem.[69]

However, efficiency should not be equated solely with costs, or reduced inspection effort, especially in the context of safeguards implementation. Efficiency is closely related to effectiveness in that a safeguards approach designed specifically for a state allows the IAEA to make decisions about how to allocate its verification efforts based on an analysis of available information and objectives defined specifically for the state, taking into account those factors and characteristics which are unique to it. In some cases this could make safeguards less expensive, in some cases more so. But in the pre-programme 93+2 world, which was more or less a one-

65. Provided that the State has a) complied in a timely manner with its safeguards agreement; b) the Agency has implemented the necessary measures for verifying declared nuclear material, has found no indication of diversion of such material and has drawn a conclusion of non-diversion of such material; and the Agency has c) (i) conducted a comprehensive State evaluation based on all information available, including the declarations submitted by the State under Article 2 of the AP, and satisfactorily resolves any inconsistencies and questions, and (ii) implemented complementary access, as necessary, in accordance with the additional protocol. Cooley, J. (2001), "Integrated Safeguards-Current Status of Development and Plans for Implementation", paper presented at the IAEA Symposium on International Safeguards: Verification and Nuclear Material Security, International Atomic Energy Agency, Vienna, Austria, 29 October-2 November 2001, p. 3.
66. Miyaji, N. *et al*. (2010), "Experience of Integrated Safeguards Approach for Large-scale Hot Cell Laboratory", slideshow presented by Japan Atomic Energy Agency at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, International Atomic Energy Agency, Vienna, Austria, 1-5 November 2010, slide 15, available at: www.iaea.org/OurWork /SV/Safeguards/ Symposium /2010 /Documents /PPTRepository/060P.pdf. (Showing that the IAEA inspection effort was reduced by 35% five at a Japanese hot cell laboratory under integrated safeguards).
67. A reduction in inspection effort under IS in States with limited nuclear activities may be negligible.
68. Drobysz, S. and Sitt, B. (2011), *Optimizing the IAEA Safeguards System*, Centre for International Security and Arms Control Studies (CESIM), Paris, France, p. 17 ("Canada, Japan and Germany are thus today the biggest 'customers' of the IAEA, even though they all have an AP in force, strong State or Regional systems of accountancy for and control of nuclear material in place and general good cooperation with the Agency").
69. *Ibid*. at 34.

size-fits-all model approach to safeguards, they were applied across a pretty basic formula where verification effort increased as a function of nuclear material inventory. Today, while the use of resources by the IAEA Department of Safeguards still largely reflects the size of a nuclear industry in a given state, the IAEA has the flexibility to allocate its resources based on its information analysis, and it has a greater volume of information on which to base that decision. Under that line of reasoning, it is difficult to conclude that safeguards have not been made more efficient through the measures introduced by the strengthened safeguards programme.

Conclusion

Today, safeguards inspectors have shifted roles from accountants to analysts. The IAEA draws conclusions for states as a whole, and documents those conclusions in reports which are continually updated. More importantly, safeguards are being driven by the information collected, leading to a flexible approach for each state. As far as the goals of programme 93+2 may be summarised as improving the analysis of information, increasing the amount of information collected, and increasing the IAEA's physical access, all three goals can be said to have been accomplished. The AP is an integral part of this process. It facilitates the broader collection of information, and a long history of implementation means that the IAEA is able to effectively begin processing the expanded information it receives once a state concludes an AP to its CSA.

There are examples on both sides of the argument that the strengthened safeguards programme has led to improvements in ways the IAEA uses its human and financial resources. Because of the nature of safeguards implementation as a moving target, efficiency is difficult to measure. Safeguards conclusions today for all states require a substantially more detailed analysis of a substantially larger volume of information than they did previously. In that sense, today safeguards may be more effective than they were previously because a conclusion as to the absence of the diversion of declared nuclear material is being drawn based on a more thorough evaluation process. While it is clear that the AP has made safeguards more effective, whether a more thorough process makes safeguards more efficient is a more difficult judgement, and there are arguments for and against this conclusion.

Strengthening safeguards is by no means a completed process. Resource allocation needs to reflect proliferation indicators rather than the presence of nuclear infrastructure. The IAEA's safeguards implementation continues to be constrained by its budget, and the IAEA needs to fully use its authority through the use of special inspections as provided for in CSAs. However, by comparison to safeguards prior to 1991, it is clear that today the safeguards system has been substantially improved. Strengthening safeguards is a process, not an event, and the APs impact on the IAEA, even without universalisation, has clearly been to make safeguards implementation more effective, and probably more efficient, than it was in the past.

Section 3: The Additional Protocol's effect on states

Introduction

Because of the state-level approach to the implementation of safeguards, and the premise it is based on that all states are unique, it will not be possible to draw a conclusion that the implementation of safeguards in states with APs to their CSAs has affected all states in a particular way. Nevertheless, some common trends may be observed. The observable trends can be described as follows, and will be

elaborated on in the labelled sub-sections. A) In states with significant nuclear activities, the entry into force of the AP involves an expanded workload for the state, for example through increased reporting obligations. Once a conclusion is drawn as to the absence of undeclared nuclear material and activities (in IAEA parlance the "broader conclusion"), and IS are applied, the IAEA may significantly reduce some safeguards measures, chiefly PDIs, and this can result in benefits for the state. In this context the experiences of Canada, Japan, Ukraine, Hungary and Finland with the implementation of the APs to their CSA will be compared and contrasted. B) For those states with limited nuclear activities, the implementation of safeguards under APs to their CSAs has a smaller overall impact. In that context, the experiences of Australia, Indonesia and Norway in particular will be discussed.

This section will then draw the tentative conclusion that safeguards implementation under APs to CSAs seems to provide arguable efficiency benefits to states with a significant degree of nuclear activities. However, all instances of the implementation of safeguards under APs to CSAs in states does result in enhanced cooperation between those states and the IAEA, a great benefit. It should also be born in mind that, as IS reduces the IAEA's presence in a country, it makes safeguards less intrusive. Lastly, it must be remembered that APs assist the IAEA in providing the international community with credible assurances about the absence of undeclared nuclear material and activities, providing the international community with enhanced stability and security and improving the effectiveness of global nuclear non-proliferation efforts.

Part A: States with a large scale of nuclear activities

Japan[70]

Japan signed an AP on 4 December 1998, and it entered into force on 16 December 1999.[71] According to statements made by Japanese officials, prior to signing an AP, Japan initiated an implementation trial of measures which lasted from March 1998 to December 1999.[72] It involved multiple complementary accesses (CAs) conducted at the most complex nuclear sites in Japan. Japan had to amend its nuclear legislation to cover the new types of facilities for which declarations needed to be submitted under Article 2.a (iv) of the AP, in order to compel the operators of those facilities to submit a "description of the scale of operations".[73] Legislation also needed to address the new types of information required under other AP articles and to include provisions for CA. Japan also faced a substantial human resources problem in preparing to submit its initial declaration, and for CA.[74] And although Japan submitted its initial report in June of 2000, meeting the 180 day deadline for the submission of an initial report under Article 3.a of the AP presented an

70. All information in this section is derived from public statements made by officials from Japan.
71. IAEA Office of Legal Affairs Country Factsheet for Japan, http://ola.iaea.org/factsheets/CountryDetails.asp?country=JP, accessed 10 November 2011.
72. Ogawa, T. (2001), "Implementation of the Additional Protocol in Japan", paper presented at the IAEA Symposium on International Safeguards: Verification and Nuclear Material Security, International Atomic Energy Agency, Vienna, Austria, 29 October-2 November 2001, p. 2.
73. IAEA (1997), "Model Additional Protocol to the Agreement(s) Between State(s) and the International Atomic Energy Agency for the Application of Safeguards", IAEA Document INFCIRC/540 (Corr.), Article 2.a (iv).
74. Ogawa, T. (2001), "Implementation of the Additional Protocol in Japan", paper presented at the IAEA Symposium on International Safeguards: Verification and Nuclear Material Security, International Atomic Energy Agency, Vienna, Austria, 29 October-2 November 2001, p. 3.

extremely difficult challenge for Japan, considering that it had to declare 4,885 buildings on 151 sites under Article 2.a (iii),[75] and that its initial report was approximately 6,000 pages long.[76] Add to this the fact that the Japanese Safeguards Office had to translate the material submitted to them by facility officers from Japanese into English, and it is undeniable that the implementation of the AP represented a need for additional financial and human resources for Japan to meet its additional obligations.[77, 78]

According to statements made by Japanese officials, in 2004, after more than four years of implementing safeguards under a CSA with an AP in Japan, the IAEA was able to draw the broader conclusion that, not only had all declared nuclear material remained in peaceful activities, but that there was an absence of undeclared nuclear material and activities.[79] Over the course of that year, the timeliness goal was relaxed for all LEU fuel fabrication facilities and light water reactors in Japan.[80] However, Japan, unlike most states, has a closed nuclear fuel cycle which reprocesses spent fuel in order to extract plutonium for use in mixed oxide (MOX) fuel. Under the state-level approach to safeguards implementation, the IAEA's standing advisory group on safeguards implementation (SAGSI) recommended no alteration in the timeliness goal for Japanese reprocessing and MOX facilities, and instead for the development of state and facility-specific safeguards approaches.[81]

According to statements made by Japanese officials, fifty per cent of the IAEA's inspection effort in Japan, and twelve per cent of all of the IAEA's person days of inspection (PDI) worldwide, was concentrated on the JNC-1 site, which conducts reprocessing, and MOX conversion and production.[82] Through the introduction of IS at the JNC-1 site, the operator received a substantial decrease in the impact of safeguards measures placed on the facility. As previously applied at the JNC-1 facility, inspection had required forty-four inspections per year, and twenty-two days per year of stoppages. Under IS, short-notice random inspections were introduced to replace traditional, announced inspections, allowing a reduction from forty-four to thirty inspections per year, and a fifty per cent reduction in the total amount of PDIs. Additionally, under the new system there was no full-day stoppage required (although operations would need to be stopped from twenty minutes to over an hour in order for some inspection activities to take place).[83]

75. *Ibid*.
76. Pacific Northwest National Laboratory (2005), "Safeguards in the Nuclear Age, Legal Foundations of Safeguards: Discussions with Laura Rockwood on INFCIRCs 153 and 540" Video series Foundations of International Safeguards, a collection of dialogues centered on the immense role played by the IAEA, and in particular how the Agency supports nuclear non-proliferation through the practice of safeguards. (Also note that, by comparison, the U.S. tax code is roughly 7,500 pages in length).
77. Ogawa, T. (2001), "Implementation of the Additional Protocol in Japan", paper presented at the IAEA Symposium on International Safeguards: Verification and Nuclear Material Security, International Atomic Energy Agency, Vienna, Austria, 29 October-2 November 2001, p. 3. (Also note that the market rate for Japanese translation to English, especially for highly technical documents, can reach as high as USD 0.50 per word, or USD 250 per page. A 6,000 page document could cost USD 1.5million to translate).
78. Naito, K. (2005), "The Additional Protocol and the Road the Integrated Safeguards", paper presented at the Institute of Nuclear Materials Management Annual Meeting, Phoenix, Arizona, USA, 10-14 July 2005.
79. Asano, T. (2010), "Development of Integrated Safeguards Approach at JNC-1 site from the Operator's viewpoint", paper presented at the Institute of Nuclear Materials Management Annual Meeting, Baltimore, Maryland, USA, 11-15 July 2010, p. 1.
80. *Ibid*.
81. *Ibid*.
82. *Ibid*. at 2.
83. *Ibid*. at 7.

According to statements made by Japanese officials, in order to facilitate short-notice inspections, the operator had to increase the frequency of generating accounting data; from once monthly at the time the inspector arrived, to weekly or bi-weekly, depending on the type of information. Other types of verification activities also increased in frequency. Additionally, remote monitoring equipment was installed at strategic points (places where nuclear material is expected to flow).[84] Also, the operator had to maintain readiness at all times for a short-notice random interim inspection.[85] Still, the overall conclusion was that, despite these additional obligations, under IS the operator of JNC-1, "was able to obtain some reduction of burden on the facility operation".[86]

According to statements made by Japanese officials, similar results were seen when IS were implemented at JNC-2, an experimental fast reactor. At a hot-cell laboratory connected to the reactor, a place where spent fuel passes through, the IAEA relaxed the timeliness goal from three months to one year.[87] Initial inventory verifications were stopped and replaced with four random interim inspections per year at the hot-cell facility as a result. The operator of the hot-cell laboratory spent fifty-six per cent less time on safeguards compliance under IS.[88] While the IAEA inspection effort at the hot-cell laboratory increased by twenty per cent relevant to its previous operations, this was substantially offset by the fact that the IAEA was able to reduce inspection time by thirty five per cent overall at the JNC-2 site.[89] This demonstrates that IS can lead to greater efficiency without sacrificing effectiveness by allowing the IAEA to tailor its approaches to specific sites in order to gain the greatest benefit from its efforts. It also shows that under IS, operators' efforts to meet obligations under CSAs and APs at some facilities can be significantly decreased.

While figures for the impact of IS on Japan as a whole are not presently available, if these examples can be considered representative, then according to statements made by Japanese officials, the implementation of safeguards under a CSA with an AP in Japan has ultimately led to a substantial reduction in the amount of effort necessary to comply with safeguards implementation obligations for operators in Japan. It has also allowed the IAEA to obtain far more information on facilities and activities in Japan, with greater regularity, while reducing the total number of PDIs at Japanese facilities. Japan also experienced a substantial increase in co-operation between the IAEA and Japan's SSAC.[90] For Japan, concluding an AP to its CSA ultimately resulted in an initial increased workload followed by a subsequent workload reduction, while achieving no loss, and possibly gains, in effectiveness.

84. *Ibid*. at 5.
85. *Ibid*. at 9.
86. *Ibid*.
87. Miyaji, N. *et. al* (2010), "Experience of Integrated Safeguards Approach for Large-scale Hot Cell Laboratory", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, Vienna, Austria, 1-5 November 2010, p. 3.
88. Miyaji, N. *et. al* (2010), "Experience of Integrated Safeguards Approach for Large-scale Hot Cell Laboratory", slideshow presented by Japan Atomic Energy Agency at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, International Atomic Energy Agency, Vienna, Austria, 1-5 November 2010, slides 13-15, available at: www.iaea.org /OurWork/ SV/Safeguards /Symposium /2010/Documents /PPTRepository/060P.pdf.
89. *Ibid*.
90. See generally Kurasaki, T. et. al. (2007), "Evaluation of Japanese Cooperation to Safeguards Implementation as One of Best Practices in terms of Openness and Transparency", paper presented at the Institute of Nuclear Materials Management Annual Meeting, Tucson, Arizona, USA, 8-12 July 2007.

Canada[91]

Like Japan, the entry into force of the AP in Canada presented its authorities with substantial challenges. Although Canada has about one third of the operating reactors that Japan has, it still has one of the largest nuclear industries of any non-nuclear weapon state party to the NPT, as can be seen from the fact that the IAEA has a field office in Toronto. Canada signed its AP on 24 September 1998, but it did not enter into force until 8 September 2000.[92] According to statements made by Canadian officials, prior to the entry into force of its AP, Canada had to amend its existing nuclear legislation in order to provide for the additional safeguards obligations it would be assuming. Canada took a different approach than Japan in this respect, by incorporating the requirements of the AP into licensing conditions for operators, rather than simply compelling them to provide reports directly.[93]

According to statements made by Canadian officials, in order to facilitate the implementation of the AP, Canada concluded additional subsidiary arrangements with the IAEA under its AP. While states are not required to do so under the AP, Canada considered this approach beneficial in light of the high level and complexity of its nuclear activities.[94] Canada had been engaged in an outreach programme to its industry since the beginning of the strengthened safeguards programme. The Canadian Nuclear Safety Commission (CNSC), which carries out the functions of Canada's State System of Accounting for and Control of Nuclear Material (SSAC) and is responsible for meeting Canada's safeguards obligations, in conjunction with the IAEA, engaged in significant outreach activities with its nuclear industry over the course of the two years between the signature of the AP and its entry into force.[95]

According to statements made by Canadian officials, Canada also expended considerable effort in submitting the initial declarations required under Article 2.a (iii) of its AP. Its annual and periodic reporting requirements also involved substantial efforts. Canada designated a special project team for its initial report which engaged in outreach to relevant operators by distributing the IAEA's guidelines on AP submissions and protocol reporter software, as well as providing training on using the software to all operators. For complex sites, the CNSC collaborated with operators for over a year prior to the submission of their declarations.[96] Canada also engaged in several reporting trials with the IAEA prior to the submission of its initial report.[97] Canada expended considerable resources in preparing for CA, which would cover its entire nuclear fuel cycle, as well as research and development.[98] Moreover, Canada had to develop innovative approaches in demarcating its nuclear sites, which included deciding whether to declare several sites at one location (as was done at the Chalk river laboratory, Canada's national

91. All information in this section is derived from public statements made by officials from Canada.
92. IAEA Office of Legal Affairs Country Factsheet for Canada, www.ola.iaea.org/factSheets/CountryDetails.asp?country=JP, accessed on 10-11-2011.
93. Casterton, J. et. al. (2005), "Moving Towards Integrated Safeguards: The Canadian Experience", paper presented at the Institute of Nuclear Materials Management Annual Meeting, Phoenix, Arizona, USA, 10-14 July 2005, p. 3.
94. *Ibid*. at 3.
95. *Ibid*.
96. Cameron, J. K., et.al. (2001), "Making Sense of Site Declarations: Canadian Declarations Under Article 2.A.(iii) of the Additional Protocol", paper presented at the IAEA Symposium on International Safeguards: Verification and Nuclear Material Security, International Atomic Energy Agency, Vienna, Austria, 29 October-2 November 2001.
97. *Ibid*. at 4.
98. *Ibid*.

nuclear research facility) or declaring a number of facilities as one site (as was done for Bruce Power).[99]

According to statements made by Canadian officials, Canada experienced substantial additional cooperation with the IAEA through the implementation of additional safeguards measures under the AP to its CSA. The Deputy Director General of the IAEA's Department of Safeguards held a trilateral meeting with the CNSC and Canada's nuclear operators prior to the entry into force of Canada's AP.[100] As was already noted, Canada engaged in extensive mock reporting exercises with the IAEA prior to the submission of its initial declaration.[101] Following the introduction of the AP, the IAEA performed eleven CAs a year, on average, in Canada, in close cooperation with Canadian authorities.[102] Canada has viewed this enhanced cooperation positively, and has derived substantial benefits from the opportunity to work more closely and more frequently with the IAEA.[103, 104] Moreover, IS in Canada (as in all countries) is an on-going process and Canada continues to work with the IAEA to find ways to further increase efficiency in the implementation of safeguards in Canada.[105]

According to statements made by Canadian officials, the implementation of IS has provided a substantial benefit to Canada. The implementation of IS in Canada resulted in a sixty per cent reduction of PDIs by 2010.[106] In some areas, such as monitoring of spent-fuel transfers, Canada has seen an even greater decrease, and

99. *Ibid*.
100. Casterton, J. et. al. (2005), "Moving Towards Integrated Safeguards: The Canadian Experience", paper presented at the Institute of Nuclear Materials Management Annual Meeting, Phoenix, Arizona, USA, 10-14 July 2005, p. 4.
101. *Ibid*.
102. Whiting, N. et. al. (2006), "Development of a State-Level Integrated Safeguards Approach for Canada", paper presented at the Institute of Nuclear Materials Management Annual Meeting, Nashville, Tennessee, USA, 16-20 July 2006.
103. Kent, M. and Ellacott, T. (2011) "The Canadian Experience in Implementing the State-level Integrated Safeguards Concept", paper presented at the joint INMM/ESARDA workshop in Aix-en-Provence, France, 16-20 October 2011 (Noting the process by which safeguards mechanisms to deter borrowing, (the transfer of material from one facility to another in order to mask diversion), were made more efficient through collaboration between the CNSC and the Agency.). See also Cameron, J. K., et.al. (2001), "Making Sense of Site Declarations: Canadian Declarations Under Article 2.A.(iii) of the Additional Protocol", paper presented at the IAEA Symposium on International Safeguards: Verification and Nuclear Material Security, International Atomic Energy Agency, Vienna, Austria, 29 October-2 November 2001, p. 6 (Noting that Canada's experience resulted in enhanced cooperation with the Agency, which in turn resulted in the Agency's ability to engage in enhanced verification activities in Canada while decreasing the impact on the nuclear industry.).
104. Kent, M. and Ellacott, T. (2011), "The Canadian Experience in Implementing the State-level Integrated Safeguards Concept", paper presented at the joint INMM/ESARDA workshop in Aix-en-Provence, France, 16-20 October 2011, p. 7 (noting the process by which safeguards mechanisms deter borrowing, the transfer of material from one facility to another in order to mask diversion, were made more efficient through collaboration between the CNSC and the Agency).
105. Most recently, in March of 2010, a joint-working group was established between the CNSC and the IAEA for this purpose. Kent, M. and Ellacott, T. (2011), "The Canadian Experience in Implementing the State-level Integrated Safeguards Concept", paper presented at the joint INMM/ESARDA workshop in Aix-en-Provence, France, 16-20 October 2011, p. 8.
106. Saburido, E. et. al. (2010), "Information driven safeguards: new concepts for implementing the State level Integrated Safeguards Approach in Canada", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, International Atomic Energy Agency, Vienna, Austria, 1-5 November 2010, pp. 2, 8.

foresees a PDI reduction of as much as seventy five per cent in the future.[107] These gains, however, were partially offset by other additional tasks. As in Japan, reductions in PDIs in Canada were made possible through the provision of additional information by operators (including a mailbox system for the near-real time reporting of nuclear material), as well as replacing an announced inspection regime with a regime of unannounced and short-notice inspections. Additionally, despite the savings already realised from IS in Canada, further areas for improvement in efficiency gains have been identified (e.g. further reductions in unannounced inspections).[108] Though savings in PDIs are partially offset by the additional need for the IAEA to analyse information, and the additional efforts of Canadian operators to provide it, as well as the need to maintain readiness for short-notice inspections,[109] as in Japan, Canada's experience with the AP has, over time, been a reduction in some of the effort necessary to comply with safeguards implementation by its operators, coupled with enhanced cooperation between its SSAC, its operators, and the IAEA.

Ukraine[110]

Ukraine has fifteen active nuclear reactors which generate about half of its electricity. Ukraine signed an AP on 15 August 2000, but it did not enter force until 24 January 2006.

According to statements made by Ukrainian officials, Ukraine faced many difficulties in preparing for, and subsequently meeting its new obligations under its AP. Making changes to its national legislation was listed by Ukraine as one of the preparatory steps it took for the entry into force of the AP. Additionally, locating small quantities of nuclear material in locations outside of facilities (LOFs) was described as a substantial challenge. Also, Ukraine's regulatory preparations for the entry into force of the AP included establishing regional inspectorates under its national regulatory authority (SNRCU).[111] Moreover, as a former part of a nuclear weapon state (the USSR), substantial nuclear weapons-related activities occurred on Ukrainian national territory. However, much information on these programmes is unavailable to the Ukrainian Government, as it was centralised at the Ministry of Defence of the USSR, and was subsequently retained by the Russian Federation, creating reporting difficulties. Additionally, Chernobyl presented challenges as Ukraine had to report on it as a high level radioactive waste site despite difficulties in accessing the site within the thirty kilometre exclusion zone.[112]

According to statements made by Ukrainian officials, Ukraine also benefitted from enhanced cooperation with the IAEA. Following the entry into force of its AP, the IAEA provided Ukraine with assistance in improving the functioning of its SSAC through an SSAC advisory (ISSAS) mission conducted in 2007. The ISSAS mission resulted in improvements in Ukrainian legislation, as well as its safeguards-related information collection and analysis and the establishment of training for the staff of the SNRCU. Some of the improvements in Ukraine's system are revealed by the fact

107. Kent, M. and Ellacott, T. (2011), "The Canadian Experience in Implementing the State-level Integrated Safeguards Concept", paper presented at the joint INMM/ESARDA workshop in Aix-en-Provence, France, 16-20 October 2011, p. 7.
108. *Ibid*.
109. *Ibid*.
110. All information in this section is derived from public statements made by officials from Ukraine.
111. Loptain, S. (2010), "Steps of Ukrainian SSAC to Integrated Safeguards", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, International Atomic Energy Agency, Vienna, Austria, 1-5 November 2010.
112. *Ibid*. at 3.

that, since 2007, the workload in terms of meeting Ukraine's obligations under the AP has been reduced for the SSAC[113] despite the fact that the IAEA is planning to implement IS in Ukraine soon,[114] indicating that the reductions were a result of improving efficiency in Ukraine's SSAC as a result of cooperation with the IAEA.

Like those countries with significant nuclear fuel cycle related activities which have already been discussed, Ukraine faced substantial challenges in the implementation of its AP, both in the preparatory stages, and following its entry into force. Many of Ukraine's challenges were state specific, and provide further indications that the impact of the AP varies from state to state. Although IS have not yet been applied in Ukraine, it is already possible to observe benefits from AP implementation, and these benefits can be expected to continue as Ukraine transitions into IS.

Hungary[115]

Hungary has one nuclear power generating plant with four operational reactors, the Paks NPP. Hungary has not acquired any conversion, fuel-fabrication or reprocessing capability. Hungary was among one of the first countries to sign an AP on 26 November 1998. The AP entered into force for Hungary on 4 April 2000, less than a year and a half after Hungary had signed it.

According to statements made by Hungarian officials, meeting new obligations under the AP necessitated significant modifications to Hungary's domestic legislation. It also created an additional workload for Hungary's SSAC in terms of the expanded reporting obligations. In Hungary, twenty-two CAs were conducted from the entry into force of the AP until IS were applied. Site declarations presented a challenge as nuclear research occurred on the campus of Hungary's Central Research Institute for Physics, along with other non-nuclear research, and the change in use of buildings and laboratories from year to year made it difficult for Hungary's nuclear regulatory authority (HAEA) to maintain up to date declarations about state-sponsored research and development activities.[116]

IS were applied in Hungary as of 2004. According to statements made by Hungarian officials, for Hungary, while PDIs did not decrease in absolute terms following the introduction of IS there, this was the result of extraordinary events including a serious incident at the Paks NPP and the repatriation of HEU from the Budapest Research Reactor to the Russian Federation.[117]

According to statements made by Hungarian officials, Hungary faced unique challenges because it acceded to the European Union's safeguards agreement

113. *Ibid*.
114. Statement of Ukraine to the IAEA's 55th General Conference, (2011), pp. 5-6 ("At the last meeting of the Ukraine-IAEA High-Level Safeguards Implementation Review Group in Kyiv we started to discuss the next challenging task for us – introduction of a State level integrated safeguards approach for Ukraine. We are determined to pursue this course. We continue to work with the IAEA to establish necessary conditions for the application of IAEA integrated safeguards in Ukraine").
115. All information in this section is derived from public statements made by officials from Hungary.
116. Vincze, A. (2010), "A Challenging Road from Comprehensive to Integrated Safeguards – The Hungarian SSAC's experience and future role", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, International Atomic Energy Agency, Vienna, Austria, 1-5 November 2010, p. 3.
117. Hungarian Atomic Energy Authority (2009), "Nuclear Non-Proliferation Activities in Hungary 1999-2009", p. 17, available at www.haea.gov.hu/ web/v2 /portal.nsf/download _en /455284946329F240C12577E60029259F/$file/Jubileum_Eng_final.pdf.

(INFCIRC/193) following the introduction of IS. This meant a need to coordinate efforts with the European Commission, the HAEA, and the IAEA in order to ensure that IS could continue to be applied while at the same time maintaining Hungary's obligations to the European Union.

The implementation of safeguards under Hungary's AP has provided opportunities for increased cooperation between Hungary and the IAEA. Hungary has been contributing to the IAEA's work substantially for over two decades through the Hungarian Safeguards Support programme, through which Hungary works with the IAEA to provide assistance in improving the safeguards system. Hungary's implementation of the AP has created the opportunity for Hungary to organise training courses in CA for IAEA inspectors.[118] Hungary has also offered the IAEA its facilities for the testing and development of remote monitoring methods. And most recently, the Hungarian Academy of Sciences has joined the network of IAEA analytical laboratories for the analysis of environmental samples.[119]

Finland[120]

Finland has four reactors operating at two different nuclear power generating stations, as well as a research reactor and an interim storage facility. Finland has a strong radiation and nuclear safety authority (STUK) which administers its SSAC. As a member state of the EU, Finland signed the AP on 22 September 1998, and the AP entered into force in 2004.

According to statements made by Finnish officials, the implementation of the AP involved a substantial workload for the Finnish Government, both in the preparatory and implementation phases. In order to implement the AP, Finland enacted legislation in the spring of 2000. STUK began preparatory work for IS shortly thereafter. STUK generated a report on a possible model for IS in 2000. Finland's initial AP declarations were submitted on time, and STUK coordinated the collection of this information from operators, and transmitted it to the IAEA. About two CAs per year were performed in Finland until the introduction of IS.[121]

According to statements made by Finnish officials, Finland, through its safeguards support programme, had a long history of cooperation with the IAEA, and with other states. However, the implementation of safeguards under the AP provided Finland new opportunities to cooperate with the IAEA, for example, by providing assistance and training to nuclear regulatory authorities in other states.[122]

According to statements made by Finnish officials, IS were introduced in Finland in 2008. Since that time, Finland has seen a reduction of PDIs, from an average of thirty per year to an average of slightly over twenty, or a roughly thirty per cent reduction.[123] STUK notes that this reduction in PDIs was accompanied by the introduction of unannounced inspections. This necessitated the creation of an "on-

118. *Ibid*. at 23.
119. *Ibid*. at 24.
120. All information in this section is derived from public statements made by officials from Finland.
121. Hämäläinen, M. and Karhu, P. (eds.) (2007), "Implementing Nuclear Non-Proliferation in Finland: Regulatory Control, International Cooperation and the Comprehensive Nuclear-Test-Ban Treaty" *STUK Annual Report 2007*, p. 12.
122. *Ibid*. at 23.
123. Okko, O. (ed.) (2010), "Implementing Nuclear Non-Proliferation in Finland: Regulatory Control, International Cooperation and the Comprehensive Nuclear-Test-Ban Treaty", *STUK Annual Report 2010*, p. 23 figures 8 and 9.

alert" position.[124] STUK also noted that Finland's robust national inspection effort (forty PDIs a year) aided the reduction in international inspections and the transition to IS.

Part B: Countries with limited nuclear activities

Norway[125]

Norway is a country with limited nuclear activities. However, Norway has a long history of nuclear activity dating back to a heavy water production plant established in 1934. Today, there are only two active research reactors in Norway. Norway signed the AP on 29 September 1999, and brought it into force on 16 May 2000.

According to statements made by Norwegian officials, meeting its obligations under the AP to its CSA presented Norway with challenges. Although Norway, like most countries bringing an AP into force, did need to modify its existing nuclear legislation,[126] it did so relatively swiftly compared to some other countries, probably owing to its small size, and small scope of nuclear activity. Additionally, like other countries with long histories of nuclear activity, the AP presented some problems. For example, Norway noted that the Article 2.a (i) requirement to provide information on nuclear fuel cycle-related research could be a difficult obligation to meet because of academic interest in the exploitation of its rich natural thorium deposits. [127]

According to statements made by Norwegian officials, the introduction of IS in Norway in 2002 reduced the IAEA's PDIs from roughly nine to eleven per year, down to about seven per year, or roughly thirty per cent. Norway's limited nuclear activities meant that international inspections had not meant a tremendous expenditure of effort for Norway. Prior to the entry into force of the AP, inspections in Norway were not frequent. However, a recent paper on this subject noted that the closer contact between the SSAC and the IAEA as a result of enhanced reporting obligations was a positive development. [128]

Indonesia[129]

Indonesia has a number of research reactors, and facilities for isotope production and nuclear waste storage. Indonesia's AP entered into force upon signature on 29 September 1999. Indonesia was one of the first countries in which AP and other strengthened safeguards measures were tested. It is also one of the first countries in which IS were applied.

124. Okko, O. (ed.) (2009), "Implementing Nuclear Non-Proliferation in Finland: Regulatory Control, International Cooperation and the Comprehensive Nuclear-Test-Ban Treaty", *STUK Annual Rep*ort 2009, p. 16.
125. All information in this section is derived from public statements made by officials from Norway.
126. See e.g. Sekse, T. (June 2008) "Safeguards in Norway – Experiences with Integrated Safeguards", *ESARDA Bulletin*, Number 38, p. 5 ("The regulations on Possession, Transfer and Transportation of Nuclear Material and Dual-use Equipment was issued to facilitate the AP coming into force.")
127. Seske, T. (2010), "Lessons Learned: Experiences with Integrated Safeguards in Norway", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, International Atomic Energy Agency, Vienna, Austria, 1-5 November 2010, p. 3.
128. *Ibid*. at 3.
129. All information in this section is derived from public statements made by officials from Indonesia.

According to statements made by Indonesian officials, Indonesia faced several challenges in implementing the AP. Perhaps because its AP entered into force upon signature, it did not go through the same legislative process that most states which concluded APs went through. A representative of the Indonesian Nuclear Energy Control Board (BAPETEN) noted that reporting under the AP presented substantial information gathering challenges.[130] As one of the most populous countries in the world, and an archipelagic state, the challenges Indonesia faces in enabling BAPETEN to effectively monitor exports and research and development are significant.

Indonesian officials also noted that under IS, PDIs were reduced from forty per year prior to IS to twenty-six per year following its introduction, or a thirty five per cent PDI reduction in line with that experienced by many other states in which IS are implemented.

Australia[131]

Australia has a small scale of nuclear activities. Presently, Australia has one research reactor in operation, and a few associated laboratories and research centres, and one nuclear storage site. Australia was the first country to sign the AP, on 23 September 1997. It was also the first country in which the AP entered into force, on 12 December 1997.

According to statements made by Australian officials, Australia was a test case for many of the AP measures under programme 93+2. Its geographic isolation meant that environmental sampling results could not involve activities by any other state. It had engaged in unique approaches to uranium enrichment under conditions which were ideal for testing AP measures. It was a first world country with developed infrastructure and a willingness to cooperate. All of these conditions made it an ideal candidate for testing implementation of the AP. As a result of this close cooperation, the entry into force of the AP for Australia was smoother than it was for most other states.[132]

According to statements made by Australian officials, as a result of Australia's unique situation, many of the challenges other countries would experience in the process of bringing the AP into force were less pronounced for Australia. Australia's legislation already covered most aspects covered by the AP. Additionally, Australia's SSAC, the Australian Safeguards and Non-Proliferation Office (ASNO) had anticipatorily made arrangements to collect information on nuclear related research and development.

Statements made by Australian officials also indicate that, nevertheless, it should be noted that Australia's position as the first country the AP[133] was implemented in, and its cooperation with the IAEA in facilitating the development of AP measures, meant that some aspects of AP implementation were heightened for

130. Solichah, M. and Zarkasi, A. S. (2010), "Legal Framework and Implementation of the Strengthened Safeguards System in Indonesia", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, International Atomic Energy Agency, Vienna, Austria, 1-5 November 2010, p. 2.
131. All information in this section is derived from public statements made by officials from Australia.
132. Leslie, R. (November 2011), interview on the subject of safeguards implementation in Australia, Vienna, Austria.
133. John Carlson *et. al* (2001), "Integrated Safeguards: Australian Views and Experience", paper presented at the IAEA Symposium on International Safeguards: Verification and Nuclear Material Security, International Atomic Energy Agency, Vienna, Austria, 29 October-2 November 2001, pp. 3-4.

Australia. For example, Australia experienced a much greater frequency of CAs than similarly situated countries in the initial years after its AP entered into force.[134]

According to statements made by Australian officials, the AP provided Australia with substantial opportunities to expand its cooperation with the IAEA. As the testing site for many AP measures, Australia was able to work closely with the IAEA and both sides expanded and improved their safeguards knowledge and methodology as a result. Australia was able to collaborate closely with the IAEA in the development of effective reporting on and access to uranium mining operations, in order to confirm information in AP declarations.[135]

According to statements made by Australian officials, Australia has probably experienced an expanded workload under the AP, even after IS. Australia was the first country in which IS were implemented, beginning on 1 January 2001. When adjusted for externalities there has probably been a real reduction of about fifty per cent of PDIs in Australia.[136] There were only about twelve PDIs at the height of IAEA inspections prior to the entry into force of Australia's AP, so the reduction did not represent a tremendous savings for ASNO. Moreover, CA in Australia has often meant visiting remote mining locations which requires substantial additional resources. And Australia's additional reporting obligations under the AP require ASNO to monitor a substantial university system and uranium mining industry. Australia's safeguards related workload, by some estimates, probably increased by about fifty per cent under IS.[137]

Countries with no nuclear activity

There is not a great deal of information available about the experience of countries which have virtually no nuclear activities and an AP in force. Additionally, considering that this is a group of countries so diverse that it includes Palau, Burkina Faso, and New Zealand; it would be difficult to draw all but the most general conclusions about the experiences of these states in the implementation of the AP. As had been shown in the previous discussion, state specific factors can bear heavily on a state's experiences under the AP.

Despite these considerations, at least one observation about countries with no nuclear activities and an AP in force bears noting: there is probably an increase in workload for both the state concerned, and the IAEA, after APs are concluded in these states. This observation is supported by a recent paper presented by Burkinabe officials at the IAEA's 2010 Safeguards Symposium detailing Burkina Faso's process in meeting its safeguards obligations. Burkinabe officials described a process involving amending legislation, reaching out to stakeholders, and collecting and transmitting information to the IAEA. Even though they had not located any nuclear material, pursuant to their AP they were still submitting quarterly reports as required under the AP. Burkinabe officials stated that despite assistance from the US and the IAEA, meeting obligations under the AP was still financially challenging.[138]

134. Leslie, R., (November 2011), interview on the subject of safeguards implementation in Australia, Vienna, Austria.
135. *Ibid*.
136. Leslie, R. (2005), Implementation of Strengthened Safeguards in Australia, Australian Safeguards and Non-Proliferation Office (ASNO), p. 14.
137. *Ibid*.
138. Belemsaga, D. *et. al* (2010), "Burkina Faso Experience with Establishment and Maintenance of an SSAC", paper presented at the IAEA Symposium on International Safeguards: Preparing for Future Verification Challenges, International Atomic Energy Agency, Vienna, Austria, 1-5 November 2010.

Many benefits from IS result from a reduction in PDIs. Countries with no nuclear activities often have what is known as a "small quantities protocol" (SQP) to their CSA, which holds in abeyance most provisions of a CSA, including routine inspections. Thus, these countries typically had no inspection activities prior to the entry into force of the AP, therefore IS will not result in any PDI reduction. Moreover, these countries had only limited reporting obligations under their CSAs, which required only annual reporting on imports and exports of nuclear material. Pursuant to an AP, they need to provide annual and quarterly reports on a wide range of information. As many such countries are extremely impoverished, the obligations can be, proportionally, much more challenging for them to comply with than they are for other countries.

Conclusion

States derive substantial benefits from concluding an AP to their CSA. APs enable the IAEA to draw conclusions that there is an absence of undeclared nuclear material and activities in those states which conclude APs to their CSAs. This provides security and stability for the international community as a whole. Concluding APs can often reduce the physical presence of the IAEA in a state, which makes safeguards implementation a less intrusive process for states. The process of concluding an AP to a CSA also often provides states with opportunities to enhance their cooperation with the IAEA and with other states, and to participate in the on-going process of strengthening the effectiveness and improving the efficiency of the safeguards system.

The experiences of countries mentioned above indicate that the implementation of the AP presents unique challenges for each state, and that it entails a substantial workload but with high dividends for regional and global security for any government. Legislation must be reformed, new types of organisations must be contacted and trained on reporting obligations, and a good deal of information needs to be collected, processed, verified, formatted and submitted by the state. Nevertheless, IS, once introduced, provides an opportunity for the reduction of safeguards burdens on operators, and as an on-going process offers the potential for increasing efficiency in the future. Finally, the entry into force of an AP results in greater contact and collaboration with the IAEA, which in turn results in even greater gains in the effectiveness and efficiency of safeguards implementation for states with significant nuclear activities.

After a review of the effects of the AP on a variety of different states with a variety of levels of nuclear activities, it is possible to reach some tentative conclusions. These conclusions must be qualified by reiterating the observation that as all states are unique, especially with respect to nuclear activities, any conclusions drawn will be necessarily broad and there will always be exceptions. The benefits conferred, and additional efforts required as a result of AP implementation, for states, tend to be commensurate with the scale of nuclear activities in the state. As a rule, the larger the scale of nuclear activities in a state are, the greater the potential benefits in terms of efficiency gains once IS are implemented. states with little or no nuclear activities tend to experience a need to make efforts to comply with additional obligations under the AP, while any effects from IS are less noticeable. All states, regardless of their level of nuclear activities, do experience enhanced cooperation with the IAEA following the entry into force of an AP. They also benefit from enhanced assurances of global security and stability. Under IS, many states also benefit from less intrusive safeguards implementation measures on their national territory.

Conclusion

The AP, as a part of the strengthened safeguards programme, has brought about profound changes in the way the IAEA implements safeguards. At the IAEA level, safeguards training and hiring practices show the increasing utilisation of inspectors as analysts rather than accountants. The inception and development of the state evaluation process reveals a shift in a focus from facility-based safeguards to a state-level approach. Safeguards implementation includes the meaningful use of information beyond physical inspections indicating that it has become information-driven.

At the state level the AP has affected a wide number of states in profound ways. States with significant nuclear activities have altered the way they cooperate with the IAEA in the implementation of safeguards significantly. Even states with no nuclear activities which have APs in force are communicating with the IAEA on a much more regular basis. Many states with APs in force can now say they have substantially greater information about activities related to the nuclear fuel cycle within their borders than they did before. And all states with APs in force are either working towards IS with the IAEA, or have implemented it and are looking for ways to improve it.

The changes which the IAEA and the states with APs in force have undergone in the decade and a half since strengthened safeguards were first implemented, especially when observed over time, indicate that the safeguards system is moving in a trajectory that is state-oriented, information-driven, more effective in its goal of deterring proliferation through maintaining a high probability of the detection of diversion of nuclear material and any undeclared nuclear material or activities, and is less intrusive for states. Thus, the goals of programme 93+2 to strengthen the effectiveness, and improve the efficiency of the safeguards system are being demonstrably achieved by the IAEA.

Case law

France

Administrative Court of Appeal of Lyon, 19 June 2012, Judgements Nos. 12LY00233 and 12LY00290 regarding EDF's permit to construct a waste conditioning and storage facility (ICEDA) in the town of Saint-Vulbas

The Administrative Court of Appeal confirmed the judgement rendered by the Administrative Court of Lyon on 13 December 2011 which annulled the ordinance of the prefect of Ain that granted *Électricité de France* a building permit to construct a packaging and storage facility for radioactive waste (ICEDA, *Installation de Conditionnement et d'Entreposage de Déchets Activés*) on a plot of land located in the town of Saint-Vulbas.

The primary purpose of ICEDA is to receive radioactive waste from the dismantling of reactor one of the Bugey nuclear power plant as well as radioactive waste from other reactors at plants in the process of being dismantled.

The Administrative Court of Appeal considered that ICEDA does in fact relate to the establishment of a centralised, nationwide sector of storage for radioactive wasteproducts, although it is partly linked to the functioning of the Bugey nuclear power plant. Therefore, it could not be considered that the site was linked to nor necessary for the activity of that particular nuclear power plant, the condition required by the town of Saint-Vulbas so that planning for the works can be authorised.

Conseil d'État *decision regarding* **Atelier de technologie de plutonium (ATPu)** *located at the Cadarache site*

On 4 February 2011, two environmental protection associations, along with other private persons, filed a request (No. 346395) with the *Conseil d'État* (higher administrative court in France) seeking annulment of the Decree of 6 March 2009 authorising the French Atomic Energy Commission (CEA, *Commissariat à l'énergie atomique et aux énergies alternatives*) to carry out the operations of final shutdown and dismantling (MAD/DEM) of the *Atelier de technologie de plutonium* (facility for plutonium technology or ATPu) located at the Cadarache site.

This action for annulment followed an application for interim measures, upon which the *Conseil d'État* rejected the request for suspension of the execution of the decree authorising the MAD/DEM operations.

In support of their request, the plaintiffs alleged that the hazards study carried out within the framework of the public inquiry insufficiently took into account the phenomenon of underestimation of the quantities of fissionable materials accumulated in the glove boxes of the ATPu as well as the risks entailed by the MAD/DEM operations.

The *Conseil d'État*, in its judgement dated 25 June 2012, rejected the request, on the basis that:

- the insufficiencies of the hazards study, notably the underestimation of the extent of the risks, have not had any influence on the choice made by the ministers to authorise MAD/DEM operations; and
- the risks entailed by the MAD/DEM operations cannot result in the illegality of the decree authorising MAD/DEM operations, insofar as those operations are being carried out in compliance with the requirements of the Nuclear Safety Authority.

Germany

Request for arbitration against Germany at the World Bank's International Centre for the Settlement of Investment Disputes (ICSID) because of Germany's legislation leading to the phase-out of nuclear energy

The Swedish energy company Vattenfall AB is the operator of the nuclear power plants Brunsbüttel and Krümmel located in Germany. Pursuant to the 13th Act to Amend the German Atomic Energy Act of 31 July 2011 (*Nuclear Law Bulletin* No. 88 (2011/2) pp. 78-79), the licence to operate a nuclear fission installation with a view to commercially generating electricity expires when the electricity volume granted to the respective installation has been produced. The operating licence for Brunsbüttel and Krümmel expired on 6 August 2011 (Atomic Energy Act, section 7, paragraph 1a, No. 1).[1]

Vattenfall alleges that due to the changes to German legislation that will lead to the phase-out of nuclear energy in Germany, defined investments made by the company in the energy sector subsequently decreased in value. The company is of the opinion that the German legislation violates its rights under the Energy Charter Treaty (United Nations Treaty Series vol. 2080, p. 95). It demands compensation from the Federal Republic of Germany for the economic loss suffered through the decrease of value of its investments. It is estimated that the alleged damage amounts to approximately EUR 800 million.

Vattenfall AB and others filed a request for the initiation of arbitration procedures against the Federal Republic of Germany at the International Centre for the Settlement of Investment Disputes (ICSID) of the World Bank. The Secretary-General of ICSID registered that request on 31 May 2012 (ICSID Case No. ARB/12/12). The claimants appointed Mr. Daniel M. Price (US) and the respondent appointed Mr. Vaughan Lowe (UK) as arbitrators; both arbitrators accepted their appointments. The third arbitrator, who will be the chairman of the Arbitral Tribunal, will be appointed by agreement of the parties.

The legal bases for the arbitration procedures are the "ICSID Convention on the Settlement of Investment Disputes between States and Nationals of Other States" and additional ICSID Regulations and Rules.[2]

Because the Vattenfall vs. Germany arbitration is pending, the parties are obliged to confidentiality, and official information on the case is limited to what is provided

1. A translation of the Atomic Energy Act is reproduced in *Nuclear Law Bulletin* No. 89 (2012/1) pp. 169–216.
2. These instruments are available at: https://icsid.worldbank.org/ICSID/ICSID/RulesMain.jsp

at the website of the ICSID.[3] The German government anticipates that the arbitration procedures will last several years.

India

Cases related to the Kudankulam Nuclear Power Project (KKNPP)

Background

KKNPP is an Indo-Russian joint venture located in India's southern state of Tamil Nadu which is currently finalising the construction of the first two units, KKNPP units 1 and 2.[4] KKNPP units 1 and 2 were initiated by the signing of an agreement by the Prime Minister of India and the President of the Union of Soviet Socialist Republics (USSR) on 20 November 1988. Later, a supplemental agreement was signed between India and the Russian Federation on 21 June 1998 which removed the original requirement that India return spent fuel from the reactors to the USSR.[5] Each of the two KKNPP units will be a 1 000 MWe pressurised water reactor of VVER design. Four additional units of 1 000 MWe each are planned by the Nuclear Power Corporation of India Ltd. (NPCIL) to be part of the KKNPP, and the necessary approvals are being obtained by NPCIL from various authorities while it continues negotiating with the Russian suppliers the construction of KKNPP units 3 and 4.[6]

Environmental clearance for KKNPP units 1 and 2 was obtained in 1989 at which time an environmental impact assessment report and a public hearing were not required as part of the clearance process. A report by the task force created by NPCIL to assess the safety of the VVER reactors under construction at KKNPP in response to the incident at the TEPCO Fukushima Daiichi nuclear power plant highlighted the need to enhance safety measures and to provide additional defense-in-depth.[7] The Atomic Energy Regulatory Board (AERB) Committee to Review Safety of India Nuclear Power Plants against External Events of Natural Origin submitted a final report on August 2011 which also contained conclusions from the safety assessment reports undertaken by NPCIL.[8]

a) Decision of the High Court of Judicature at Madras allowing the Nuclear Power Corporation of India to move forward with the commissioning of the KKNPP units 1 and 2

The High Court of Judicature at Madras (High Court) has allowed NPCIL to move forward with the commissioning of KKNPP units 1 and 2 by dismissing the nine writ

3. See also *Bundestags-Drucksachen 17/10012* p. 22; 17/10436.
4. The expected date of commercial operation of KKNPP unit 1 is December 2012 and of KKNPP unit 2 is July 2013.
5. In relation to KKNPP, there are three agreements entered between the governments of India and Russia in 1988, 1998 and 2008. Union of India furnished copies of three agreements related to the KKNPP on 18 June 2012 before the Division Bench of Madras High Court which was hearing a batch of writ petitions for and against KKNPP. Further a protocol for financing the KKNPP Units 3 and 4 was signed on 17 July 2012 between the government of India and the Russian Federation.
6. NPCIL has obtained necessary Siting and Environmental clearance for KKNPP Units 3 and 4 and is entering the construction phase.
7. "Interim Report of Task Force on Safety Evaluation of the Systems of KKNPP Post Fukushima Event", available at: http://npcil.nic.in/pdf/A5.pdf.
8. AERB (2011) "Report of AERB Committee to Review Safety of Indian Nuclear Power Plants against External Events of Natural Origin", available at: www.aerb.gov.in/t/documents/report-nov.pdf.

petitions filed as Public Interest Litigations (PIL)[9] relating to the plant. On 31 August 2012, the High Court dismissed eight writ petitions through a common order (Judgement 1) and the remaining writ petition regarding the initial fuel loading of KKNPP unit 1 through a separate order (Judgement 2), which will be discussed further below.

Review of individual cases

- Dismissal of eight writ petitions: Judgement 1[10]

Writ Petition No. 24770 of 2011 sought a directive against the Department of Atomic Energy (DAE) and AERB not to commission KKNPP units 1 and 2 until a new and transparent review could be undertaken by an independent body of experts and unless a new environment impact assessment report and a coastal regulation zone clearance were issued.

Writ Petition No. 8262 of 2012 sought a directive against respondents to implement the recommendations contained in Annex VIII to the Report of the AERB Committee to Review the Safety of Indian Nuclear Power Plants against External Events of Natural Origin before starting the second stage of commissioning of the plant.

Writ Petition No. 13987 of 2012 was filed for a directive against the Tamil Nadu Pollution Control Board (TNPCB) to inspect the KKNPP with experts and to issue a consent order to allow operation only after the operator NPCIL complied with certain requirements. The petitioner claimed that NPCIL did not have a valid consent order from the TNPCB to operate KKNPP units 1 and 2 as of 2 April 2012. Furthermore, the petition alleged that NPCIL failed to comply with the requirement to establish coastal water quality monitoring stations, and that NPCIL discharges water with a higher temperature than normal sea water temperature, thus adversely affecting marine ecology. The petition further alleged that NPCIL failed to implement a plan for the storage of spent fuel and radioactive waste. The petitioner insisted upon the issuance of a new environmental clearance by fulfilling the environment impact assessment report and public hearing requirements that were not required to obtain an environmental clearance from the Ministry of Environment and Forests (MoEF) in 1989.

Writ Petition No. 22771 of 2011 was filed seeking a directive to provide sufficient facilities and infrastructure for evacuation and rehabilitation facilities together with earmarking sufficient funds for such purposes before commissioning the KKNPP.

9. A public interest litigation is initiated with the object of protecting the interest of the community at large and not the redressal of an individual or private claim. In India, any member of the public having sufficient interest can maintain an action for judicial redress for public injury arising from a breach of public duty or from the violation of the Constitution, or any other law in force, and can seek the enforcement of such public duty and observance of such Constitutional or legal provision. The PIL was developed in the 1980s by the Supreme Court of India as part of judicial activism to enforce the fundamental rights enshrined in Part III of the Constitution of India through exercising its power to issue directions, order or writs including habeas corpus, mandamus, prohibition, quo warranto, and certiorari.
10. G. Sundarrajan v Union of India and Others, Common Order dated 31-08-2012 by Justice P. Jyothimani and Justice M. Duraiswamy in Writ Petition Nos. 24770 and 22771 of 2011; 8262 and 13987 of 2012 and Writ Petition (MD) Nos.14054 and 14172 of 2011 and 1823 and 2485 of 2012. Judgement 1 is available at: http://judis.nic.in/judis_chennai/qrydisp.aspx?filename=38711.

Writ Petition (MD) Nos. 14054 and 14172 of 2011 and 1823 and 2485 of 2012 were filed before the Madurai Bench of the High Courtat Madras[11] and were directed to the High Court to be heard with the other writ petitions related to KKNPP. Writ Petition (MD) Nos. 1823 and 2485 of 2012 were filed for a directive against law and order authorities to take action, including deterrent steps, under the National Security Act against the President of KKNPP Protest Committee. The court closed these two writ petitions, observing that the police could proceed with the pending investigation and act in accordance with the law.

Unlike the above petitions, Writ Petition (MD) Nos. 14054 and 14172 of 2011 were filed seeking a directive to immediately open KKNPP units 1 and 2 to meet the demand for electricity. These writ petitions relied on statements made by the former President of India and an eminent scientist with respect to important KKNPP safety issues.

The Union of India through the DAE filed a detailed counter affidavit highlighting the following issues, statements and claims:[12]

- that generation of electricity using nuclear power is a policy decision that cannot be challenged in court;
- the national importance of the project;
- the various safety aspects of KKNPP due to the use of superior technology and clearances obtained from various statutory bodies;
- the impact on India's economic development linked with the investment of INR 14 000 Crores in the project and third party rights arising from international contracts;
- MoEF's clearance for a desalination plant to use sea water instead of dam water;
- that there is no necessity to issue a new environmental clearance since there has been no change to the project that obtained MoEF clearance in May 1989;
- MoEF's environmental clearance to KKNPP units 3 and 4 under the 2006 environmental impact assessment notification;
- that a new environmental clearance is not necessary for a 7 degree Celsius change in water temperature at the final discharge point; and
- that the 1998 Supplemental Agreement with the Russian Federation served to significantly increase the involvement of India in several aspects of the KKNPP commissioning process, and also shifted the responsibility for storing and reprocessing spent fuel from KKNPP to India. The Union of India argued that this increased involvement must be viewed as a major achievement as it confirms India's own capabilities in these areas.[13] Counter affidavits filed by MoEF supported the approvals given to KKNPP units 1 and 2.[14]

11. The Kudankulam area lies within the territorial jurisdiction of the Madurai Bench of the Madras High Court. It exercises jurisdiction in all other matters except those matters that lie within the original jurisdiction of the High Court of Madras.
12. See Counter Affidavit Union of India, Department of Atomic Energy: paragraphs 13.1 – 13.32 of Judgement 1, and Additional Counter Affidavit Union of India, DAE: paragraphs 14.1 – 14.45 of Judgement 1.
13. See paragraphs 14.12 and 14.13 of Judgement 1.
14. See Counter Affidavit of the Ministry of Environment and Forests: paragraphs 15.1 – 15.5 of Judgement 1.

The High Court in its common order pertaining to the eight writ petitions held that KKNPP units 1 and 2 do "not suffer any infirmities either for want of any clearance from any of the authorities, including the MoEF, AERB, TNPCB and the Department of Atomic Energy and there is absolutely no impediment for the NPCIL to proceed with the project".[15] The High Court also supported the need for periodic oversight of compliance and maintenance of pollution standards by regulatory authorities, the need to create greater public awareness, the need to establish health and education facilities, and the need to provide adequate infrastructure facilities to local fishermen.[16]

- Disposition of the ninth writ petition: Judgement 2[17]

The remaining ninth writ petition was filed to seek a declaration that the AERB clearance granted on 28 August 2012 for the initial fuel loading and first approach to criticality of KKNPP unit 1 is null and void. The petitioner contended that there was no satisfaction of the AERB's demands with respect to compliance with the 17 requirements under Annex 8 of the AERB report prepared following the incident at the TEPCO Fukushima Daiichi nuclear power plant.

The court observed that because AERB is a statutory body when it acts in accordance with law, the presumption is always in its favour unless it is established that AERB acted with *mala fide* intention or illegality. The court also noted that it did not have the expertise to examine whether the 17 recommendations were necessary and, as such, the matter did not warrant interference by the court.[18]

The final order dated 31 August 2012 of the High Court dismissing this writ petition has been challenged before the Supreme Court of India through a special leave petition.[19] The special leave petition contests the grant of a license to KKNPP unit 1 without fulfilling the AERB requirement as stated in Writ Petition No. 8262 of 2012 that any additional clearance with respect to KKNPP would be granted only after the implementation of all of the recommendations contained in Annex 8 to the Report of AERB Committee to Review Safety of Indian Nuclear Power Plants against External Events of Natural Origin, and the stated reason for exclusion of the AERB decision from judicial review because it is an expert body.[20] The Supreme Court of India did not grant interim stay against the initial fuel loading of KKNPP unit 1 as prayed in the special leave petition. However, as of October 2012, the special leave petition is being argued by the parties before the Supreme Court and a final decision is still pending.

15. Paragraph 108 of Judgement 1.
16. Paragraph 109 of Judgement 1.
17. G. Sundarrajan v. Union of India and Others, Writ Petition No. 22253 of 2012 as per decision of Justice P. Jyothimani and Justice P. Devadass, dated 31 August 2012 (Judgement 2), available at: http://judis.nic.in/judis_chennai/qrydisp.aspx?filename=38764
18. Paragraph 17 of Judgement 2.
19. G. Sundarrajan v. Union of India and Others, SLP No. 27335 of 2012 before Supreme Court of India.
20. The text of the Special Leave Petition filed before the Supreme Court of India is available at: www.dianuke.org/dianuke-documents-special-leave-petition-on-koodankulam-filed-in-supreme-court/and updates available at: http://courtnic.nic.in/supremecourt/casestatus_new/caseno_new_alt.asp by entering case No. 27335 (PIL Civil).

b) The Supreme Court of India considers a challenge related to the nuclear liability rules applicable to the KKNPP and related matters under the Civil Liability for Nuclear Damage Act of 2010

The Indian Civil Liability for Nuclear Damage Act, 2010 (CLND Act)[21] has raised several concerns with regard to its implications on nuclear suppliers and international nuclear co-operation agreements. Sections 17 (b) and 46 of the CLND Act raise concerns because they provide the operator a wider right of recourse against the nuclear suppliers[22] and expose the operator, and thus indirectly the nuclear suppliers, to liabilities which may be provided under other laws which may be in force and which would be in addition to the remedies under the CLND Act.[23]

The KKNPP units 3 and 4 were considered by the governments of India and Russia to be outside the purview of section 17(b) of the CLND Act because the underlining agreements related to KKNPP were entered prior to the passing of the CLND Act. The Inter Governmental Agreement (IGA) between the governments of India and the USSR for two units of 1000 MWe dated 20 November 1988 provided that the nuclear liability would only rest with the Indian operator or entities and would in no event be borne by the Russian suppliers. Due to the disintegration of the USSR and the variations in the rouble-rupee repayment ratio, the project undertaken under the 1988 agreement almost fell through, and the Supplemental Agreement was signed on 21 June 1998 between India and the Russian Federation to revive the project.[24] A further agreement signed on 5 December 2008 provided for the construction of four additional nuclear power units at the existing site at Kudankulam and provided that India would extend the indemnity protection to the Russian suppliers a on the same lines as the 1988 agreement.[25]

A PIL, filed in 2012, challenging the exoneration of nuclear suppliers from liability for damage as a result of a nuclear incident occurring at KKNPP was admitted by the Supreme Court of India.[26] This PIL challenges the indemnity protection provided to the Russian suppliers of KKNPP (units 1 and 2 and future

21. The Indian Civil Liability for Nuclear Damage Act, 2010 is available at: www.dae.gov.in/rules/civilnucliab.pdf.
22. Section 17(b) of the CLND provides that "The operator of the nuclear installation after paying the compensation for nuclear damage in accordance with Section 6, shall have a right of recourse where – […] (b) the nuclear incident has resulted as a consequence of an act of supplier or his employee, which includes supply of equipment or material with patent or latent defects or sub-standard services".
23. Section 46 of the CLND Act provides that: "The provisions of this Act shall be in addition to, and not in derogation of, any other law for the time being in force, and nothing contained herein shall exempt the operator from any proceeding which might, apart from this Act, be instituted against such operator."
24. The Supplemental Agreement signed 21 June 1998 between India and the Russian Federation (signed shortly after India's 1998 nuclear tests at Pokhran) also changed the structure of the KKNPP from a turn-key project to a project under complete control of NPCIL using Russian assistance and technology together with storage of spent fuel in India.
25. M.R. Srinivasan (15 October 2012), "A Liability for Our Nuclear Plans", *The Hindu*, available at: www.thehindu.com/opinion/lead/a-liability-for-our-nuclear-plans/article3997102.ece.
26. Centre for PIL & Others v. Union of India, Writ Petition (Civil) No. 407 of 2012 before Supreme Court of India and on 11 October 2012 it was posted along with the case challenging the constitutional validity of CLND Act. Full text can be accessed at www.dianuke.org/writ-petition-on-nuclear-liability-for-koodankulam-filed-in-the-supreme-court-of-india/. Division Bench of Supreme Court of India consisting of Justice K.S. Radhakrishnan and Justice Dipak Mishra is hearing this PIL and is posted for further hearing on 6 November 2012. For further updates, please consult: http://courtnic.nic.in/supremecourt/casestatus_new/caseno_new_alt.asp by entering case No. 407 (PIL Civil).

units, such as KKNPP units 3 and 4). It seeks three remedies, namely: 1) to declare that in case of a nuclear accident the nuclear suppliers of KKNPP are bound by the "polluter pays" principle and the absolute liability principle;[27] and that the victims can file claims against a reactor supplier even if the government or its undertaking does not invoke its right of recourse; 2) to declare that nuclear suppliers of KKNPP are bound by the CLND Act; and 3) to declare rule 24[28] of the Civil Liability for Nuclear Damage Rules, 2011 (CLND Rules)[29] as *ultra vires* with respect to the CLND Act and/or the Indian Constitution.[30]

This case also relies on the grounds raised in the 2011 case *Common Cause & Others v. Union of India*[31] to challenge the constitutional validity of the entire CLND Act due to the channeling of liability in case of a nuclear accident to the operator and the provision of a cap on such liability provided therein which would allegedly 1) violate the absolute liability principle; 2) violate the polluter pays principle forming part of article 21 of the Indian Constitution on the "right to life" and which by extension has been interpreted by the Supreme Court to include a right to enjoy a wholesome environment;[32] and 3) seriously endanger nuclear safety through a reduced liability amount.

The PIL filed in 2012 further contends that the Indian government's undertaking of the agreement with Russia that indemnifies the Russian supplier is void *ab initio* as it violates the polluter pays and absolute liability principles. In its reply before the Supreme Court, the Indian government justified its erstwhile decision to grant a

27. Unlike the strict liability principle as set forth under Rylands v Fletcher (1868) LR 3 HL 330, which recognises certain exceptions upon which the defendant can rely, such as (1) an act of God, (2) the act of a third party (e.g., sabotage), (3) the plaintiff's own fault, (4) the plaintiff's consent, etc., the absolute liability principle, which is well-entrenched in India (and is mainly cited in environmental matters), recognises no exceptions whatsoever for the defendant.
28. Rule 24 provides definition for the terms (1) "Product Liability Period" and (2) "Supplier" which were not defined under the CLND Act and addresses limitations on the operator's right of recourse when expressly provided in writing in a contract. As per this rule, the specific time period is either the product liability period or the duration of the initial license issued for 5 years under the Atomic Energy (Radiation Protection) Rules, 2004 whichever is longer. Rule 24 exposes the supplier only to the lesser extent of operator's liability under section 6(2) of the CLND Act or the value of the contract itself. Rule 24 provides clarification regarding the application of Section 17(a) of CLND Act and offers no explanation regarding Section 17 (b) and (c) of the CLND Act. The explanation to rule 24 states that the operator's claim under the rule shall in no case exceed the actual amount of compensation paid up to the date of filing such claim.
29. The Civil Liability for Nuclear Damage Rules, 2011 can be accessed at (bilingual text): www.dae.gov.in/rules/liab_rules.pdf
30. It is noteworthy that the Committee on Subordinate Legislation (Lok Sabha), which presented its report on 28 August, 2012, concluded that the CLND Rules have the effect of "diluting the stringent liability provided in Section 17 of the CLND Act by imposing limitations in terms of the amount which can be claimed by exercising the right of recourse (limiting to the extent of the operator's liability or the value of the contract whichever is less) and also the duration for which a supplier can be held liable, not contemplated under the CLND Act". Therefore, the Committee was of the opinion that the Department of Atomic Energy, which originally drafted the CLND Rules, must remove the limitations imposed on the liability as well as the duration of the liability period. The report is available on the Lok Sabha website: http://164.100.47.134/lsscommittee/Subordinate%20Legislation/27%20Report%20nuclear.pdf.
31. Common Cause & Others v. Union of India and 4 Others, W.P. (Civil) No. 464 of 2011 admitted by the Supreme Court of India on 16 March 2012.
32. The Supreme Court of India held in Council for Environ-Legal Action v. Union of India ((1996) 3 SCC 212) that the "polluter pays" principle is part of the law of the land under Article 21 of the Constitution of India.

nuclear liability waiver to the former USSR with regard to KKNPP units 1 and 2[33] as a policy decision to sustain its civilian nuclear capabilities and as one that was taken at a time when no other country came forward to cooperate with India.[34] However, with regard to KKNPP units 3 and 4, the Government's position seems to be that the national law is paramount and cannot be subverted, that is, that no such further waiver can be granted, while acknowledging that this would increase the cost of KKNPP units 3 and 4.[35] As per the Constitutional scheme of separation of powers between three governmental branches, the constitutional courts do not interfere on policy matters taken by the executive except in cases of violation of fundamental rights. Extending the provisions of the CLND Act to KKNPP will certainly result in the renegotiation on the agreed terms of the project including the prices for those units that would not be covered by the original indemnity protection.

Lastly, we may add that the same Division Bench of the Supreme Court of India hearing the 2012 PIL is considering the appeals from the Final Order dated 31 August 2012 of the High Courtat Madras, noted in the previous section, that allowed the NPCIL to go ahead with the commissioning of KKNPP.

Switzerland

Judgement of the Federal Administrative Court in the matter of Balmer-Schafroth a.o.v. BKW FMB Energy Inc. on the revocation of the operating licence for the Mühleberg nuclear power plant

On 30 July 2012, the Federal Administrative Court approved the appeal filed by Ursula Balmer-Schafroth and others against the decision of the Federal Department of the Environment, Transport, Energy and Communications (DETEC) not to look into the conditions of a revocation of the operating licence for the Mühleberg power plant.

BKW Inc. was granted a time-limited operating licence for the Mühleberg power plant until 31 December 2012. In 2009, DETEC repealed this time limitation. Ursula Balmer-Schafroth and others appealed this decision.

After the incident at the TEPCO Fukushima Daiichi nuclear power plant in 2011, the same appellants demanded the examination of the revocation of the operating licence of the Mühleberg nuclear power plant because of fissures in the core shroud, the lack of a cooling water supply independent of the Aar river and other issues they considered to be serious safety defects. DETEC decided not to look into the conditions for such a revocation, because all of these safety issues were being monitored by the Swiss Federal Nuclear Safety Inspectorate (ENSI) as part of ongoing

33. As per the petitioners, Section 13 of the 2008 agreement states "The Indian Side and authorised organisation at any time and at all stages of the construction and operation of the NPP power units to be constructed under the present Agreement shall be the Operator of power units of the NPP at the Kudankulam Site and be fully responsible for any damage both within and outside the territory of the Republic of India caused to any person and property as a result of a nuclear incident occurring at the NPP".
34. J. Venkatesan (19 October 2012), "Centre Justifies waiver of Nuclear Civil Liability Pact with Russia", *The Hindu*, available at: www.thehindu.com/news/national/centre-justifies-waiver-of-nuclear-civil-liability-pact-with-russia/article4010279.ece?homepage=true.
35. "Russia hints at renegotiation for Kudankulam reactors", *India Today* (15 October 2012), available at: http:// indiatoday .intoday. in /story /Russia -hints -at - renegotiation-for-kudankulam/1/224820.html.

procedures and, according to DETEC, there was no indication of these procedures being incorrect.

In accordance with its reasoning in the decision of 1 March 2012 regarding the repeal of the time limitation, which is pending before the Federal Supreme Court, the Federal Administrative Court decided that serious safety issues remain and, in case of doubt, DETEC must examine the conditions of a revocation. On 13 September 2012, DETEC filed its appeal with the Federal Supreme Court against the judgement of the Federal Administrative Court. Thus, there are two pending appeals at the Federal Supreme Court concerning the operating licence of the Mühleberg nuclear power plant.

Vorarlberg, a federal state of Austria, has also announced its intention to demand the revocation of the Mühleberg operating licence after the state tribunal in Feldkirch declined to take jurisdiction over claims against the nuclear power plant on 18 September 2012.

United States

Judgement of the Court of Appeals for the D.C. Circuit vacating the NRC's 2010 Waste Confidence Decision and Rule Update

This case concerned challenges to a U.S. Nuclear Regulatory Commission (NRC) rulemaking regarding the storage after reactor operations have ceased and the permanent disposal of spent nuclear fuel (SNF).[36] The rulemaking in question was a 2010 update to the Commission's "Waste Confidence Decision and Rule" (WCD).[37] "Waste confidence" is a NRC's generic finding the that spent nuclear fuel can be safely stored for decades beyond the licensed operating life of a reactor without significant environmental effects. It enables the NRC to license reactors or renew their licenses without examining the environmental effects of extended waste storage for each individual site pending ultimate disposal. The WCD was originally published in 1984,[38] updated in 1990, and reviewed in 1999. The 1990 findings[39] were that: (1) safe disposal in a mined geologic repository is technically feasible; (2) such a repository will be available by–the first quarter of the 21st century; (3) SNF will be managed safely until the repository is available; (4) SNF can be stored safely at nuclear plants for at least thirty years beyond the licensed life of each plant, including the license-renewal period; and (5) safe, independent storage will be made available if needed.

The 2010 update to the WCD reaffirmed findings 1, 3, and 5 and revised findings 2 and 4. Finding 2 was revised from predicting a specific time frame for the availability of a repository to stating that there is reasonable assurance that a repository will be available "when necessary". Finding 4 was revised to state that SNF can be stored safely at nuclear power plants for at least sixty years beyond the plant's licensed life rather than thirty years. The court vacated this WCD update based on the following analysis.

First, the court held that the WCD constituted a "major federal action" under the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §4321 et seq. Because the WCD was a major federal action, the court stated that the NRC was required to either (1) take a "hard look" at the environmental consequences of the revisions in

36. New York v. Nuclear Regulatory Com'n, 681 F.3d 471 (D.C. Cir. 2012).
37. Waste Confidence Decision Update, 75 Fed. Reg. 81,037 (23 Dec. 2010).
38. Waste Confidence Decision, 49 Fed. Reg. 34,658 (31 Aug. 1984).
39. Waste Confidence Decision and Rule, 55 Fed. Reg. 38,474 (18 Sept. 1990).

an Environmental Impact Statement (EIS) or (2) develop an Environmental Assessment (EA) that demonstrates that the revisions will have no significant environmental impact and thus that no EIS "hard look" is required. To demonstrate no significant environmental impact, the NRC must either show (1) that the combination of the probability of the potentially harmful events and their potential consequences is sufficiently minimal or (2) that the probability of the potentially harmful events is so low as to be "remote and speculative" or effectively zero.

Because the NRC did not develop an EIS as part of this rulemaking, the court applied its EA standard to the WCD update. The court found that the NRC's "when necessary" standard was insufficient because, given the difficulty that has been encountered in constructing a permanent repository to date, the probability of a failure of such a repository to be available "when necessary" is not so low as to dismiss the potential consequences of such a failure. Therefore, the NRC should have discussed both the probability of this failure and its potential consequences and then shown that the combination of these factors would have no significant environmental impact. The court held that because the NRC did not do this, the NRC's WCD was not supported by a sufficient EA.

The court also held that the portion of the WCD that revised finding 4, extending onsite storage for 30 years, was not supported by a sufficient EA for two reasons. First, the NRC found that this revision would have no significant environmental impact because, in part, previous spent fuel pool leaks have had a negligible impact on the environment. However, the court found fault with this aspect of the NRC's analysis because, since the revision seeks to extend the period of time for which the spent fuel pools are considered safe for storage, the analysis of the risks should look forward to examine the effects of the additional time in storage, as well as examining past leaks. Second, the NRC examined the risk of spent fuel pool fires and found it to be so low that any potential consequences could not possibly overcome this low probability. The court found fault with this analysis as well. It stated that an agency conducting an EA must examine both the probability of a harm occurring and the consequences of that harm if it does occur unless the harm in question is so "remote and speculative" as to reduce the effective probability of its occurrence to zero. The court held that spent fuel pool fires are not an example of an occurrence with effectively zero probability; therefore, the NRC was required to also examine the consequences of such fires. The court concluded that, since the NRC's EA failed to properly examine the risk of leaks in a forward-looking fashion and failed to examine the potential consequences of pool fires, it was insufficient to demonstrate that the revision to finding 4 would have no significant environmental impact. Since the WCD update was a major federal action and since the revisions to findings 2 and 4 were not supported by a sufficient EIS or EA, the WCD update was vacated in its entirety.

In response to this decision vacating the WCD update, the Commission stated that it will not issue or renew licenses dependent upon the update until the errors identified by the court ruling have been appropriately addressed.[40] However, the Commission also noted that because the court ruling only affects *final* license issuance or renewal, all licensing reviews and proceedings will otherwise continue up to the point of final decision-making. Subsequently, on September 6, 2012, the Commission directed the NRC staff to address the court ruling by developing an EIS, rather than an EA, to support a new WCD update.[41] This new WCD update with its supporting EIS is to be finalised within 24 months. The Commission also left

40. Calvert Cliffs Nuclear Project, LLC, et al., CLI-12-16, 76 NRC (7 Aug. 2012) (slip op.).
41. COMSECY-12-0016, Approach for Addressing Policy Issues Resulting from Court Decision to Vacate Waste Confidence Decision and Rule (6 Sept. 2012) (ADAMS Accession No. ML12250A032).

available the option that some environmental analyses of waste confidence issues could be accomplished on a site-specific basis in support of specific licensing decisions prior to the completion of the EIS and associated rulemaking. However, the Commission stated that this should only be done in the rare circumstances where there is an exceptional or compelling need to proceed before the completion of the EIS and associated rulemaking and where doing so would not delay or conflict with the completion of the EIS. Therefore, the NRC might not issue or renew licenses dependent upon the WCD until at least 6 September 2014.

U.S. Supreme Court declines petition for certiorari filed by property owners on Price-Anderson Act claim for damages

On 25 June 2012, the U.S. Supreme Court denied a petition for review filed by property owners near the former Rocky Flats Nuclear Weapons Plant to overturn the ruling by the Tenth Circuit Court of Appeals in the case Cook v. Rockwell International Corp. that reversed the district court's award of damages to the property owners from alleged plutonium contamination.[42] The Supreme Court did not issue an opinion with its denial, and denial of the petition leaves in effect the opinion of the Court of Appeals.

This case involves a class action lawsuit initiated in 1990 by property owners ("Plaintiffs"), alleging a public liability action under the Price-Anderson Act (PAA) for trespass and nuisance claims against the former operators of the Rocky Flats Plant[43] for the U.S. Department of Energy, Dow Chemical Company and Rockwell International Corporation ("Defendants"). Plaintiffs' claimed they suffered property damage, in the form of diminished value, caused by the release of plutonium from the Rocky Flats Plant resulting in contamination of their property. Under the PAA, a public liability action is defined as "an action asserting legal liability arising from a nuclear incident", and a nuclear incident is defined as "any occurrence … causing … bodily injury, sickness, disease, or death, or loss of or damage to property, or loss of use of property, arising out of or resulting from radioactive, toxic, explosive, or other hazardous properties" of nuclear materials.[44] Defendants argued that Plaintiffs did not establish a "nuclear incident" had occurred because they failed to show a "loss of or damage to property, or loss of use of property", and therefore could not recover under the PAA.

After years of litigation and a four-month jury trial, in 2008 the federal district court in Colorado ruled in favor of the Plaintiffs, granting compensatory and punitive damages in an amount totaling over USD 926 million.[45] The judgement was appealed to the Tenth Circuit Court of Appeals. The Court of Appeals held that the district court erred in its application of the PAA and its interpretation of Colorado state law, and remanded the case to develop evidence as appropriate to support the establishment of the occurrence of a nuclear incident under the PAA, and trespass and nuisance claims under Colorado law.

42. Cook v. Rockwell International Corp., 618 F.3d 1127 (10th Cir. 2010), cert denied, 2012 WL 2368857 (U.S. 25 June 2012).
43. The U.S. Department of Energy ceased operations of the Rocky Flats Nuclear Weapons Plant in 1989 and, with the end of the Cold War, began preparations for remediation and closure of the site. The site is now designated as a wildlife refuge.
44. The Price-Anderson Act, enacted in 1957, amends the Atomic Energy Act of 1954 (AEA), and is codified at section 170 of the AEA.42 U.S.C. §2210. Public liability action and nuclear incident are defined in the AEA at section 11, specifically, sections 11hh. and 11.q., respectively, 42 U.S.C. §2014(hh) & (q).
45. *Cook v. Rockwell International Corp.*, 564 F. Supp.2d 1189 (D. Co. 2008)

The Court of Appeals concluded that the establishment of the occurrence of a nuclear incident constitutes a threshold, substantive element of any PAA claim. The court reasoned that the PAA created a federal cause of action that must be plead and proved, while state law is to be used to frame the substantive rules for decision in such cases. To establish the occurrence of a nuclear incident, a plaintiff must show – and not merely assert – they have experienced one of the injuries enumerated in the definition of nuclear incident. In this case, Plaintiffs argued that the presence alone of plutonium particles on their property established the requisite damage to property and the mere exposure to plutonium caused an increased risk of health problems establishing the requisite loss of use of the property. The court disagreed, finding that to establish a PAA claim Plaintiffs needed to provide evidence of actual physical damage to the property from the plutonium, and evidence of an increased health risk that would be sufficient to permit a reasonable person to find a loss of use of the property.

Judgement of the NRC Atomic Safety and Licensing Board finding applicants ineligible to obtain a combined license because they are owned by a U.S. corporation that is 100% owned by a foreign corporation

This case before the NRC Atomic Safety and Licensing Board (Board) concerned an application for a combined license (COL) to construct and operate one U.S. Evolutionary Power Reactor at the existing Calvert Cliffs Nuclear Power Plant site in Calvert County, Maryland by UniStar Nuclear Operating Services, LLC, and Calvert Cliffs 3 Nuclear Project, LLC (Applicants).[46] Applicants, which are U.S. corporations, were originally owned in near-equal shares by Constellation Energy Group, Inc. (Constellation), a U.S. corporation, and Électricité de France, S.A. (EDF), a French corporation. In 2010, EDF acquired Constellation's 50 percent interest in Applicants, thus making EDF, a French corporation, the sole owner of Applicants, which are U.S. corporations.

Section 102 of the Atomic Energy Act of 1954, as amended (AEA), 42 U.S.C. § 2132 states that any license issued for a utilisation or production facility for industrial or commercial purposes must meet the requirements set out in AEA section 103. AEA section 103(d), 42 U.S.C. §2133(d) states that "[n]o license may be issued to ... any corporation or other entity if the Commission knows or has reason to believe it is owned, controlled, or dominated by ... a foreign corporation, or a foreign government". The NRC regulations implementing this statute take its prohibitions a step further and state that no such corporation or entity shall be eligible even to apply for a license. 10 CFR §50.38.

The Board analysed the phrase "owned, controlled, or dominated". It stated that, the fact that Congress connected these three prohibitions with the disjunctive "or" rather than the conjunctive "and" demonstrates that a license may not be granted if any one of these three prohibitions is violated. Therefore, even if an applicant's "negation action plan" imposes measures sufficient to negate the potential for foreign control and for foreign domination, the applicant could still not apply for or obtain a license if the foreign ownership prohibition is violated.

The Board determined that, because neither the AEA nor the NRC's regulations define the percentage of foreign ownership that renders an applicant ineligible to apply for or obtain a license, the NRC has broad discretion in specifying the level of foreign ownership that constitutes a violation of the AEA or its regulations. However,

46. Calvert Cliffs Nuclear Project, LLC (Calvert Cliffs Nuclear Power Plant, Unit 3), LBP-12-19, 76 NRC (30 Aug. 2012) (slip op.).

this discretion does not extend to deciding that 100 percent foreign ownership does not violate the prohibition of foreign ownership because this would impermissibly render a portion of the AEA and the NRC's regulations redundant. Therefore, the AEA and the NRC's regulations must be interpreted, at a minimum, as making a 100 percent foreign-owned applicant ineligible to apply for or obtain a license.

Thus the Board concluded that, because Applicants in this case are owned by a U.S. corporation that is 100 percent owned by a foreign corporation, Applicants are rendered *per se* ineligible, notwithstanding any other factors such as a negation action plan, to apply for or obtain a license as long as the current ownership arrangement is in effect. The Board stated that the proceeding will be closed 60 days after this ruling unless Applicants notify the Board of any change in the ownership situation sufficient to establish their qualifications to apply for a COL. Otherwise, once the proceeding is closed, the Board stated that Applicants would have to move to reopen the proceeding if a domestic partner is found.

The applicants have appealed the Licensing Board's decision to the Commission, requesting that the Commission provide direction regarding what levels of foreign investment will be found acceptable and what specific negation actions will be required.

Judgement of an NRC Atomic Safety and Licensing Board Authorising Issuance of a license for the construction and operation of a commercial laser enrichment facility

The NRC Atomic Safety and Licensing Board on 19 September 2012 issued a decision authorising issuance of a license to GE Hitachi Global Laser Enrichment to possess and use special nuclear material and enrich it up to 8% U-235 at a commercial laser enrichment facility the company is considering building in Wilmington, North Carolina.[47] Subsequently, on 25 September 2012, the NRC staff issued the license to GE Hitachi Global Laser Enrichment.

47. GE-Hitachi Global Laser Enrichment LLC, LBP-12-21, 76 NRC (19 Sept. 2012) (slip op.).

National legislative and regulatory activities

Armenia

Nuclear safety and radiological protection

Initiation of process relating to the life extension of nuclear power plant unit 2

The process for the life extension of Armenian nuclear power plant unit 2 was initiated following the adoption of Decree No. 461 by the Government of the Republic of Armenia on 19 April 2012. As a result of this decree, the Armenian Minister of Energy and Natural Resources was assigned with the task of ensuring implementation of activities to develop a programme for the life extension of Armenian nuclear power plant unit 2. The assessment of the amount of funds required for implementation of activities on the Armenian nuclear power plant unit 2 life extension must be completed by 2 September 2013.

Decree No. 1085-N adopted by the Government of the Republic of Armenia on 23 August 2012 establishes the requirements for the design life extension of Armenian nuclear power plant unit 2.

Brazil

General legislation

Authorisation for the construction of nuclear submarines

The Brazilian government has created Amazonia Azul (AMAZUL), a new state run company which will be responsible for the Brazilian Navy's nuclear programme, including the construction of the country's first nuclear powered submarine. According to Law 12,706 dated 8 August 2012 (published in the Official Journal of 9 August 2012), AMAZUL's purpose is to promote, develop and maintain the technology necessary for the nuclear activities of the Brazilian Navy and the Brazilian nuclear programme. AMAZUL, a state owned enterprise with the legal rights of a private company, will be responsible for the direct management of the design, development and construction of the submarine

Canada

Environmental protection

Changes to the federal environmental assessment law

On 6 July 2012, the Canadian Environmental Assessment Act[1] was repealed and the Canadian Environmental Assessment Act 2012[2] (CEAA 2012) and associated regulations came into force.[3]

The CEAA 2012 constitutes the new legal framework for federal environmental assessment process in Canada. Environmental assessments are important planning tools that inform the decision-making process by identifying and evaluating the potential environmental impacts of a project, and recommending mitigation measures where required, before the start of the project.

The new regime is aligned with the government's stated intention to modernise the regulatory system. It incorporates significant changes contained in the Jobs, Growth and Long-term Prosperity Act[4] such as imposing timely reviews, encouraging greater federal-provincial integration to avoid duplication, streamlining the review process, new enforcement and compliance tools, etc.

Importantly, the new regime consolidates responsibility for environmental assessments among three entities: the Canadian Environmental Assessment Agency (for most projects), and the Canadian Nuclear Safety Commission (CNSC) and the National Energy Board for projects within their respective mandates.

The CNSC is now solely responsible to conduct environmental assessments, in accordance with the requirements of the CEAA 2012, for "designated projects"[5] that fall within its mandate. Such environmental assessments will consider the set of factors[6] contained in CEAA 2012 such as cumulative effects, mitigation measures, public comments, aboriginal consultations, consideration of traditional knowledge, and alternatives means of carrying out the designated project (but no longer the need to consider alternatives to the project). Once an environmental assessment is completed, the CNSC is required to determine whether the designated project is likely to cause significant adverse impact to the environment.

The new regime stipulates that any mitigation measures or follow-up programme taken into account by the CNSC in coming to the conclusion that a designated project is not likely to have a significant adverse impact is "considered to be a part of the licence issued under section 24 of the Nuclear Safety and Control Act". [7] Failure to fulfill the conditions in a decision statement is a violation of CEAA 2012 which could result in the imposition of fines.[8]

1. S.C. 1992, c.37, repealed by S.C. 2012, c.19, section 66.
2. S.C. 2012, c.19, sec.52.
3. Regulations designating physical activities, prescribing information regarding the description of a designated project and establishing the cost recovery scheme for the Agency
4. S.C. 2012, c.19.
5. Under the new regime, there are no more federal EA triggering provisions in various laws. The Regulations Designating Physical Activities list the physical activities that constitute the "designated project".
6. S.C. 2012, c.19, section 19.
7. *Ibid*. section 56.
8. *Ibid*. section 99.

Where the CNSC comes to the conclusion that a designated project is likely to have significant adverse environmental effects, then the project is referred to the Governor in Council who may decide that the significant adverse environmental effects are justified under the circumstances.[9]

It is important to note that even if the CNSC will be conducting fewer environmental assessments as the result of the CEAA 2012 under the CEAA 2012 regime, the CNSC still has responsibility for regulating all nuclear activities (associated with a "designated project" or not) in a manner that prevents unreasonable risk to the environment and human health and safety.[10] The CNSC cannot issue a licence under subsection 24(4) of the NSCA unless it is satisfied that adequate measures will be taken for the protection of the environment.

A report of the Canadian Environmental Assessment Act is reprinted on page 167.

France

Radioactive waste management

Changes to the National Plan for Management of Radioactive Materials and Waste

Pursuant to Article L. 542-1-2 of the French Environmental Code, a decree shall determine the prescriptions of each new version of the National Plan of Management of Radioactive Materials and Waste (*Plan national de gestion des matières et déchets radioactifs* – PNGDMR). In accordance with this provision, the decree of 23 April 2012 shall define the requirements contained in PNGDMR 2010-2012 with respect to radioactive materials and waste.[11]

This decree builds upon the principles that had been set out in the PNGDMR 2007-2009 requirements and addresses:

- the management of temporary or legacy situations;
- the long-term management of waste and materials including, for example, research and studies on the management of high-level and middle-level activity long-life waste; and
- overall consistency in the management of radioactive waste and materials.

In order to ensure that the surrounding area of a basic nuclear installation (INB or *Installation Nucléaire de Base*) does not contain any former waste repositories which may not have been mentioned as part of a declaration of an inventory of nuclear materials and waste, this decree provides that government ministers may require that operators of nuclear facilities undertake additional studies and assessments to ensure that quantities of radioactive waste produced by an operator before 2000 are appropriately inventoried and documented. These measures will serve to confirm the accuracy of the declarations made to the French National Agency for Radioactive Waste Management (*Agence nationale pour la gestion des déchets radioactifs* – ANDRA),

9. *Ibid*. section 52.
10. Nuclear Safety and Control Act, (NSCA) S.C. 1997, c.9, sections 3, 9, 24 – Commission's statutory mandate.
11. Decree No. 2012-542 of 23 April 2012 on the basis of Article L.542-1-2 of the French Environmental Code and laying down the prescriptions of the National Plan for the Management of Radioactive Materials and Waste, published in the Official Journal of Laws and Decrees (J.O.L. et D.) of 24 April 2012, p. 7283, text No. 13.

the authority in charge of keeping an up-to-date inventory of all radioactive waste and materials in France.

A ministerial order of 23 April 2012 based upon the above-mentioned decree details in particular which studies, assessments and reports must be submitted to the government within in the framework of PNGMDR 2010-2012.[12]

Georgia

Nuclear safety and radiological protection

New law on nuclear and radiation safety

On 20 March 2012, the Georgian Parliament ratified a new law (No. 5912) on nuclear and radiation safety. This law replaces a law passed in 1998 and incorporates significant changes. The law is intended to bring national legislation into greater conformity with international standards and guidance, such as the IAEA Basic Safety Standards and guidance issued by the International Commission on Radiological Protection.

The law clearly defines all types of activities regulated by this law, including source clearance and exemption and exclusion levels. The law also defines obligations of the regulatory authority, licensees and stakeholders; requirements related to radioactive source safety, security, safeguards are established in accordance with international standards. The law also clearly defines duties related to licensing, permission, inspection and sanctions as well as responsibilities of licensees with respect to the safety and security of radioactive sources.

This law also establishes requirements for the further development of Georgian legislation in the field of radiation safety and security, specifically mandating that a law on waste management, a law on transportation of radioactive substances and sixteen other documents are to be enacted by 1 January 2015.

Greece

Nuclear safety

Presidential decree on nuclear safety transposing European Council directive into national legislation

Presidential Decree No. 60 "Establishing a national framework for the nuclear safety of nuclear installations"[13] transposes European Council Directive 2009/71/Euratom of 25 June 2009 into national legislation.

12. Ministerial Order of 23 April 2012 on the basis of the Decree No. 2012-542 of 23 April 2012 on the basis of Article L.542-1-2 of the French Environmental Code and laying down the prescriptions of the National Plan for the Management of Radioactive Materials and Waste, J.O.L. et D., 24 April 2012, p. 7287, text No. 16.
13. Official Gazette of the Greek Government No. 111/A of 3 May 2012.

Emergency preparedness and response

Establishment of national plan for nuclear, radiological, biological and chemical threats

The "National Emergency Plan for Nuclear, Radiological, Biological and Chemical (CBRN) Threats" was issued in November 2011 as a Decision of the General Secretary for Civil Protection. Among other provisions, it includes response arrangements for incidents or accidents involving a risk of exposure to radiation.

India

Licensing and regulatory infrastructure

Pending invitation for the IAEA's Integrated Regulatory Review Services to conduct a peer review

During the 56th General Conference of the IAEA, held in September 2012, the Chairman of India's Atomic Energy Commission (AEC)[14] stated that India is planning to invite the IAEA's Integrated Regulatory Review Services (IRRS)[15] for a peer review of its nuclear regulatory system in due course.[16] Moreover, the AEC Chairman confirmed that the first Operational Safety Review Team (OSART)[17] mission of the IAEA to India for the Rajasthan Atomic Power Station (RAPS) units 3 and 4 is scheduled for October 2012.[18]

This statement comes at the time at which the Atomic Energy Regulatory Board,[19] established in 1983, may be replaced by a new Nuclear Safety Regulatory Authority. As one of the tangible outcomes of India's post-Fukushima introspection, the Nuclear Safety Regulatory Authority Bill, 2011 (NSRA Bill), was tabled before Parliament on 7 September 2011, with the primary objective of setting up an independent regulator. Subsequently, the Parliamentary Standing Committee issued its report on the NSRA Bill,[20] paving way for both Houses of Parliament to vote on the NSRA Bill.

14. To read more about the history and role of the AEC, visit the Department of Atomic Energy (DAE) website: www.dae.nic.in/?q=node/394.
15. Additional information about the IAEA's Integrated Regulatory Review Services program is available at: www-ns.iaea.org/reviews/rs-reviews.asp.
16. A copy of the Statement by the Chairman of the AEC at the 56th General Conference of the IAEA is available on the DAE's website: www.dae.nic.in/writereaddata/gc2012_stmt.pdf
17. Additional information about the IAEA's Operational Safety Review Team is available at: www-ns.iaea.org/reviews/op-safety-reviews.asp#osart.
18. Rajasthan units 3 and 4 are Pressurised Heavy Water Reactors of 202 MWe each, which started commercial operation in 1999-2000, have been under IAEA safeguards since 2010.
19. The homepage of the Atomic Energy Regulatory Board (AERB) is: www.aerb.gov.in. The AERB was established in 1983 by the Union of India by exercising powers conferred by Section 27 of the Atomic Energy Act of 1962, and to carry out regulatory and safety functions under Sections 16, 17 and 23 of the Atomic Energy Act. A copy of the Atomic Energy Act is available at: www.dae.gov.in/rules/aeact.pdf.
20. A copy of the Nuclear Safety Regulatory Authority Bill, 2011 (7 September 2011) as well as the Report of the Parliamentary Standing Committee (6 March 2012) are available at: www.prsindia.org/billtrack/the-nuclear-safety-regulatory-authority-bill-2011-1980/. For some of the expert opinions which influenced the Standing Committee, see "Panel Plans Tweaks in Nuclear Safety Regulatory Authority Bill", Mail Online (18 February 2012), available at: www.dailymail.co.uk/indiahome/indianews/article-2103159/Panel-plans-tweaks-Nuclear-Safety-Regulatory-Authority-Bill.html.

The AERB and the Department of Atomic Energy currently fall under the purview of the AEC, which in turn is accountable to the central government.[21] The legal status of the AERB is rather one of a "subordinate office, exercising delegated functions of the Central Government and not that of a regulator".[22] Apart from the new Nuclear Safety Regulatory Authority (NSRA), the NSRA Bill also proposes to set up a Council of Nuclear Safety, with the Prime Minister of India as its Chairperson and the AEC Chairman as an *ex-officio* member. This Council of Nuclear Safety would oversee nuclear-related policies (also partly one of the functions of the new NSRA). The Parliamentary Standing Committee has pointed out various inconsistencies in the NSRA Bill which would defeat the very purpose of ensuring the autonomy of the new regulator.[23]

Additionally, the Comptroller and Auditor General (CAG) recently came out with a report which is highly critical of the AERB and directly questions its independence, while also making due reference to international practice. The report points out that the AERB has failed to prepare a radiation safety policy after three decades of existence.[24] However, it must be noted that the CAG report only took into account the current functioning of the AERB, while not reviewing the proposed NSRA Bill.

Liability and compensation

Committee on Subordinate Legislation Report on the Civil Liability for Nuclear Damage Rules, 2011

India has adopted the Civil Liability for Nuclear Damage Act, 2010 (CLND Act) and the Civil Liability for Nuclear Damage Rules, 2011 (CLND Rules). The CLND Act entered into force on 11 November 2011, the date on which the CLND Rules were also noticed.[25] However, an amendment was moved both in the Lok Sabha (Lower

21. *Ibid*. See also Yash Mannully, "Indian Nuclear Safety Regulatory Authority Bill, 2011, in the light of the Fukushima incident", conference paper, International Nuclear Law Association, Manchester, October 2012.
22. See Comptroller and Auditor General of India, Report No. 9, 2012-2013, for the period ending March 2012, "Performance Audit on Activities of Atomic Energy Regulatory Board (Department of Atomic Energy)", at pp. 12 and 73 available at: http://saiindia .gov.in/english/home/Our_Products/Audit_Report/Government_Wise/union_audit/recent_r eports/union_performance/2012_2013/SD/Report_9/ReportNo_9.html.
23. Section 21 of the NSRA Billl states that the NSRA, while discharging its powers and functions "shall not act against the interest of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality". Similarly, Section 48 of the NSRA Bill gives the powers to the Central Government to supersede the NSRA for a maximum period of six months, if the Central Government is of the opinion (a) that the NSRA acted in a manner inconsistent with the Act; (…) or (c) that the NSRA has persistently failed to comply with directions issued by the Central Government; or (d) that there are circumstances which render it necessary in the public interest to do so. Such provisions are as argued as being too broad, which could invite regular Government interference.
24. Comptroller and Auditor General of India, Report No. 9, 2012-2013, for the period ending March 2012, "Performance Audit on Activities of Atomic Energy Regulatory Board (Department of Atomic Energy)", at p. 73 and p. 12, available at: http://saiindia.gov.in/english/home/Our_Products/Audit_Report/Government_Wise/union_ audit/recent_reports/union_performance/2012_2013/SD/Report_9/ReportNo_9.html. See also, *inter alia*: P. Sunderarajan, "CAG pulls up AERB for not preparing nuclear safety policy", *The Hindu*, 24 August 2012, available at: www.thehindu.com/news/national/cag-pulls-up-aerb-for-not-preparing-nuclear-safety-policy/article3808724.ece.
25. Copies of the Act and Rules can be found at: www.nlain.org/links.

House) and in the Rajya Sabha (Upper House) by the Communist Party of India (CPI) at the end of December 2011 to alter the current version of the CLND Rules.[26]

Under parliamentary procedure, the issue was referred to the Committee on Subordinate Legislation of the Lok Sabha, which presented its Report on the Civil Liability for Nuclear Damage Rules, 2011 (the Report) on 28 August 2012.[27] Such a report from the Committee on Subordinate Legislation is not binding on parliament. Moreover, a report on the same issue from the Committee on Subordinate Legislation of the Rajya Sabha is still pending and will be necessary to finalise the CLND Rules.

The Report addresses seven different issues as raised by the proposed amendment to the CLND Rules, including the absence of an interim relief provision for victims, the excessive time taken (15 days) for notification of a nuclear incident, the insertion of definitions (including that of the "supplier") in the Rules as opposed to the Act, and other various issues. The Committee on Subordinate Legislation of the Lok Sabha discussed at length the right of recourse provision contained in Rule 24 and noted the following points:

- Rule 24(1) provides that any contract under S. 17(a) of the CLND Act shall not be for an amount less than the amount of the operator liability specified under S. 6(2) of the CLND Act, or the value of the contract itself, whichever is less.

- Rule 24(2) states that the right of recourse referred to in Rule 24(1) shall be for the duration of the initial license issued under the Atomic Energy (Radiation Protection) Rules, 2004, or the product liability period, whichever is longer. Such initial license is granted for five years.

- Section 6(1) of the CLND Act specifies that the maximum amount of liability with respect to each nuclear incident shall be SDRs 300 million (approximately USD 450 million) or such higher amount as may be notified by the government of India. Section 6(2) further subdivides the liability of an operator for each nuclear incident, and with respect to nuclear reactors having thermal power equal to or above ten MW, it shall amount to Rupees 1,500 Crores (approximately USD 292.4 million).

The Committee on Subordinate Legislation of the Lok Sabha concluded that the CLND Rules have the effect of "diluting the stringent liability provided in Section 17 of the CLND Act by imposing limitations in terms of the amount which can be claimed by exercising the right of recourse (limiting to the extent of the operator's liability or the value of the contract whichever is less) and also the duration for which a supplier can be held liable, not contemplated under the CLND Act".[28] The Committee on Subordinate Legislation of the Lok Sabha further held that "delegated legislation should be consistent with the substantial provisions of the Act and should not contain any limitations or excesses which are not contemplated under the Act".[29] Therefore, the Committee on Subordinate Legislation of the Lok Sabha was of the opinion that the Department of Atomic Energy, which originally drafted

26. In July 2008, the Communist Party of India announced that it was withdrawing its support to the ruling coalition over the decision by the government to go ahead with the United States-India Peaceful Atomic Energy Cooperation Act.
27. The Report is available on the Lok Sabha website at: http://164.100.47.134/lsscommittee/Subordinate%20Legislation/27%20Report%20nuclear.pdf
28. Committee on Subordinate Legislation (2012), "Report on the Civil Liability for Nuclear Damage Rules, 2011 Presented on 28.8.2012", Lok Sabha Secretariat, New Delhi. Section 3.15.
29. *Ibid*.

the CLND Rules, must remove the limitations imposed on the liability as well as the duration of the liability period.

Ireland

Nuclear safety and radiological protection

Adoption of revised regulations regarding radiological protection

The European Communities (Ionising Radiation) (Amendment) Regulations 2012, Statutory Instrument No. 152 of 2012, amends the Radiological Protection Act, 1991 (Ionising Radiation) Order, 2000 (S.I. No. 125/2000) and establishes the Radiological Protection Institute of Ireland as the approving regulatory body for dosimetry services in Ireland. This Order enables the Minister for the Environment, Community and Local Government to give further effect to certain provisions of Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation.

Japan

Nuclear Regulation Authority Act

The Act for Establishment of a Nuclear Regulation Authority[30] (the Act) was enacted in July 2012. The purpose of the Act was to establish a new Nuclear Regulation Authority (NRA) to replace the former Nuclear and Industrial Safety Agency (NISA). The Act's purpose is to enhance the independence of the Japanese regulatory authority and ensure that one organisation is not responsible for both the promotion and the regulation of nuclear energy. The process of reform with respect to nuclear regulation in Japan began in 2011 and led to the government's submission of a draft bill to the diet on 31 January 2012. The opposition parties submitted a counterproposal to the diet on 20 April 2012, which led to the collaborative submission of a reformed bill to the diet on 15 June 2012. The Act was promulgated on 27 June 2012. On 19 September 2012, the Nuclear Regulation Authority began operation.

Structure

The Act established the NRA as an independent commission affiliated with the Ministry of the Environment. The Act separates the nuclear regulatory function and the nuclear promotion function by separating the NRA from the Ministry of Economy, Trade and Industry (METI). The chairman and four commissioners of the NRA are appointed by the prime minister after the approval of the national diet. However, during a nuclear emergency situation, the prime minister of Japan can appoint the chairman prior to the approval of the national diet. The decisions of the NRA are made by a majority vote of the commission; however, during a nuclear emergency situation, the chairman can make the NRA's decisions for the agency.

The first chairman of the commission is Mr. Shunichi Tanaka, a former advisor to the Research Organization for Information Science and Technology and a former

30. Act No. 47 of 2012.

vice president of the Japan Atomic Energy Agency. Four commissioners have also been appointed:

- Mr. Kenzo Ohshima, a former commissioner of the Fukushima Nuclear Accident Independent Investigation Commission and a former Ambassador of Japan to the United Nations;
- Mr. Kunihiko Shimazaki, the former president of the Coordinating Committee for Earthquake Prediction and a former professor of the Earthquake Research Institute of the University of Tokyo;
- Ms. Kayoko Nakamura, the former chief investigator of the Japan Radioisotope Association and a former instructor at Keio University; and
- Mr. Toyoshi Fuketa, a former deputy director of the Nuclear Science and Engineering Directorate of the Japan Atomic Energy Agency.

The chairman and commissioners are supported by the NRA Secretariat, which has approximately 500 staff.

Functions

The NRA will serve a comprehensive role in regulating nuclear safety, security, safeguards, radiation protection and radioactive sources. The establishment of the NRA allows for the integration of nuclear regulation functions by assuming responsibility for several issues from other agencies as described below. The NRA's functions for safeguards, radiation monitoring and radioactive source regulation will be implemented as of 1 April 2013.

With respect to nuclear safety, the NRA has been transferred responsibility for nuclear safety regulation for nuclear power plants from METI. The NRA has also been transferred responsibility for nuclear safety regulation for research reactors from the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Lastly, responsibility for nuclear safety regulation for naval reactors has been transferred from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) to the NRA.

METI's and MEXT's responsibilities with respect to nuclear security will be transferred to the NRA. In addition, nuclear security policy-making and coordination will be transferred from the Atomic Energy Commission (AEC) to the NRA. The NRA will also be transferred authority for nuclear safeguards regulation from MEXT.

With respect to radiation protection, the NRA will provide a radiation monitoring coordination function among the relevant ministries. The NRA will assume responsibility for the operation of the System for Prediction of Environmental Emergency Dose Information (SPEEDI), taking over this role from MEXT. The NRA will also assume MEXT's responsibility for the radiation monitoring implementation function and for radioisotopes regulation based on the Radiation Hazard Prevention Act.

Generally speaking, the NRA will also assume the functions of the Nuclear Safety Commission; the NSC will be abolished once its functions have been integrated into the NRA, by approximately September 2013. The NRA is provided additional technical support by the Japanese Atomic Energy Agency, the National Institute of Radiological Sciences, and the Japanese Nuclear Energy Safety Organisation (JNES), which will be merged into the NRA.

New Nuclear Safety Regulations

In addition to providing the legal basis for organisational change, the Act also establishes several new requirements regarding nuclear safety. The Act provides the legal basis for requiring licensees to take measures to prevent severe accidents. In addition, the Act introduces new requirements for the presentation of a nuclear power plant's safety and security information; licensees are required to conduct comprehensive safety and risk assessments of each nuclear facility and publish the results of these assessments. In addition, the Act mandates the retro-fitting of certain systems based upon the latest scientific and technological knowledge available. In addition, the Act introduces a 40-year operational limit for nuclear power plants, a time limit which may be extended only once for not longer than 20 years if technical standards established by the NRA are satisfied. The Act also provides the NRA with the authority to specify special safety measures for nuclear power plants that have experienced a disaster in the past. Under this authority, the NRA can demand that a licensee prepare and implement a specialised plan to prevent future disasters at such a plant.

New Nuclear Emergency Preparedness System

The Act establishes the Nuclear Emergency Preparedness Commission (NEPC) under the cabinet to promote nuclear emergency preparedness in cooperation with other relevant organisations. The role of the NEPC is to promote nuclear emergency preparedness measures based on the guidance for nuclear emergency preparedness and to provide long-term comprehensive measures after a nuclear accident, in cooperation with other relevant organizations. The NEPC is composed of the chairman (the prime minister), the vice-chairmen (the chief cabinet secretary, the minister of the environment and the chairman of the NRA), and other members (other ministers). The minister of environment also serves as the secretary-general of the NEPC. The Cabinet Office (CAO) is responsible for nuclear emergency preparedness measures and supports the secretary-general of the NEPC.

In addition to establishing the NEPC, the Act also amends several provisions of the Nuclear Emergency Act. Under the Act, the NRA will provide guidance for nuclear emergency preparedness, in accordance with the Disaster Prevention Basic Plan, in part by strengthening nuclear operator disaster prevention drills. The Act provides the NRA with the authority to check and review disaster prevention drills by licensees and also provides the authority for the NRA to give orders for necessary improvements. The NRA will also facilitate emergency preparedness measures by the national government and local governments. In addition, the Act increases the staffing levels of the Nuclear Emergency Response Headquarters and clarifies the mandate of the director general of the Nuclear Emergency Response Headquarters during a nuclear emergency. The Act notably limits the mandate of the prime minister with respect to making determinations on safety issues during nuclear emergencies and preserves the NRA's right to make such technical determinations.

Lithuania

General legislation

New laws affecting Visaginas nuclear power plant project implementation

The Law on Nuclear Power Plant No. X-1231 dated 28 June 2012 approved by the Parliament of the Republic of Lithuania establishes favourable legal, financial and organisational conditions for the implementation of the new Visaginas nuclear power plant project in Lithuania.

The Law on Granting the Concession and Assuming the Essential Property Obligations of the Republic of Lithuania in Visaginas Nuclear Power Plant Project No. XI-2085 dated 21 June 2012 approved by the Parliament of the Republic of Lithuania provides consent for granting concessions to the Visaginas nuclear power plant project development company and the project agreement, including the essential property obligations of the Republic of Lithuania in Visaginas nuclear power plant project.

The Law on Enterprises and Facilities of Strategic Importance to National Security and other Enterprises of Importance to Ensuring National Security No. XI-2087 dated 21 June 2012 approved by the Parliament of the Republic of Lithuania establishes the legal environment for implementation of strategic energy projects in Lithuania.

Licensing and regulatory infrastructure

Revised rules for issuing licenses and permits

The Rules for Issuing Licenses and Permits for Activities in Nuclear Energy approved by Resolution No. 722 of 20 June 2012 of the Government of Republic of Lithuania (replacing Regulations of Licensing of Nuclear Activities, approved by Resolution No. 103 of 27 January 1998 of the Government of Republic of Lithuania) establish the detailed list of documents, which must be provided by the applicant to the State Nuclear Power Safety Inspectorate with an application for a wide variety of licenses and permits or amendments thereto as specified in the Law on Nuclear Safety. Such licenses include, among others, those for construction, operation, and decommissioning of a nuclear installation; for supervision of a closed radioactive waste repository; for shipment of nuclear fuel cycle materials, and nuclear materials and fissile materials; for acquisition, possession and usage of specified nuclear materials and fissile materials; permits for first delivery of nuclear fuel to a nuclear power plant, a research nuclear reactor, or for delivery of nuclear materials to the site of other nuclear installations. The Rules also establish detailed aspects of the procedure of submission and review of applications.[31]

Nuclear security

Revised physical protection requirements

Nuclear Safety Requirements BSR-1.6.1-2012 Physical Protection of Nuclear Facilities, Nuclear Material And Nuclear Fuel Cycle Material, approved by the Order of the Head of the State Nuclear Power Safety Inspectorate No. 22.3-37 on 4 April 2012 establish requirements for the physical protection of nuclear facilities, nuclear material (during acquisition, possession, use and transportation) and nuclear fuel cycle material (during transportation). These requirements cover the key elements of physical protection including requirements for the system of physical protection, requirements for the division of a nuclear facility into physical protection zones, and general requirements for the preparation, revision, renewal and submission of a security plan. These requirements replaced the General Requirements of Physical Protection of Nuclear Facilities and Nuclear Materials, approved by the Order of the

31. Available at: www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=428204&p_query=&p_tr2= 2

Head of State Nuclear Power Safety Inspectorate No. 22.3-28, 13 June 2005 and came into force on 13 April 2012.[32]

New rules for the preparation of security plans

Nuclear Safety Rules BST-1.6.1-2012 Preparation of the Security Plan, approved by the Order of the Head of State Nuclear Power Safety Inspectorate No. 22.3-104, 4 September 2012, established requirements for the structure and content of security plans, which must be prepared, revised, renewed and submitted by the applicant or licensee. These rules cover security plans for construction sites of nuclear facilities, nuclear facilities, as well as security plans for the acquisition, possession and use of nuclear materials and transport of nuclear fuel cycle materials, nuclear materials and fissile materials.[33]

Radioactive waste management

Revised Rules of Procedure of Submission of Data on Activities Involving Radioactive Waste Disposal to the European Commission

The Rules of Procedure of Submission of Data on Activities Involving Radioactive Waste Disposal to the European Commission were approved initially by the Resolution No. 1872, 3 December 2002, of the Government of the Republic of Lithuania. The 2012 amendments derive from the Commission Recommendation 2010/635/Euratom of 11 October 2010 on the application of Article 37 of the Euratom Treaty (replacing Commission Recommendation 1999/829/Euratom of 6 December 1999 on the application of Article 37 of the Euratom Treaty). The revised version of these rules of procedure establish requirements for preparation of "general data" document, including requirements for the content of the document and procedural requirements for submission of the document to national agencies (Environmental Protection Agency, Radiation Protection Center and State Nuclear Power Safety Inspectorate) for revision, the revision procedure and procedure for submission to the European Commission. [34]

Switzerland

General legislation

Draft energy strategy open for public comment until January 2013

On 28 September 2012, the Swiss Federal Council distributed its draft Energy Strategy 2050 for public consultation.[35] This strategy sets forth a first set of measures such as the promotion of renewable energies and energy efficiency in order to render the phase out of nuclear energy possible.

After the incident at the TEPCO Daiichi Fukushima nuclear power plant, the federal council and the parliament decided to phase out the use of nuclear energy in Switzerland. With Energy Strategy 2050, the Federal Council presented a draft of

32. Available at: www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=422003&p_query=&p_tr2=2 (in Lithuanian only).
33. Available at: www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=432402&p_query=&p_tr2=2 (in Lithuanian only).
34. Available at: www.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=421406 (in Lithuanian only).
35. See www.energiestrategie2050.ch or www.energystrategy2050.ch for more information and documents on the Energy Strategy 2050.

amendments and provisions to enable a reliable and efficient energy supply for Switzerland by 2035 without the use of nuclear power.

Amendments to nuclear energy act stipulate the end of the issuance of general licenses in order to build new nuclear power plants as well as fundamental changes to existing nuclear power plants. Under current law, exports of spent fuel for reprocessing are prohibited until 2016. The draft Energy Strategy 2050 proposes to replace the existing moratorium of reprocessing nuclear fuel with a ban on reprocessing.

The draft Energy Strategy 2050 and the draft of the aforementioned amendments of the nuclear energy act will be open for public comment until 31 January 2013. The strategy will be consulted in parliament starting in mid-2013. Although the parliament has already approved the phase out of nuclear energy, it can still introduce changes to the draft strategy. A referendum on this issue may take place in mid-2014, which would lead the strategy to take effect in 2015.

Ukraine

Radioactive waste management

New law on development of a central repository

On 2 March 2012, the President of Ukraine signed Law No. 4384-VI "On the management of spent nuclear fuel relative to location, design and construction of a central repository for spent nuclear fuel of Russian VVER nuclear power plants". The law had been adopted by the Verkhovna Rada of Ukraine of 9 February 2012.[36]

General legislation

Law providing for the location, design and construction of new plants

The law "On the location, design and construction of reactors numbers 3 and 4 of the Khmelnitsky Nuclear Power Plant" (registration number 11088) was adopted on 6 September 2012 and is pending signature by the President of Ukraine. This law provides that each unit will be reactor plant type VVER-1000/V-392.

The Russian Federation has provided the organisation of financing to the extent necessary for the design, construction and commissioning of Khmelnitsky nuclear power plant units 3 and 4, including the payment of goods, works and services to be delivered from Russia to Ukraine or purchased in Ukraine. These loans will provide funding for 80% of the cost of building these units; 20% of the cost of construction will be provided by an electricity tariff. It is expected that electricity production from units 3 and 4 of the Khmelnitsky nuclear power plant will be 15.44 billion kWh/year.

36. See the full summary of the law in *Nuclear Law Bulletin* No. 89, pp. 134–135 (2012).

United Arab Emirates

General legislation

Establishment of a nuclear power programme

The Federal Authority for Nuclear Regulation (FANR) was established in September 2009 by Federal Law by Decree No 6 of 2009 Concerning the Peaceful Uses of Nuclear Energy as the independent nuclear regulatory authority in charge of regulating the nuclear sector in the United Arab Emirates (UAE).

In July 2012 FANR issued a licence to the Emirates Nuclear Energy Corporation (ENEC) to construct two nuclear power reactor units at the Barakah site in the Western Region of the Emirate of Abu Dhabi in the UAE. The construction licence authorises ENEC to construct two Korean-design advanced pressurised water reactors of the type known as the APR1400, each capable of producing 1 400 megawatts of electricity. It does not allow ENEC to operate the reactors; ENEC must apply for a separate licence to operate them.

Liability and compensation

Federal Law by Decree No. 4 of 2012, Concerning Civil Liability for Nuclear Damage

The UAE has established a nuclear liability regime prior to the commissioning and operation of its planned nuclear facilities. The UAE has fulfilled its commitments to joining international instruments in the area of nuclear liability, specifically the Vienna Convention on Civil Liability for Nuclear Damage as amended by the 1997 Protocol, which the UAE acceded to in August 2012. The UAE deposited an instrument to accede to the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention in August 2012.

The Federal Law by Decree No. 4 of 2012, Concerning Civil Liability for Nuclear Damage of August 2012 serves to determine civil liability and compensation for nuclear damage in the UAE. The establishment of this Law by Decree represents a transposition into UAE law of obligations contained in 1997 Vienna Convention and incorporates the following fundamental principles into UAE law:

- channelling of legal responsibility for nuclear damage exclusively towards the operator;
- the possibility of establishing the operator's liability without having to prove negligence;
- exclusive jurisdiction of the courts of the country where the nuclear accident occurs;
- limitation of the amount of liability and the possibility of setting a time limit for such liability; and
- compensation of damage without discrimination on the basis of nationality, domicile, or residence.

The provisions of the Law by Decree are consistent with UAE international obligations and best international practices, including the assessment of the international insurance market for the nuclear sector. The text and provisions of the Law by Decree were drafted under consultation with IAEA Legal experts to ensure this law by decree is consistent with IAEA guidance and relevant international obligations.

This law by decree sets standards to provide financial protection against damage resulting from nuclear incidents related to the peaceful uses of nuclear energy. In accordance with this law by decree, the operator of a nuclear facility is solely and exclusively liable for nuclear damage caused by a nuclear incident regardless of the fault of the operator. The person suffering the damage does not need to prove negligence or any type of fault on the part of the operator to claim against the damage suffered. This approach is consistent with recognised international principles on nuclear liability.

For purposes of this law by decree, the term "nuclear damage" is consistent with the definition given by the 1997 Protocol to amend the Vienna Convention and includes death or personal injury, loss of or damage to property, economic loss, cost of restoring the impaired environment or loss of income from an economic interest as a result of such impairment, preventive measures arising from further loss or damages of the said measures, and any other economic loss as a result of a nuclear accident.

The operator's liability under this federal law by decree is set not to exceed 450 million special drawing rights (SDRs) i.e. the units of account as defined by the International Monetary Fund (IMF) and used by the IMF for its own operations and transactions. This amount is equivalent to approximately AED 2.5 billion.

The operator is obliged to maintain insurance or provide other financial security up to 450 million SDRs. In the event that the operator is not able to provide the insurance cover as determined by Federal Authority for Nuclear Regulation (FANR), the UAE government will cover the risks covered by such insurance.

Actions for compensation under this law by decree may be brought only against the operator or the person providing financial security within three years from the date the person suffering damage had knowledge or ought to have had knowledge of the damage and of the operator liable for the damage. The right to compensation will be extinguished if the claim is not brought within 30 years for loss of life and personal injury and within 10 years for other types of damage from the date of a nuclear incident. The federal courts in Abu Dhabi will have sole jurisdiction for actions that may be brought in accordance with this law by decree.

FANR is the competent authority that will implement this law by decree, including issuing rules and regulations relating to the application of the provisions of this law by decree. The provisions of this law by decree will not impede the rights or obligations of any person to obtain compensation under any health insurance scheme, employees' compensation or other occupational disease compensation scheme.

This federal law by decree will come into force on the date of its publication in the UAE Official Gazette.

United States

Nuclear safety

Station blackout advance notice of proposed rulemaking

On 20 March 2012, the NRC published an advance notice of proposed rulemaking (ANPR) regarding station blackout (SBO).[37] SBO is a condition involving the loss of all

37. 77 Fed. Reg. 16175 (20 March 2012).

onsite and offsite alternating current (ac) power at a nuclear power plant. SBO was experienced as part of the March 2011 TEPCO Fukushima Dai-ichi accident in Japan. Possible modification of the NRC's SBO rule was one of the recommendations of the NRC's task force to review the accident's significance for US plants. The purpose of the ANPR was to solicit public comments on possible revisions to the NRC's requirements for addressing SBO. To this end, the NRC asked such questions as: what severity of hazards should be accounted for and should this accounting change based on the location of the power plant; what should be the time period to react to an SBO and how long should such a reaction be expected to be maintained; for multi-unit sites, should SBO regulations be applied per unit or per site; should SBO regulations apply to spent fuel pools; what would be the benefits and costs of imposing new SBO regulations; how should new SBO regulations be reconciled with the current SBO regulations at 10 CFR 50.63 and emergency operating procedures and severe accident management guidelines; and what training and testing requirements should be included? The NRC staff is evaluating the comments and interacting with stakeholders before publishing a proposed rule for public comment.

Emergency preparedness

Onsite emergency response capabilities advance notice of proposed rulemaking

On 18 April 2012, the NRC published an advance notice of proposed rulemaking (ANPR) regarding onsite emergency response capabilities at nuclear power plants.[38] Currently, the regulatory and industry approaches to onsite emergency response capabilities are fragmented into separate strategies represented by Emergency Operating Procedures (EOPs) and Extensive Damage Mitigation Guidelines (EDMGs) required by regulations, and Severe Accident Management Guidelines (SAMGs) developed as an industry initiative. The purpose of the ANPR was to solicit public comments on possible revisions to these approaches to onsite emergency responses. This ANPR was one of the actions stemming from the NRC's lessons-learnt efforts associated with the March 2011 Fukushima Daiichi accident in Japan. In the ANPR, the NRC asked such questions as: how can the existing EOPs, SAMGs, and EDMGs be effectively integrated; how should the command and control apparatus be structured; how will personnel be trained and evaluated; should onsite emergency response plans be standardised or be specific to each plant; should fire response procedures or any other plant procedures also be integrated with EOPs, SAMGs, and EDMGs; what would be the cost of strengthening onsite emergency response capabilities; and how would this affect staffing requirements? The NRC staff is currently evaluating the comments and interacting with stakeholders before publishing a proposed rule for public comment.

38. 77 Fed. Reg. 23161 (18 April 2012).

Intergovernmental organisation activities

European Atomic Energy Community

Proposed legislative instruments

Proposal for a Council Directive laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation (COM/2012/242)

On 29 September 2011, the European Commission adopted a draft proposal for a Council Directive under the Euratom Treaty, laying down Basic Safety Standards for protection against the dangers arising from exposure to ionising radiation. In accordance with Article 31 of the Euratom Treaty, the Commission submitted the draft proposal to the European Economic and Social Committee (EESC) for its formal opinion. The EESC gave a favourable opinion on 22 February 2012. The Commission has therefore adopted its official proposal on 30 May 2012.

The proposal aims to bring into one legislative act five Euratom Directives, namely Council Directive 2003/122/Euratom,[1] Council Directive 90/641/Euratom,[2] Council Directive 89/618/Euratom,[3] Council Directive 97/43/Euratom[4] and Council Directive 96/29/Euratom.[5] In addition to this simplification, the proposal aligns the radiation protection requirements of the above Directives with the latest international recommendations (International Commission on Radiological Protection ICRP Publication 103, 2007) and new scientific findings (e.g. sensitivity of the lens of the eye, new methodology for calculation of doses).

The proposal establishes the principles of radiation protection and covers different exposure situations – planned, existing, and emergency. The upgrade of the current radiation protection legislation provides a comprehensive system of protection of workers, patients, members of the public, as well as non-human species from ionising radiation both from man-made radiation sources and from natural radiation sources. The proposal in particular provides for:

- a regulatory regime for the industries processing naturally occurring radioactive materials (oil and gas production, geothermal energy production,

1. Council Directive 2003/122/Euratom of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources, OJ L 346, 31.12.2003, p. 57–64.
2. Council Directive 90/641/Euratom of 4 December 1990 on the operational protection of outside workers exposed to the risk of ionising radiation during their activities in controlled areas, OJ L 349, 13.12.1990, p. 21–25.
3. Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency, OJ L 357, 7.12.1989, p. 31–34.
4. Council Directive 97/43/Euratom of 30 June 1997 on health protection of individuals against the dangers of ionising radiation in relation to medical exposure, OJ L 180, 9.7.1997, p. 22–27.
5. Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation, OJ L 159, 29.6.1996, p. 1-114.

production of phosphate fertilisers, mining of ores other than uranium ore, etc.);

- radiation protection of exposed workers in all practices involving naturally occurring radioactive materials and artificial sources;
- radiation protection of the public from indoor exposure to radon;
- prevention of accidents and unintended medical exposures;
- regulation of the exposures of individuals for legal, insurance and other non-medical purposes (non-medical imaging exposures);
- general requirements for the radiation protection of non-human species.

Proposal for a Council Regulation establishing a Community system for registration of carriers of radioactive materials (COM/2012/561)

On 30 August 2011, the European Commission adopted a draft proposal for a Council Regulation under the Euratom Treaty establishing a Community system for registration of carriers of radioactive materials. In accordance with Article 31 of the Euratom Treaty, the Commission submitted the draft proposal to the European Economic and Social Committee (EESC) for its formal opinion. The EESC, while making a few specific comments, gave a favourable opinion on 22 February 2012. The Commission has therefore adopted its official proposal on 28 September 2012.

At the European level, carriers of radioactive materials are covered by transport legislation under the Treaty on the Functioning of the European Union (TFEU)[6] and legislation on the radiation-specific aspects, including the health protection of workers and the general public, under the Euratom Treaty.[7]

Articles 3 and 4 of Council Directive 96/29/Euratom require Member States to submit certain practices involving a hazard from ionising radiation to a system of reporting (notification) and prior authorisation or to prohibit certain practices. Given the frequent cross-border nature of transport operations, a carrier may have to comply with reporting and authorisation procedures in several Member States. In addition, Member States have implemented these procedures in different ways, thereby adding to the complexity of transport operations.

The proposed regulation aims therefore to replace the reporting and authorisation systems in the Member States for the purpose of implementing Council Directive 96/29/Euratom with a single registration system. Carriers should apply through a central web interface. These applications will be screened by the respective national competent authority, which will issue the registration if the applicant fulfils the basic safety standards. At the same time, the system affords the competent authorities a better overview of the carriers that are active in their country.

The proposal provides for a graded approach by exempting carriers who transport exclusively 'excepted packages' from the need to register. On the other hand, it leaves it up to the Member States to add additional registration requirements for carriers of fissile and highly radioactive materials.

6. Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods by combining all inland transport modes, OJ L 260, 30.9.2008, p. 13–59.
7. Council Directive 96/29/Euratom mentioned above.

Proposal for a Council Decision authorising the Member States which are Contracting Parties to the Vienna Convention on Civil Liability for Nuclear Damage of 21 May 1963 ("Vienna Convention") to ratify the Protocol amending that Convention in the interest of the European Union, or to accede to it (COM/2012/550)

The European Union has exclusive jurisdiction with regard to Articles 12 to 14 of the 1997 Protocol amending the Vienna Convention insofar as such provisions affect the rules laid down in Council Regulation (EC) No 44/2001 of 22 December 2000 on jurisdiction and the recognition and enforcement of judgements in civil and commercial matters.[8] The European Union is however not in a position to sign or ratify the Protocol as the Vienna Convention and its 1997 Protocol are not open to participation by regional organisations.

Under these circumstances, and given that the 1997 Protocol was negotiated with a view to improving compensation for victims of damage caused by nuclear incidents, the European Commission has adopted on 26 September 2012 a proposal for a Council Decision in order to authorise the Member States that are Contracting Parties to the Vienna Convention – i.e. Bulgaria, the Czech Republic, Estonia, Hungary, Lithuania, Poland (authorisation ex post) and the Slovak Republic – to ratify or conclude, in the interest of the European Union, the 1997 Protocol.

Adopted legislative instruments

Commission Implementing Regulation (EU) N° 284/2012 of 29 March 2012 imposing special conditions governing the import of feed and food originating in or consigned from Japan following the accident at the Fukushima nuclear power station and repealing Implementing Regulation (EU) No 961/2011 (OJ L 92, 30.03.2012, p. 16–23)

Commission Implementing Regulation (EU) N° 561/2012 of 27 June 2012 amending Implementing Regulation (EU) N° 284/2012 imposing special conditions governing the import of feed and food originating in or consigned from Japan following the accident at the Fukushima nuclear power station (OJ L 168, 28.06.2012, p. 17–20)

Commission Implementing Regulation (EU) N° 996/2012 of 26 October 2012 imposing special conditions governing the import of feed and food originating in or consigned from Japan following the accident at the Fukushima nuclear power station and repealing Implementing Regulation (EU) N° 284/2012 (OJ L 299, 27.10.2012, p. 31–41)

The European Commission continued to monitor the situation in Japan. Implementing Regulation 961/2011 of 27 September 2011[9] was repealed by Implementing Regulation 284/2012, which was in turn replaced by Implementing Regulation 996/2012 on 26 October 2012. This Implementing Regulation significantly alleviates the existing measures taking into account more than 26 000 occurrence data on radioactivity in feed and food provided by the Japanese authorities concerning the second growing season after the accident. These measures will be reviewed by March 2014, when the results of sampling and analysis on the presence of radioactivity of feed and food of the third growing season after the accident will be available. However, for the products for which the harvest is mainly in the second

8. Council Regulation (EC) No 44/2001 of 22 December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters, OJ L 12, 16.1.2001, p. 1-23.
9. Commission Implementing Regulation (EU) No 961/2011 of 27 September 2011 imposing special conditions governing the import of feed and food originating in or consigned from Japan following the accident at the Fukushima nuclear power station and repealing Regulation (EU) No 297/2011, OJ L 252, 28.9.2011, p. 10–15.

part of the second growing season and therefore all the data of the second growing season are not yet available, a review of the provisions for these products should intervened by 31 March 2013.

Non-legislative instruments

Commission Decision concerning the adoption of the Report of the European Atomic Energy Community for the Second Convention on Nuclear Safety (CNS) Extraordinary Meeting to be held in Vienna, 27-31 August 2012 (C/2012/3196 final)

The 2nd CNS Extraordinary Meeting took place in Vienna from 27 to 31 August 2012, with the aim of enhancing safety through reviewing and sharing lessons learnt and actions taken by Contracting Parties in response to events at Fukushima Daiichi.

The European Atomic Energy Community, as a Contracting Party to the CNS, adopted its report for the 2nd Extraordinary Meeting of the CNS on 10 May 2012 and submitted it to the IAEA on 12 May. The report covers the main topics raised in the wake of the Fukushima Daiichi accident and also provides sound information on the actions which have been taken or planned at the Community level, in particular on the European-wide comprehensive risk and safety assessments of nuclear power plants process.

Report of the Ad Hoc Group on Nuclear Security, Council of the European Union, 24 May 2012

After the accident in the Fukushima Daiichi nuclear power plant in Japan in March 2011, matters related to nuclear security in the European Union (EU) were assessed in the framework of an Ad Hoc Group on Nuclear Security (AHGNS) specifically set up by the Council of the EU in July 2011. The group was composed of security experts from the Member States with the Commission closely associated.

The AHGNS did not look at individual installations but assessed the state of nuclear security in the EU as a whole. The AHGNS concluded its work with the adoption of its final report in May 2012, in which it encouraged the exchange of existing practices and identified possible methodological improvements, making mainly use of good practices in the existing International Atomic Energy Agency (IAEA) guidance.

This report is accessible to the public from the website of the Council of the EU http://register.consilium.europa.eu/pdf/en/12/st10/st10616.en12.pdf.

Commission decision on endorsement of the International Basic Safety Standards: Radiation Protection and Safety of Radiation Sources (C/2012/5311)

On 6 August 2012, the Commission adopted a decision for the endorsement of the International Basic Safety Standards on Radiation Protection and Safety of Radiation Sources. The European Commission, on behalf of European Atomic Energy Community, supports the publication of the revised International Basic Safety Standards: Radiation Protection and Safety of Radiation Sources, as a co-sponsored document and will promote the implementation of these International Basic Safety Standards within the framework of external relations of the European Atomic Energy Community.

Communication from the Commission to the Council and the European Parliament – Final report on the comprehensive risk and safety assessments ("stress tests") of nuclear power plants in the European Union (COM/2012/571)

On 4 October 2012, the European Commission adopted its final report to the Council and the European Parliament on the stress tests of European nuclear power plants, which were launched in the aftermath of the accident that occurred in March 2011 at the Fukushima Daiichi nuclear plant in Japan.

This communication presents the response of the Commission to the mandate of the European Council of March 2011 and highlights the conclusions and recommendations identified in the course of the stress tests, with both the safety and security tracks, and in the course of related activities. These safety assessments have shown that no immediate and significant measure like the closure of a specific nuclear power plant is required for safety reasons; however a number of possible improvements have been identified. The communicaton also considers the international dimension of nuclear safety and outlines how the nuclear safety framework in the EU can be improved. It underlines the dynamic nature of nuclear safety: enhancing nuclear safety is not a one off exercise, it must be continually reviewed and updated.

Other activities

Plenary meetings of the European Nuclear Safety Regulators Group (ENSREG)

Following the last step of the process of the EU stress tests – i.e. an extensive peer review process carried out by multinational teams from January to April 2012 – an overview report was produced by the Peer Review Board and endorsed by ENSREG at its 18th plenary meeting on 26 April 2012 in Brussels. This overall report and the specific country reports which accompanied it highlighted practical recommendations aiming at achieving concrete safety improvements identified in the course of the stress tests.

At its 19th plenary meeting in Brussels on 3 July 2012, ENSREG agreed on an Action Plan to follow up the implementation of the peer review recommendations.

20th European Nuclear Safety Regulators Group (ENSREG) plenary meeting, 27 September 2012, Brussels

Main focus of this meeting was a discussion aimed at providing comments for the preparation of the Communication of the Commission on the stress tests of nuclear power plants in the European Union.

Additional information is available on the ENSREG website: www.ensreg.eu/news.

Second public meeting on progress of the Stress Test process, 8 May 2022, Brussels

Following the first public meeting held in Brussels on 17 January 2012, a second and last public meeting on the post-Fukushima stress test process took place on 8 May 2012, again in Brussels, to take stock of the progress accomplished and in particular of the outcomes of the peer review process.

Additional information, as well as the conclusions of the meeting, are available on the ENSREG website: www.ensreg.eu/EU-Stress-Tests/Public-engagement.

7th European Atomic Energy Community European Nuclear Energy Forum (ENEF) plenary meeting, 14 and 15 May 2012, Bratislava

The seventh plenary meeting of ENEF took place in Bratislava on 14 and 15 May 2012 and was hosted by the Slovak government. 270 high-ranking participants discussed the need for a new nuclear safety architecture in Europe, the society's expectations in terms of information and involvement, and the perspectives for nuclear energy in the EU in the medium to longer term, including generation IV reactors.

Participants were informed on the state of play of the EU stress tests took note of the ENSREG peer review report.

In the context of this safety reassessment process and on the basis of the Energy Roadmap 2050,[10] the Forum underlined that nuclear can meaningfully contribute to the long term energy supply in Europe if the highest standards of safety are met.

Seminar on Safety of Nuclear Power Plants against Aircraft Impacts, 25 September 2012, Luxembourg

The European Commission organised a seminar on "Safety of Nuclear Power Plants against Aircraft Impacts" on 25 September 2012 with 45 participants representing nuclear safety regulators from 18 EU Member States, from Switzerland, the USA and Japan, as well as European Commission services.

Objectives were to identify similarities and key differences in national approaches, and to look for need of follow-up work to develop a more coherent and consistent understanding of the safety relevance of the issue.

International Atomic Energy Agency

IAEA Action Plan on Nuclear Safety

Since the adoption of the IAEA Action Plan on Nuclear Safety (GOV/2011/59-GC(55)/14)[11] by the IAEA's policy-making organs in September 2011, significant progress has been made in several key areas, including in the context of the action focused on improving the effectiveness of the international legal framework. See *Nuclear Law Bulletin* No. 88 (2011), p. 101.

Some of the main developments and related actions are summarised as below. Reference may also be made to the report submitted by the IAEA Director General to the IAEA policy-making organs in August 2012 (GOV/INF/2012/11-GC(56)/INF/5).[12]

Convention on Nuclear Safety

At the 5th Review Meeting of the Contracting Parties to the Convention on Nuclear Safety (CNS) held in April 2011 a few weeks after the TEPCO Fukushima Daiichi nuclear power plant accident, the contracting parties to the CNS adopted a declaration in which they, inter alia, reaffirmed their commitment to the objectives

10. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Energy Roadmap 2050*, COM/2011/885, 15 December 2011.
11. Available at: www.iaea.org/About/Policy/GC/GC55/Documents/gc55-14.pdf.
12. Available at: www.iaea.org/About/Policy/GC/GC56/GC56InfDocuments/English/gc56inf-5-att1_en.pdf. See also: www.iaea.org/About/Policy/GC/GC56/GC56InfDocuments/English/gc56inf-5-att1_en.pdf.

of the CNS and agreed to hold an extraordinary meeting to explore this issue further. This extraordinary meeting attended by 64 out of 75 contracting parties, was held in Vienna, at the IAEA Headquarters, from 27 to 31 August 2012.

Instead of the usual country group sessions organised during previous review meetings, working sessions devoted to the following six topical areas were held during this meeting with the aim of discussing actions to enhance nuclear safety taking into account the lessons learnt from the accident and to share experiences in each of these areas: (1) external events, (2) design issues, (3) severe accident management and recovery (on-site), (4) national organisations, (5) emergency preparedness and response and post-accident management (off-site), and (6) international co-operation.

The national reports of the contracting parties prepared for this extraordinary meeting provided specific information on these topics, including a description of the activities completed by the given contracting party and any activity it intends to complete.

To improve the effectiveness of the CNS peer review process, the contracting parties discussed proposals to amend the underlying documents which had been established pursuant to the CNS (namely, the Guidelines regarding the Review Process under the Convention on Nuclear Safety (INFCIRC/571), the Guidelines regarding National Reports under the Convention on Nuclear Safety (INFCIRC/572), and the CNS Rules of Procedure and Financial Rules (INFCIRC/573)). Essentially, the changes will ensure more robust peer reviews process and greater transparency.

Formal proposals to amend the CNS had been submitted by two contracting parties (Switzerland and the Russian Federation). According to the provisions of the CNS, these formal proposals to amend the convention could have been either adopted by consensus at an extraordinary meeting or, in the absence of such consensus, contracting parties could have agreed to submit them to a diplomatic conference by a two-thirds majority.

At the extraordinary meeting, the contracting parties decided to establish an "effectiveness and transparency" working group, open to all contracting parties, with the task of reporting to the next review meeting (scheduled 24 March to 3 April 2014) on a list of actions to strengthen the CNS and on proposals to amend, where necessary, the CNS itself. The working group will take into account the overall output of the extraordinary meeting, including the initial proposals to amend the CNS as submitted by Switzerland and by the Russian Federation.

The contracting parties also considered a set of action-oriented objectives for strengthening nuclear safety (annexed to the Summary Report of the Extraordinary Meeting), concerning the use of IAEA safety standards, the enhancement of transparency, the regulatory effectiveness as well as the use of international peer review missions, whose primary importance has been highlighted by the first lessons learnt from the Fukushima Daiichi accident.

The Summary Report of the 2nd Extraordinary Meeting of the CNS is available on the IAEA website at: www-ns.iaea.org/downloads/ni/safety_convention/em-cns-summaryreport310812.pdf.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

The 4th Review Meeting of the Contracting Parties to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (the "Joint Convention"), attended by 54 out of 63 Contracting Parties, was held in Vienna, at the IAEA Headquarters, from 14 to 23 May 2012.

During the review meeting, the contracting parties discussed proposals to increase the effectiveness of the Joint Convention, recommended several amendments to the Guidelines regarding the Review Process (INFCIRC/603) and agreed to continue their discussions at inter-sessional meetings focused on the enhancement of the effectiveness of the review process.

The Summary Report of the Review Meeting is available on the IAEA website at: www-ns.iaea.org/conventions/results-meetings.asp?s=6&l=40.

Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

The sixth meeting of representatives of the competent authorities identified under the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency was held in Vienna, at the IAEA Headquarters, from 17 to 20 April 2012. This meeting, in particular, provided an opportunity to discuss the effectiveness of these two conventions and recognised the importance of enhancing the implementation of notification arrangements and sharing of information.

A formal proposal to amend the Convention on Early Notification of a Nuclear Accident was submitted by the Russian Federation, in order to strengthen the provisions in this convention.

For such a proposal to succeed, a majority of the states parties to this convention would first need to request the convening of a diplomatic conference in accordance with Article 14. Since there are currently 114 states parties to the Convention on Early Notification of a Nuclear Accident, the required majority currently amounts to 58. At present, only eleven States, namely Argentina, Armenia, Belarus, Brazil, Greece, Kazakhstan, Mongolia, the Russian Federation, Singapore, Ukraine and Uruguay, have expressed interest in such a conference.

IAEA member states encouraged to join and effectively implement these conventions

The IAEA Action Plan on Nuclear Safety also provides that "Member States [are] to be encouraged to join and effectively implement the[e] Conventions [identified in the Action Plan]". Accordingly, with the aim of encouraging IAEA member states' efforts in this regard, the IAEA Secretariat continues to undertake activities to highlight their importance primarily through an enhanced and strengthened legislative assistance programme.

In implementing this programme, the IAEA Secretariat continues to apply a comprehensive approach to nuclear law: - the so called "3S" concept -- safety, security, safeguards. This approach not only addresses the conventions identified in the IAEA Action Plan on Nuclear Safety but also the other legal instruments comprising the international legal framework for nuclear security and safeguards.

The IAEA Secretariat has continued to support member states under its legislative assistance programme by reviewing and providing advice in drafting national nuclear legislation and providing training in nuclear law. The IAEA Secretariat is carrying out dedicated awareness missions and seminars to member states to encourage, inform and raise awareness of national policymakers about the importance of adhering to the international legal instruments identified in the Action Plan and the other instruments adopted under IAEA auspices. Further, the first ever IAEA Treaty Event was held on the margins of the 55th Regular Session of the IAEA General Conference (held in 2011). The second IAEA Treaty Event was held from 17 to 18 September 2012 on the margins of the 56th regular session of the IAEA's General Conference. An opportunity was provided for IAEA member states to deposit

their instruments of ratification, acceptance, approval or accession of the featured treaties.

Also, in the area of training, the first annual session of the Nuclear Law Institute (NLI), a dedicated and comprehensive two-week course on nuclear law, was held in November/December 2011. The second session of the NLI was held in Baden, Austria from 23 September to 5 October 2012. This comprehensive two-week course was established to meet the increasing demand for legislative assistance by IAEA member states and to enable participants to acquire a solid understanding of all aspects of nuclear law and to be able to draft, amend or review national nuclear legislation. Approximately 60 representatives from IAEA member states participated. Additional details, including the NLI programme, are available at: http://ola.iaea.org/ola/nli/about.html.

In addition, efforts are under way to develop and further enhance the IAEA Secretariat's outreach capabilities through, inter alia, the development of new online training material and a third volume of the *Handbook on Nuclear Law*, Volume III which will cover the various areas of nuclear law (beyond the regulatory matters covered in the previous two volumes).

Establishing a global nuclear liability regime

In order to facilitate the implementation of the specific actions envisaged in the IAEA Action Plan on Nuclear Safety in relation to nuclear liability, a special session of the International Expert Group on Nuclear Liability (INLEX) was held at the IAEA Secretariat, from 14 to 16 December 2011. At this special session, INLEX agreed on a number of activities aimed at facilitating the achievement of a global nuclear liability regime as described in the IAEA Action Plan on Nuclear Safety, including the carrying out of joint IAEA/INLEX missions in order to raise awareness of the international nuclear liability regime and to encourage wider adherence to the relevant international legal instruments in specific target countries. Also, INLEX agreed to make specific presentations on nuclear liability at various IAEA and other meetings during 2012.

At the 12th regular meeting of INLEX, which was held at IAEA Headquarters from 30 May to 1 June 2012, INLEX further discussed and finalised the following recommendations to facilitate the achievement of a global nuclear liability regime, as requested by the IAEA Action Plan on Nuclear Safety. The recommendations were referenced in the Director general's report on progress in implementing the IAEA Action Plan.[13] The recommendations are reprinted in this edition of the Nuclear Law Bulletin and are also available on the IAEA website at http://ola.iaea.org/OLA/documents/ActionPlan.pdf.

OECD Nuclear Energy Agency

The Russian Federation to join the OECD Nuclear Energy Agency

On 23 May 2012, an official exchange of letters took place between OECD Secretary General Angel Gurría, First Deputy Minister of Foreign Affairs of the Russian Federation Andrey Denisov and Deputy Director-General of Rosatom Nikolay Spasskiy to formalise the accession of the Russian Federation to the OECD Nuclear Energy Agency (NEA) and its Data Bank effective as from 1st January 2013. The Russian Federation will then become the 31st member country of the NEA. Only

13. Available at: www.iaea.org/About/Policy/GC/GC56/GC56InfDocuments/English/gc56inf-5_en.pdf.

the Russian Federation and the Republic of Korea have joined the NEA prior to coming full members of the OECD.

The Russian Federation has the fourth largest civilian nuclear programme in the world after the United States, France and Japan. Currently, around 18% of the country's electricity is produced by 33 nuclear reactors. Russia is steadily moving towards an expanded role of nuclear energy, with 11 reactors under construction and plans for nearly doubling output by 2020.

The Russian Federation and the NEA have a long-standing relationship. The Russian Federation became an ad hoc observer in the NEA Nuclear Law Committee in 1996, and a regular observer in the NEA Committee on the Safety of Nuclear Installations and the NEA Committee on Nuclear Regulatory Activities in 1998. The Russian Federation has been a regular observer in all NEA standing technical committees since signing a joint declaration with the NEA in 2007. The Russian Federation is also a contributor to the NEA Data Bank activities and has been involved in the High-level Group on the Security of Supply of Medical Radioisotopes (HLG-MR) since 2010.

The Russian Federation is a member of the Generation IV International Forum (GIF), and its nuclear regulatory authority is a member of the Multinational Design Evaluation Programme (MDEP). The NEA acts as Technical Secretariat for both initiatives.

The Russian Federation is also a member of the International Atomic Energy Agency (IAEA) and party to the main treaties and agreements on the non-proliferation of nuclear weapons and on co-operation with regard to the peaceful uses of nuclear energy.

Participation by the regulatory authorities of India and the United Arab Emirates in the Multinational Design Evaluation Programme (MDEP)

The national regulatory authorities of India and the United Arab Emirates have recently begun participation in the Multinational Design Evaluation Programme (MDEP). The MDEP was launched in 2006 by the US Nuclear Regulatory Commission (NRC) and the French Nuclear Safety Authority (ASN) with the aim of developing innovative approaches to leverage the resources and knowledge of national regulatory authorities reviewing new reactor designs. The MDEP pools the resources of the participating nuclear regulatory authorities for the purposes of 1) co-operating on safety reviews of designs of nuclear reactors that are under construction and undergoing licensing in several countries, and 2) exploring opportunities and the potential for harmonisation of regulatory requirements and practices. It also produces reports and guidance documents that are shared internationally beyond MDEP membership.

On 4 April 2012, India's Atomic Energy Regulatory Board (AERB) became the first new member in the MDEP since its inception in 2006. It is expected that the AERB will take an active part in the MDEP, notably in the Codes and Standards Working Group (CSWG), the Digital Instrumentation and Control Working Group (DICWG), the Vendor Inspection Co-operation Working Group (VICWG) and, eventually, one of the specific reactor design working groups. As a full member, it will contribute to the Programme's strategic decisions in the MDEP Steering Technical Committee and the MDEP Policy Group.

On 24-26 September 2012, the Federal Authority for Nuclear Regulation (FANR) of the United Arab Emirates (UAE) participated in its first MDEP meeting as a new associate member, on the occasion of the MDEP Steering Technical Committee meeting which was held in Beijing, China. The FANR is responsible for carrying out the safety design review of the Korea Hydro & Nuclear Power Company's (KHNP)

advanced power reactor (APR1400) currently under construction at the Barakah site in the UAE. MDEP associate membership is intended for national regulatory authorities of interested countries that already have commitments for new build or firm plans to have commitments in the near future for a new reactor design. They can participate in the working group addressing the specific design and issues of interest and, as approved by the MDEP Policy Group, a representative may attend the Steering Technical Committee meetings.

The full MDEP membership now includes national regulatory authorities from Canada, China, Finland, France, India, Japan, the Republic of Korea, the Russian Federation, South Africa, the United Kingdom and the United States. The FANR was the first associate member to join the MDEP.

The OECD Nuclear Energy Agency (NEA) acts as the Technical Secretariat for the MDEP. The International Atomic Energy Agency (IAEA) participates in many of the MDEP activities, including harmonisation efforts.

NEA International Workshop on Crisis Communication, 9-10 May 2012

On 9-10 May 2012, senior officials from nuclear regulatory organisations and key stakeholders from 25 countries and 7 international organisations met during a two-day International Workshop on Crisis Communication: Facing the Challenges to share best practices and to improve crisis communication. The workshop was organised by the NEA and hosted by the *Consejo de Seguridad Nuclear* (CSN) in Madrid, Spain.

The lessons learnt from the Fukushima Daiichi nuclear accident were at the core of the discussions throughout the workshop. Most of the regulatory bodies and international organisations sought to communicate authenticated data during the crisis, which proved challenging as reliable information was not always available in a timely manner. Generally, nuclear regulatory organisations activated crisis communication centres and made outstanding efforts to provide as much information as possible to governments, the public and the media, with several briefings and news items posted daily. It was also noted that the public demand for information had been overwhelming during the first weeks following the accident, inevitably triggering frustration linked primarily to diverging national recommendations on health protection measures.

While it was clear from the discussions that regulators should continue to enhance their crisis communication plans, it was also noted that public trust is highly dependent on credibility built over time, far before a crisis occurs. This implies that regulators should regularly demonstrate their competence and independence in their daily activities, which will help ensure that their messages will be listened to in a crisis situation.

Participants also insisted that, for events of international significance, crisis communication plans should take into account the globalisation of information and include tools to address the public and media beyond national borders. Several stakeholders added that scenarios and prognoses should be part of these plans, even with uncertain data. While new tools, including social media, can significantly help disseminate information, they do not dismiss the need for regulators to formulate clear messages that are understandable by non-experts and delivered on a timely basis. Furthermore, the emotional dimension of a crisis, with perceived fears, prejudices and misconceptions, should not be overlooked.

Since the Fukushima Daiichi accident, several activities have been undertaken to enhance crisis communication and were highlighted during the workshop, including the IAEA Action Plan which *inter alia* calls upon the IAEA Secretariat to provide

information on the potential consequences of an accident as well as an analysis of the information available at the time.

The International Workshop on Crisis Communication forms part of the efforts of the OECD/NEA Working Group on Public Communication of Nuclear Regulatory Organisations to draw lessons from the Fukushima accident, and to strengthen crisis communication of nuclear regulatory organisations. The workshop presentations are available at: www.oecd-nea.org/nsd/workshops/crisis-comms/programme.html.

International School of Nuclear Law: 2013

The NEA is pleased to announce that the 13th session of the International School of Nuclear Law (ISNL) will take place on 26 August - 6 September 2013. The ISNL, established in 2001 by the OECD Nuclear Energy Agency in co-operation with the University of Montpellier 1, has been designed to provide participants with a comprehensive understanding of the various interrelated legal issues relating to the safe, efficient and secure use of nuclear energy. Since its inception, the International School of Nuclear Law has provided a unique educational opportunity to more than 600 graduate students and young professionals from around the world.

The ISNL programme has evolved over the last decade to address developments in nuclear law, thus providing a high-quality, intensive overview of a complex body of laws and legal regimes. The 2013 ISNL programme will be conducted under the leadership of Paul Bowden, Partner at Freshfields Bruckhaus and Deringer LLP, London, United Kingdom. Comprehensive lectures will be delivered by renowned specialists in nuclear law from international organisations, governments and private industry.

Please note the application deadline of 1 April 2013. For additional information, including application information, please visit www.oecd-nea.org/law/isnl/.

Next NEA International Nuclear Law Essentials Course

The next session of the NEA's new five-day course entitled "International Nuclear Law Essentials" will be held from 21 - 25 October 2013. The course is intended to provide participants with a comprehensive understanding of the various interrelated legal issues pertaining to the safe, efficient and secure use of nuclear energy. This will be the third time that this intensive and comprehensive course in international nuclear law has been organised. It is designed to accommodate the needs and interests of lawyers working in either the public sector or the private sector, but is also of potential interest to scientists and policy-makers. The lectures are delivered by renowned nuclear law specialists from international organisations, governments and private industry. The programme covers a broad range of topics including: international radiological protection standards, nuclear accident notification and assistance, nuclear safety, nuclear regulatory regimes, the management of spent fuel and radioactive waste, nuclear activities and environmental law, liability, compensation and insurance for nuclear damage, non-proliferation of nuclear weapons and international safeguards for nuclear materials, nuclear security (physical protection), illicit trafficking and terrorism, international trade in nuclear materials and equipment and the transport of nuclear materials and fuel.

The International Nuclear Law Essentials programme builds on the foundation provided by the annual International School of Nuclear Law, which the NEA co-sponsors with the University of Montpellier 1, in France. For additional information, including application information, please visit www.oecd-nea.org/law/inle/.

Multilateral agreements

I. Status of conventions in the field of nuclear energy as of December 2012

Non-proliferation and nuclear security

Treaty on the Non-Proliferation of Nuclear Weapons

The treaty was adopted on 12 June 1968 and entered into force on 5 March 1970. There are 190 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, there have been no additional ratifications.

The text of the convention is available at: www.un.org/events/npt2005/npttreaty.html.

Afghanistan	Dominica	Lesotho	Saint Lucia
Albania	Dominican Republic	Liberia	Saint Vincent and the Grenadines
Algeria	Ecuador	Libya	Samoa
Andorra	Egypt	Liechtenstein	San Marino
Angola	El Salvador	Lithuania	Sao Tome and Principe
Antigua and Barbuda	Equatorial Guinea	Luxembourg	Saudi Arabia
Argentina	Eritrea	Macedonia (F.Y.R.O.M)	Senegal
Armenia	Estonia	Madagascar	Serbia
Australia	Ethiopia	Malawi	Seychelles
Austria	Fiji	Malaysia	Sierra Leone
Azerbaijan	Finland	Maldives	Singapore
Bahamas	France	Mali	Slovak Republic
Bahrain	Gabon	Malta	Slovenia
Bangladesh	Gambia	Marshall Islands	Solomon Islands
Barbados	Georgia	Mauritania	Somalia
Belarus	Germany	Mauritius	South Africa
Belgium	Ghana	Mexico	Spain
Belize	Greece	Micronesia	Sri Lanka
Benin	Grenada	Moldova (Republic of)	Sudan
Bhutan	Guatemala	Monaco	Suriname
Bolivia	Guinea	Mongolia	Swaziland
Bosnia and Herzegovina	Guinea-Bissau	Montenegro	Sweden
Botswana	Guyana	Morocco	Switzerland
Brazil	Haiti	Mozambique	Syria
Brunei Darussalam	Holy See	Myanmar	Tajikistan
Bulgaria	Honduras	Namibia	Tanzania (United Republic of)
Burkina Faso	Hungary	Nauru	Thailand
Burundi	Iceland	Nepal	Timor-Leste
Cambodia	Indonesia	Netherlands	Togo
Cameroon	Iran (Islamic Republic of)	New Zealand	Tonga
Canada	Iraq	Nicaragua	Trinidad and Tobago
Cape Verde	Ireland	Niger	Tunisia
Central African Republic	Italy	Nigeria	Turkey
Chad	Jamaica	Norway	Turkmenistan
Chile	Japan	Oman	Tuvalu
China	Jordan	Palau	Uganda
Colombia	Kazakhstan	Panama	Ukraine
Comoros	Kenya	Papua New Guinea	United Arab Emirates
Congo (Democratic Republic of the)	Kiribati	Paraguay	United Kingdom
Costa Rica	Korea (Democratic People's Republic)*	Peru	United States of America
Côte d'Ivoire	Korea (Republic of)	Philippines	Uruguay
Croatia	Kuwait	Poland	Uzbekistan
Cuba		Portugal	Vanuatu

Cyprus	Kyrgyzstan	Qatar	Venezuela
Czech Republic	Lao People's Democratic	Romania	Viet Nam
Denmark	Republic	Russian Federation	Yemen
Djibouti	Latvia	Rwanda	Zambia
	Lebanon	Saint Kitts and Nevis	Zimbabwe

∗ Note by the Secretariat: NPT state parties have never taken a collective position on the legality of the DPRK's withdrawal from the NPT. A recent report by the Director General of the IAEA entitled, "Application of Safeguards in the Democratic People's Republic of Korea" indicates that the legal status of the DPRK *vis-à-vis* the NPT is a matter to be clarified by the state parties to the NPT. See footnote 18. GOV/2011/53GC(55)/24 www.iaea.org/About/Policy/GC/GC55/GC55Documents/English/gc55-24_en.pdf.

Convention on the Physical Protection of Nuclear Material

The convention was adopted on 3 March 1980 and entered into force on 8 February 1987. There are 148 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, there have been three additional ratifications by Ivory Coast, Saint Lucia and Vietnam.

The text of the convention is reproduced in *Nuclear Law Bulletin* No. 23 and is also available at: www.iaea.org/Publications/Documents/Infcircs/Others/inf274r1.shtml.

Afghanistan	Denmark	Lao People's Democratic Republic	Portugal
Albania	Djibouti	Latvia	Qatar
Algeria	Dominica	Lebanon	Romania∗
Andorra	Dominican Republic	Lesotho	Russian Federation∗
Antigua and Barbuda	Ecuador	Libya	Rwanda
Argentina*	El Salvador	Liechtenstein	Saint Kitts and Nevis
Armenia∗	Equatorial Guinea	Lithuania	Saint Lucia
Australia	Estonia	Luxembourg	Saudi Arabia
Austria	Fiji	Macedonia (F.Y.R.O.M)	Senegal
Azerbaijan	Finland∗	Madagascar	Serbia
Bahamas	France∗	Mali	Seychelles
Bahrain	Gabon	Malta	Slovak Republic∗
Bangladesh	Georgia	Marshall Islands	Slovenia∗
Belarus	Germany∗	Mauritania	South Africa∗
Belgium∗	Ghana	Mexico∗	Spain∗
Bolivia	Greece	Moldova (Republic of)	Sudan
Bosnia and Herzegovina	Grenada	Monaco	Swaziland
Botswana	Guatemala	Mongolia	Sweden∗
Brazil∗	Guinea	Montenegro	Switzerland∗
Bulgaria∗	Guinea-Bissau	Morocco	Tajikistan
Burkina Faso	Guyana	Mozambique	Tanzania (United Republic of)
Cambodia	Honduras	Namibia	Togo
Cameroon	Hungary∗	Nauru	Tonga
Canada∗	Iceland	Netherlands∗	Trinidad and Tobago
Cape Verde	India∗	New Zealand	Tunisia
Central African Republic	Indonesia	Nicaragua	Turkey
Chile	Ireland	Niger	Turkmenistan
China∗	Israel	Nigeria	Uganda
Colombia	Italy	Niue	Ukraine∗
Comoros	Ivory Coast	Norway	United Arab Emirates
Congo (Democratic Republic of the)	Jamaica	Oman	United Kingdom∗
Costa Rica	Japan∗	Pakistan∗	United States of America∗
Croatia	Jordan	Palau	Uruguay
Cuba	Kazakhstan	Panama	Uzbekistan
Cyprus	Kenya	Paraguay	Vietnam
Czech Republic∗	Korea (Republic of)∗	Peru	Yemen
	Kuwait	Philippines	Euratom
		Poland	

∗ Country with at least one nuclear power plant in operation.

Amendment to the Convention on the Physical Protection of Nuclear Material

The amendment was adopted on 8 July 2005 and has not yet entered into force. There are 60 contracting states to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, twelve states have become contracting states to this amendment: Argentina, Australia, Georgia, Greece, Israel, Lesotho, Luxembourg, Macedonia (F.Y.R.O.M), Mexico, Saint Lucia, Sweden and Vietnam.

The text of this amendment is available at: http://ola.iaea.org/OLA/treaties/FullText.pdf.

Algeria	Finland*	Liechtenstein	Romania∗
Antigua and Barbuda Australia	Gabon	Lithuania	Russian Federation∗
Argentina*	Georgia	Luxembourg	Saudi Arabia
Australia	Germany*	Macedonia (The.frmr.Yug.Rep.of)	Seychelles
Austria	Greece	Mali	Slovenia
Bahrain	Hungary	Mauritania	Spain∗
Bosnia and Herzegovina	India∗	Mexico*	Saint Lucia
Bulgaria∗	Indonesia	Moldova (Republic of)	Sweden*
Chile	Israel	Nauru	Switzerland∗
China∗	Jordan	Netherlands	Tunisia
Croatia	Kazakhstan	Niger	Turkmenistan
Czech Republic*	Kenya	Nigeria	Ukraine∗
Denmark	Latvia	Norway	United Arab Emirates
Estonia	Lesotho	Poland	United Kingdom*
Fiji	Libya	Portugal	Vietnam

∗ Country with at least one nuclear power plant in operation.

International Convention for the Suppression of Acts of Nuclear Terrorism

The convention was adopted on 13 April 2005 and entered into force on 7 July 2007. There are 82 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, five states have become state parties to this convention: Australia, Ivory Coast, Malta, Nigeria and Turkey.

The text of the convention is available at: http://untreaty.un.org/English/Terrorism/English_18_15.pdf.

Algeria	Denmark	Liechtenstein	Romania
Antigua and Barbuda	Dominican Republic	Lithuania	Russian Federation
Armenia	El Salvador	Luxembourg	Saint Vincent and the Grenadines
Australia	Fiji	Macedonia (The frmr.Yug.Rep of)	Saudi Arabia
Austria	Finland	Malawi	Serbia
Azerbaijan	Gabon	Malta	Slovak Republic
Bahrain	Georgia	Mali	Slovenia
Bangladesh	Germany	Mauritania	Solomon Islands
Belarus	Guinea-Bissau	Mexico	South Africa
Belgium	Hungary	Moldova (Republic of)	Spain
Brazil	India	Mongolia	Sri Lanka
Burundi	Ivory Coast	Morocco	Switzerland
Central African Republic	Japan	Nauru	Turkey
Chile	Kazakhstan	Netherlands	Tunisia
China	Kenya	Nicaragua	Turkmenistan
Comoros	Kiribati	Niger	Ukraine
Congo (Democratic Republic of the)	Kyrgyzstan	Nigeria	United Arab Emirates
Croatia	Latvia	Panama	United Kingdom
Cuba	Lebanon	Paraguay	Uzbekistan
Cyprus	Lesotho	Peru	
Czech Republic	Libya	Poland	

Comprehensive Nuclear-Test-Ban Treaty

The treaty was adopted on 10 September 1996 and has not yet entered into force. There are 157 contracting states to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, two countries have become contracting states to this convention: Guatemala and Indonesia.

Of the 44 "Annex 2" states whose ratification is necessary for the treaty to enter into force, the following have not yet ratified: China, Egypt, the Democratic People's Republic of Korea, India, Iran, Israel, Pakistan and the United States of America.

The text of the convention is reproduced in *Nuclear Law Bulletin* No. 58 and is also available at: www.ctbto.org/fileadmin/content/treaty/treatytext.tt.html.

Afghanistan	Djibouti	Lesotho	Qatar
Albania	Dominican Republic	Liberia	Romania
Algeria	Ecuador	Libya	Russian Federation
Andorra	El Salvador	Liechtenstein	Rwanda
Antigua and Barbuda	Eritrea	Lithuania	Saint Kitts and Nevis
Argentina	Estonia	Luxembourg	Saint Lucia
Armenia	Ethiopia	Macedonia (F.Y.R.O.M)	Saint Vincent and the Grenadines
Australia	Fiji	Madagascar	Samoa
Austria	Finland	Malawi	San Marino
Azerbaijan	France	Malaysia	Senegal
Bahamas	Gabon	Maldives	Serbia
Bahrain	Georgia	Mali	Seychelles
Bangladesh	Germany	Malta	Sierra Leone
Barbados	Ghana	Marshall Islands	Singapore
Belarus	Greece	Mauritania	Slovak Republic
Belgium	Grenada	Mexico	Slovenia
Belize	Guatemala	Micronesia	South Africa
Benin	Guinea	Moldova (Republic of)	Spain
Bolivia	Guyana	Monaco	Sudan
Bosnia and Herzegovina	Haiti	Mongolia	Suriname
Botswana	Holy See	Montenegro	Sweden
Brazil	Honduras	Morocco	Switzerland
Bulgaria	Hungary	Mozambique	Tajikistan
Burkina Faso	Iceland	Namibia	Tanzania (United Republic of)
Burundi	Indonesia	Nauru	Togo
Cambodia	Ireland	Netherlands	Trinidad and Tobago
Cameroon	Italy	New Zealand	Tunisia
Canada	Jamaica	Nicaragua	Turkey
Cape Verde	Japan	Niger	Turkmenistan
Central African Republic	Jordan	Nigeria	Uganda
Chile	Kazakhstan	Norway	Ukraine
Colombia	Kenya	Oman	United Arab Emirates
Congo (Democratic Republic of)	Kiribati	Palau	United Kingdom
Cook Islands	Korea (Republic of)	Panama	Uruguay
Costa Rica	Kuwait	Paraguay	Uzbekistan
Côte d'Ivoire	Kyrgyzstan	Peru	Vanuatu
Croatia	Lao People's Democratic	Philippines	Venezuela
Cyprus	Republic	Poland	Viet Nam
Czech Republic	Latvia	Portugal	Zambia
Denmark	Lebanon		

Nuclear safety and emergency response

Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

The convention was adopted on 26 September 1986 and entered into force on 26 February 1987. There are 108 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, one country has become a state party to this convention: Botswana.

The text of the convention is reproduced in the Supplement to the *Nuclear Law Bulletin* No. 38 and is also available at: www.iaea.org/Publications/Documents/Infcircs/Others/infcirc336.shtml.

Albania	Finland∗	Malaysia	Saudi Arabia
Algeria	France∗	Mali	Senegal
Argentina*	Gabon	Mauritania	Serbia
Armenia∗	Germany∗	Mauritius	Singapore
Australia	Greece	Mexico∗	Slovak Republic∗
Austria	Guatemala	Moldova (Republic of)	Slovenia∗
Bangladesh	Hungary∗	Monaco	South Africa∗
Belarus	Iceland	Mongolia	Spain∗
Belgium∗	India∗	Montenegro	Sri Lanka
Bolivia	Indonesia	Morocco	Sweden∗
Bosnia and Herzegovina	Iran (Islamic Republic of)*	Mozambique	Switzerland∗
Botswana	Iraq	Netherlands∗	Tajikistan
Brazil∗ Bulgaria∗	Ireland	New Zealand	Tanzania (United Republic of)
Cameroon	Israel	Nicaragua	Thailand
Canada∗	Italy	Nigeria	Tunisia
Chile	Japan∗	Norway	Turkey
China∗	Jordan	Oman	Ukraine∗
Colombia	Kazakhstan	Pakistan∗	United Arab Emirates
Costa Rica	Korea (Republic of)∗	Panama	United Kingdom∗
Croatia	Kuwait	Peru	United States of America∗
Cuba	Latvia	Philippines	Uruguay
Cyprus	Lebanon	Poland	Viet Nam
Czech Republic∗	Libya	Portugal	Euratom
Denmark	Liechtenstein	Qatar	Food and Agriculture Organisation
Egypt	Lithuania	Romania∗	World Health Organisation
El Salvador	Luxembourg	Russian Federation∗	World Meteorological Organisation
Estonia	Macedonia (F.Y.R.O.M)	Saint Vincent and the Grenadines	

∗ Country with at least one nuclear power plant in operation.

Convention on Early Notification of a Nuclear Accident

The convention was adopted on 26 September 1986 and entered into force on 27 October 1986. There are 114 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, two countries have become state parties to this convention: Botswana and Cambodia.

The text of the convention is reproduced in the Supplement to *Nuclear Law Bulletin* No. 38 and is also available at: www.iaea.org/Publications/Documents/Infcircs/Others/infcirc335.shtml.

Albania	Egypt	Macedonia (F.Y.R.O.M)	Saudi Arabia
Algeria	El Salvador	Malaysia	Senegal
Angola	Estonia	Mali	Serbia
Argentina∗	Finland∗	Mauritania	Singapore
Armenia∗	France∗	Mauritius	Slovak Republic∗
Australia	Gabon	Mexico∗	Slovenia∗
Austria	Georgia	Moldova (Republic of)	South Africa∗
Bahrain	Germany∗	Monaco	Spain∗
Bangladesh	Greece	Mongolia	Sri Lanka
Belarus	Guatemala	Montenegro	Sweden∗

Belgium∗	Hungary∗	Morocco	Switzerland∗
Bolivia	Iceland	Mozambique	Tajikistan
Bosnia and Herzegovina	India∗	Myanmar	Tanzania (United Republic of)
Botswana	Indonesia	Netherlands∗	Thailand
Brazil∗	Iran (Islamic Republic of)*	New Zealand	Tunisia
Bulgaria∗	Iraq	Nicaragua	Turkey
Cambodia	Ireland	Nigeria	Ukraine∗
Cameroon	Israel	Norway	United Arab Emirates
Canada∗	Italy	Oman	United Kingdom∗
Chile	Japan∗	Pakistan∗	United States of America∗
China∗	Jordan	Panama	Uruguay
Colombia	Kazakhstan	Peru	Viet Nam
Costa Rica	Korea (Republic of)∗	Philippines	Euratom
Croatia	Kuwait	Poland	Food and Agriculture Organisation
Cuba	Latvia	Portugal	World Health Organisation
Cyprus	Lebanon	Qatar	World Meteorological Organisation
Czech Republic∗	Libya	Romania∗	
Denmark	Liechtenstein	Russian Federation∗	
Dominican Republic	Lithuania	Saint Vincent and the Grenadines	
	Luxembourg		

∗ Country with at least one nuclear power plant in operation.

Convention on Nuclear Safety

The convention was adopted on 17 June 1994 and entered into force on 24 October 1996. There are 75 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, one country has become a state party to this convention: Cambodia.

The text of the convention is reproduced in *Nuclear Law Bulletin* No. 53 and is available at: www.iaea.org/Publications/Documents/Infcircs/Others/inf449.shtml.

Albania	Estonia	Libya	Singapore
Argentina∗	Finland∗	Lithuania	Slovak Republic∗
Armenia∗	France∗	Luxembourg	Slovenia∗
Australia	Germany∗	Macedonia (The frmr.Yug.Rep of)	South Africa∗
Austria	Ghana	Mali	Spain∗
Bahrain	Greece	Malta	Sri Lanka
Bangladesh	Hungary∗	Mexico∗	Sweden∗
Belarus	Iceland	Moldova (Republic of)	Switzerland∗
Belgium∗	India∗	Netherlands∗	Tunisia
Bosnia and Herzegovina	Indonesia	Nigeria	Turkey
Brazil∗	Ireland	Norway	Ukraine∗
Bulgaria∗	Italy	Pakistan∗	United Arab Emirates
Cambodia	Japan∗	Peru	United Kingdom∗
Canada∗	Jordan	Poland	United States of America∗
Chile	Kazakhstan	Portugal	Uruguay
China∗	Korea (Republic of)∗	Romania∗	Viet Nam
Croatia	Kuwait	Russian Federation∗	Euratom
Cyprus	Latvia	Saudi Arabia	
Czech Republic∗	Lebanon	Senegal	
Denmark			

∗ Country with at least one nuclear power plant in operation.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

The convention was adopted on 5 September 1997 and entered into force on 18 June 2001. There are 64 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, one country has become a state party to this convention: Bosnia and Herzegovina.

The text of the convention is available at: www.iaea.org/Publications/Documents/Infcircs/1997/infcirc546.pdf.

Albania	Finland*	Latvia	Senegal
Argentina*	France*	Lithuania	Slovak Republic*
Australia	Gabon	Luxembourg	Slovenia*
Austria	Georgia	Macedonia (F.Y.R.O.M)	South Africa*
Belarus	Germany*	Mauritania	Spain*
Belgium*	Ghana	Moldova (Republic of)	Sweden*
Bosnia and Herzegovina	Greece	Montenegro	Switzerland*
Brazil*	Hungary*	Morocco	Tajikistan
Bulgaria*	Iceland	Netherlands*	Ukraine*
Canada*	Indonesia	Nigeria	United Arab Emirates
Chile	Ireland	Norway	United Kingdom*
China*	Italy	Poland	United States of America*
Croatia	Japan*	Portugal	Uruguay
Cyprus	Kazakhstan	Romania*	Uzbekistan
Czech Republic*	Korea (Republic of) *	Russian Federation*	Euratom
Denmark	Kyrgyzstan	Saudi Arabia	
Estonia			

* Country with at least one nuclear power plant in operation.

Liability and compensation for nuclear damage

Paris Convention on Nuclear Third Party Liability

The convention was adopted on 29 July 1960 and entered into force on 1 April 1968, along with its 1964 Additional Protocol. The 1982 Protocol entered into force on 7 October 1988. The 2004 Protocol has not yet entered into force. There are 15 parties to this convention (see table below).

The text of the convention is available at: www.oecd-nea.org/law/nlparis_conv.html.

Belgium*	Germany*	Norway	Sweden*
Denmark	Greece	Portugal	Turkey
Finland*	Italy	Slovenia*	United Kingdom*
France*	Netherlands*	Spain*	

* Country with at least one nuclear power plant in operation.

Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy

The convention was adopted on 31 January 1963 and entered into force on 4 December 1974, along with its 1964 Additional Protocol. The 1982 Protocol entered into force on 1 January 1988. The 2004 Protocol has not yet entered into force. There are 12 parties to this convention (see table below).

The text of the convention is available at: www.oecd-nea.org/law/nlbrussels.html.

Belgium*	France*	Netherlands*	Spain*
Denmark	Germany*	Norway	Sweden*
Finland*	Italy	Slovenia*	United Kingdom*

* Country with at least one nuclear power plant in operation.

Protocol to Amend the Paris Convention on Nuclear Third Party Liability

The protocol was adopted on 12 February 2004 and has not yet entered into force. There are 16 signatories to this protocol, namely: Belgium, Denmark, Finland, France, Germany, Greece, Italy,

the Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland,[1] Turkey and the United Kingdom. Only Norway has ratified the protocol.

The text of the protocol is reproduced in the Supplement to *Nuclear Law Bulletin* No. 75 and is also available at: www.oecd-nea.org/law/paris_convention.pdf.

Protocol to Amend the Brussels Convention Supplementary to the Paris Convention

The protocol was adopted on 12 February 2004 and has not yet entered into force. There are 13 signatories to this protocol: Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Slovenia, Spain, Sweden, Switzerland[2] and the United Kingdom. Only Spain and Norway have ratified the protocol.

The text of the protocol is reproduced in the Supplement to *Nuclear Law Bulletin* No. 75 and is also available at: www.oecd-nea.org/law/brussels_supplementary_convention.pdf.

Vienna Convention on Civil Liability for Nuclear Damage

The convention was adopted on 21 May 1963 and entered into force on 12 November 1977. There are 38 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, no new countries have become state parties to this convention.

The text of the convention is available at: www.iaea.org/Publications/Documents/Infcircs/1996/inf500.shtml.

Argentina*	Cuba	Mexico*	Saint Vincent and the Grenadines
Armenia*	Czech Republic*	Moldova (Republic of)	Saudi Arabia
Belarus	Egypt	Montenegro	Senegal
Bolivia	Estonia	Niger	Serbia
Bosnia-Herzegovina	Hungary*	Nigeria	Slovak Republic
Brazil*	Kazakhstan	Peru	Trinidad and Tobago
Bulgaria*	Latvia	Philippines	Ukraine*
Cameroon	Lebanon	Poland	Uruguay
Chile	Lithuania	Romania*	
Croatia	Macedonia (F.Y.R.O.M)	Russian Federation*	

* Country with at least one nuclear power plant in operation.

Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage

The convention was adopted on 12 September 1997 and entered into force on 4 October 2003. There are 10 parties to this convention: Argentina,* Belarus, Kazakhstan, Latvia, Montenegro, Morocco, Poland, Romania,* Saudi Arabia and the United Arab Emirates (* country with at least one nuclear power plant in operation).

The text of the convention is available at: www.iaea.org/Publications/Documents/Infcircs/1998/infcirc566.shtml

1. Switzerland has signed the 1960 Paris Convention, the 1964 Additional Protocol to amend the Paris Convention and the 1982 and 2004 Protocols to amend the Paris Convention, as well as the 1963 Brussels Supplementary Convention (BSC), the 1964 Additional Protocol to amend the BSC and the 1982 and 2004 Protocols to amend the BSC. On 9 and 11 March 2009 respectively, Switzerland deposited its instruments of ratification of the 1960 Paris Convention and the 1963 Brussels Supplementary Convention as amended by their 1964, 1982 and 2004 amending Protocols. As these ratifications are effective only with respect to the Paris and Brussels Conventions as amended by all Protocols, entry into force for Switzerland of the Conventions as so amended will only take place once the 2004 Protocols to amend the Paris and the Brussels Conventions have themselves entered into force.
2. See footnote above with respect to Switzerland.

Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention

The joint protocol was adopted on 21 September 1988 and entered into force on 27 April 1992. There are 27 parties to this convention (see table below – "PC" or "VC" indicates that the state is party to the Paris Convention or Vienna Convention). Since the last status report in *Nuclear Law Bulletin* No. 88, there has been one additional ratification by the United Arab Emirates.

The text of the convention is reproduced in *Nuclear Law Bulletin* No. 42 and is also available at: www.iaea.org/Publications/Documents/Infcircs/Others/inf402.shtml.

Bulgaria* (VC)	Estonia (VC)	Lithuania (VC)	Slovak Republic∗ (VC)
Cameroon (VC)	Finland∗ (PC)	Netherlands∗ (PC)	Slovenia∗ (PC)
Chile (VC)	Germany∗ (PC)	Norway (PC)	Sweden∗ (PC)
Croatia (VC)	Greece (PC)	Poland (VC)	Turkey (PC)
Czech Republic∗ (VC)	Hungary∗ (VC)	Romania∗ (VC)	Ukraine∗ (VC)
Denmark (PC)	Italy (PC)	Saint Vincent and the Grenadines (VC)	United Arab Emirates (VC)
Egypt (VC)	Latvia (VC)		Uruguay (VC)

∗ Country with at least one nuclear power plant in operation.

Convention on Supplementary Compensation for Nuclear Damage

The convention was adopted on 12 September 1997 and has not yet entered into force. Four countries have ratified this convention: Argentina,* Morocco, Romania* and the United States of America* (* country with at least one nuclear power plant in operation). Since the last status report in *Nuclear Law Bulletin* No. 88, there have been no additional ratifications.

The text of the Convention is available at: www.iaea.org/Publications/Documents/Infcircs/1998/infcirc567.pdf.

II. Status of conventions in the field of environmental protection/assessment which affect nuclear energy use as of December 2012

Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)

The convention was adopted on 25 June 1998 and entered into force on 30 October 2001. 45 states and the European Union have ratified this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, Ireland has become a state party to this convention.

The text of the convention is available at: www.unece.org/env/pp/documents/cep43e.pdf.

Albania	Estonia	Latvia	Romania
Armenia	Finland	Lithuania	Serbia
Austria	France	Luxembourg	Slovak Republic
Azerbaijan	Georgia	Macedonia (F.Y.R.O.M)	Slovenia
Belarus	Germany	Malta	Spain
Belgium	Greece	Moldova (Republic of)	Sweden
Bosnia and Herzegovina	Hungary	Montenegro	Tajikistan
Bulgaria	Iceland	Netherlands	Turkmenistan
Croatia	Ireland	Norway	Ukraine
Cyprus	Italy	Poland	United Kingdom
Czech Republic	Kazakhstan	Portugal	European Union
Denmark	Kyrgyzstan		

Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)

The convention was adopted on 25 February 1991 and entered into force on 10 September 1997. 45 states and the European Union have ratified this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 88, Iceland has become a state party to this convention.

The text of the convention is available at: www.unece.org/env/eia/documents/legaltexts/conventiontextenglish.pdf.

Albania	Denmark	Latvia	Portugal
Armenia	Estonia	Liechtenstein	Romania
Austria	Finland	Lithuania	Serbia
Azerbaijan	France	Luxembourg	Slovak Republic
Belarus	Germany	Macedonia (F.Y.R.O.M)	Slovenia
Belgium	Greece	Malta	Spain
Bosnia and Herzegovina	Hungary	Moldova (Republic of)	Sweden
Bulgaria	Iceland	Montenegro	Switzerland
Canada	Ireland	Netherlands	Ukraine
Croatia	Italy	Norway	United Kingdom
Cyprus	Kazakhstan	Poland	European Union
Czech Republic	Kyrgyzstan		

Protocol on Strategic Environmental Assessment (Kiev Protocol)

The protocol was adopted on 21 May 2003 and has not yet entered into force. 24 countries and the European Union have ratified this protocol: Albania, Armenia, Austria, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Lithuania, Luxembourg, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain and Sweden.

The text of the convention is available at: www.unece.org/env/eia/documents/legaltexts/protocolenglish.pdf.

Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR)

The convention was adopted on 22 September 1992 and entered into force on 25 March 1998. There are 16 parties (including the European Union) to this convention (see table below).

The text of the convention is available at: www.ospar.org.

Belgium	Germany	Netherlands	Sweden
Denmark	Iceland	Norway	Switzerland
Finland	Ireland	Portugal	United Kingdom
France	Luxembourg	Spain	European Union

III. OECD member country participation in the nuclear energy treaties/conventions and in the environmental protection/assessment conventions referred to above as of December 2012

The following list illustrates the convention/treaty status of each OECD member country as of December 2012.

Australia

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material

- Amendment to the Convention on the Physical Protection of Nuclear Material
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of RadioactiveWaste Management
- International Convention for the Suppression of Acts of Nuclear Terrorism

Austria

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment

Belgium

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Paris Convention on Nuclear Third Party Liability
- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
- Protocol to Amend the Brussels Convention Supplementary to the Paris Convention*
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Convention for the Protection of the Marine Environment of the North-East Atlantic

Canada

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material

- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Convention on Environmental Impact Assessment in a Transboundary Context

Chile

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Vienna Convention on Civil Liability for Nuclear Damage
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention

Czech Republic

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Vienna Convention on Civil Liability for Nuclear Damage
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment

Denmark

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*

* Not yet in force.

- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Paris Convention on Nuclear Third Party Liability
- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
- Protocol to Amend the Brussels Convention Supplementary to the Paris Convention*
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- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Convention for the Protection of the Marine Environment of the North-East Atlantic

Estonia

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Vienna Convention on Civil Liability for Nuclear Damage
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment

Finland

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

* Not yet in force.

- Paris Convention on Nuclear Third Party Liability
- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
- Protocol to Amend the Brussels Convention Supplementary to the Paris Convention*
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
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- Convention for the Protection of the Marine Environment of the North-East Atlantic

France

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Paris Convention on Nuclear Third Party Liability
- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
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- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
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Germany

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
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- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
- Protocol to Amend the Brussels Convention Supplementary to the Paris Convention*
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention

* Not yet in force.

- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment
- Convention for the Protection of the Marine Environment of the North-East Atlantic

Greece

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
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- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
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- Convention on Environmental Impact Assessment in a Transboundary Context

Hungary

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Vienna Convention on Civil Liability for Nuclear Damage
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- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
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- Protocol on Strategic Environmental Assessment

Iceland

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Comprehensive Nuclear-Test-Ban Treaty*

* Not yet in force.

- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
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- Convention on Environmental Impact Assessment in a Transboundary Context

Ireland

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
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- Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.

Israel

- Convention on the Physical Protection of Nuclear Material
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident

Italy

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
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- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters

* Not yet in force.

- Convention on Environmental Impact Assessment in a Transboundary Context

Japan

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

Korea (Republic of)

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

Luxembourg

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
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- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
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- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment
- Convention for the Protection of the Marine Environment of the North-East Atlantic

Mexico

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism

* Not yet in force.

- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Vienna Convention on Civil Liability for Nuclear Damage

Netherlands

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
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- Protocol on Strategic Environmental Assessment
- Convention for the Protection of the Marine Environment of the North-East Atlantic

New Zealand

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident

Norway

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety

* Not yet in force.

- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Paris Convention on Nuclear Third Party Liability
- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
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- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment
- Convention for the Protection of the Marine Environment of the North-East Atlantic

Poland

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Vienna Convention on Civil Liability for Nuclear Damage
- Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment

Portugal

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Paris Convention on Nuclear Third Party Liability
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*

* Not yet in force.

- Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Convention for the Protection of the Marine Environment of the North-East Atlantic

Slovak Republic

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Vienna Convention on Civil Liability for Nuclear Damage
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment

Slovenia

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Paris Convention on Nuclear Third Party Liability
- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
- Protocol to Amend the Brussels Convention Supplementary to the Paris Convention*
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention
- Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment

Spain

- Treaty on the Non-Proliferation of Nuclear Weapons

* Not yet in force.

- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Paris Convention on Nuclear Third Party Liability
- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
- Protocol to Amend the Brussels Convention Supplementary to the Paris Convention*
- Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment
- Convention for the Protection of the Marine Environment of the North-East Atlantic

Sweden

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Paris Convention on Nuclear Third Party Liability
- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
- Protocol to Amend the Brussels Convention Supplementary to the Paris Convention*
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Protocol on Strategic Environmental Assessment
- Convention for the Protection of the Marine Environment of the North-East Atlantic

Switzerland

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism

* Not yet in force.

- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*[3]
- Protocol to Amend the Brussels Convention Supplementary to the Paris Convention*[4]
- Convention on Environmental Impact Assessment in a Transboundary Context
- Convention for the Protection of the Marine Environment of the North-East Atlantic

Turkey

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Paris Convention on Nuclear Third Party Liability
- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
- Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention
- International Convention for the Suppression of Acts of Nuclear Terrorism

United Kingdom

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material*
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Comprehensive Nuclear-Test-Ban Treaty*
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Paris Convention on Nuclear Third Party Liability
- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy

3. Switzerland has signed the 1960 Paris Convention, the 1964 Additional Protocol to amend the Paris Convention and the 1982 and 2004 Protocols to amend the Paris Convention, as well as the 1963 Brussels Supplementary Convention (BSC), the 1964 Additional Protocol to amend the BSC and the 1982 and 2004 Protocols to amend the BSC. On 9 and 11 March 2009 respectively, Switzerland deposited its instruments of ratification of the 1960 Paris Convention and the 1963 Brussels Supplementary Convention as amended by their 1964, 1982 and 2004 amending Protocols. As these ratifications are effective only with respect to the Paris and Brussels Conventions as amended by all Protocols, entry into force for Switzerland of the Conventions as so amended will only take place once the 2004 Protocols to amend the Paris and the Brussels Conventions have themselves entered into force.

4. See footnote above.

* Not yet in force.

- Protocol to Amend the Paris Convention on Nuclear Third Party Liability*
- Protocol to Amend the Brussels Convention Supplementary to the Paris Convention*
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention on Environmental Impact Assessment in a Transboundary Context
- Convention for the Protection of the Marine Environment of the North-East Atlantic

United States of America

- Treaty on the Non-Proliferation of Nuclear Weapons
- Convention on the Physical Protection of Nuclear Material
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Convention on Supplementary Compensation for Nuclear Damage

Canada

Canadian Environmental Assessment Act, 2012*

S.C. 2012, c. 19, s. 52

Assented to 29 June 2012

An Act respecting the environmental assessment of certain activities and the prevention of significant adverse environmental effects

[Enacted by section 52 of chapter 19 of the Statutes of Canada, 2012, in force 6 July 2012, see SI/2012-56.]

Short title

1. This Act may be cited as the Canadian Environmental Assessment Act, 2012.

Interpretation

2. (1) The following definitions apply in this Act.

"Agency" means the Canadian Environmental Assessment Agency continued under section 103.

"assessment by a review panel" means an environmental assessment that is conducted by a review panel.

"Canadian Nuclear Safety Commission" means the Canadian Nuclear Safety Commission established by section 8 of the Nuclear Safety and Control Act.

"designated project" means one or more physical activities that

(*a*) are carried out in Canada or on federal lands;

(b) are designated by regulations made under paragraph 84(a) or designated in an order made by the Minister under subsection 14(2); and

(*c*) are linked to the same federal authority as specified in those regulations or that order.

It includes any physical activity that is incidental to those physical activities.

"environment" means the components of the Earth, and includes

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(*a*) land, water and air, including all layers of the atmosphere;

(*b*) all organic and inorganic matter and living organisms; and

(*c*) the interacting natural systems that include components referred to in paragraphs (*a*) and (*b*).

"environmental assessment" means an assessment of the environmental effects of a designated project that is conducted in accordance with this Act.

"environmental effects" means the environmental effects described in section 5.

"federal authority" means

(*a*) a Minister of the Crown in right of Canada;

(*b*) an agency of the Government of Canada or a parent Crown corporation, as defined in subsection 83(1) of the Financial Administration Act, or any other body established by or under an Act of Parliament that is ultimately accountable through a Minister of the Crown in right of Canada to Parliament for the conduct of its affairs;

(*c*) any department or departmental corporation that is set out in Schedule I or II to the Financial Administration Act; and

(*d*) any other body that is set out in Schedule 1.

It does not include the Executive Council of – or a minister, department, agency or body of the government of – Yukon, the Northwest Territories or Nunavut, a council of the band within the meaning of the Indian Act, Export Development Canada or the Canada Pension Plan Investment Board. It also does not include a Crown corporation that is a wholly-owned subsidiary, as defined in subsection 83(1) of the Financial Administration Act, a harbour commission established under the Harbour Commissions Act or a not-for-profit corporation that enters into an agreement under subsection 80(5) of the Canada Marine Act, that is not set out in Schedule 1.

"federal lands" means

(*a*) lands that belong to Her Majesty in right of Canada, or that Her Majesty in right of Canada has the power to dispose of, and all waters on and airspace above those lands, other than lands under the administration and control of the Commissioner of Yukon, the Northwest Territories or Nunavut;

(*b*) the following lands and areas:

(i) the internal waters of Canada, in any area of the sea not within a province,

(ii) the territorial sea of Canada, in any area of the sea not within a province,

(iii) the exclusive economic zone of Canada, and

(iv) the continental shelf of Canada; and

(*c*) reserves, surrendered lands and any other lands that are set apart for the use and benefit of a band and that are subject to the Indian Act, and all waters on and airspace above those reserves or lands.

"follow-up program" means a program for

(*a*) verifying the accuracy of the environmental assessment of a designated project; and

(*b*) determining the effectiveness of any mitigation measures.

"interested party", with respect to a designated project, means any person who is determined, under subsection (2), to be an "interested party".

"Internet site" means the Internet site that is established under section 79.

"jurisdiction" means

(*a*) a federal authority;

(*b*) any agency or body that is established under an Act of Parliament and that has powers, duties or functions in relation to an assessment of the environmental effects of a designated project;

(*c*) the government of a province;

(*d*) any agency or body that is established under an Act of the legislature of a province and that has powers, duties or functions in relation to an assessment of the environmental effects of a designated project;

(*e*) any body that is established under a land claims agreement referred to in section 35 of the Constitution Act, 1982 and that has powers, duties or functions in relation to an assessment of the environmental effects of a designated project;

(*f*) a governing body that is established under legislation that relates to the self-government of Indians and that has powers, duties or functions in relation to an assessment of the environmental effects of a designated project;

(*g*) a government of a foreign state or of a subdivision of a foreign state, or any institution of such a government; and

(*h*) an international organization of states or any institution of such an organization.

"Minister" means the Minister of the Environment.

"mitigation measures" means measures for the elimination, reduction or control of the adverse environmental effects of a designated project, and includes restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or any other means.

"National Energy Board" means the National Energy Board established by section 3 of the National Energy Board Act.

"prescribed" means prescribed by the regulations.

"proponent" means the person, body, federal authority or government that proposes the carrying out of a designated project.

"record" includes any correspondence, memorandum, book, plan, map, drawing, diagram, pictorial or graphic work, photograph, film, microform, sound recording, videotape and machine readable record, and any other documentary material, regardless of physical form or characteristics, and any copy of it.

"Registry" means the Canadian Environmental Assessment Registry established under section 78.

"responsible authority" means the authority that is referred to in section 15 with respect to a designated project that is subject to an environmental assessment.

"review panel" means a review panel established under subsection 42(1) or under an agreement or arrangement entered into under subsection 40(1) or (2) or by document referred to in subsection 41(2).

"sustainable development" means development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.

Interested party

(2) One of the following entities determines, with respect to a designated project, that a person is an interested party if, in its opinion, the person is directly affected by the carrying out of the designated project or if, in its opinion, the person has relevant information or expertise:

(*a*) in the case of a designated project for which the responsible authority is referred to in paragraph 15(*b*), that responsible authority; or

(*b*) in the case of a designated project in relation to which the environmental assessment has been referred to a review panel under section 38, that review panel.

Her Majesty

Binding on Her Majesty

3. This Act is binding on Her Majesty in right of Canada or a province.

Purposes

Purposes

4. (1) The purposes of this Act are

(*a*) to protect the components of the environment that are within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project;

(*b*) to ensure that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;

(*c*) to promote cooperation and coordinated action between federal and provincial governments with respect to environmental assessments;

(*d*) to promote communication and cooperation with aboriginal peoples with respect to environmental assessments;

(*e*) to ensure that opportunities are provided for meaningful public participation during an environmental assessment;

(*f*) to ensure that an environmental assessment is completed in a timely manner;

(*g*) to ensure that projects, as defined in section 66, that are to be carried out on federal lands, or those that are outside Canada and that are to be carried out or financially supported by a federal authority, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;

(*h*) to encourage federal authorities to take actions that promote sustainable development in order to achieve or maintain a healthy environment and a healthy economy; and

(*i*) to encourage the study of the cumulative effects of physical activities in a region and the consideration of those study results in environmental assessments.

Mandate

(2) The Government of Canada, the Minister, the Agency, federal authorities and responsible authorities, in the administration of this Act, must exercise their powers in a manner that protects the environment and human health and applies the precautionary principle.

Environmental effects

Environmental effects

5. (1) For the purposes of this Act, the environmental effects that are to be taken into account in relation to an act or thing, a physical activity, a designated project or a project are

(*a*) a change that may be caused to the following components of the environment that are within the legislative authority of Parliament:

(i) fish as defined in section 2 of the Fisheries Act and fish habitat as defined in subsection 34(1) of that Act,

(ii) aquatic species as defined in subsection 2(1) of the Species at Risk Act,

(iii) migratory birds as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994, and

(iv) any other component of the environment that is set out in Schedule 2;

(*b*) a change that may be caused to the environment that would occur

(i) on federal lands,

(ii) in a province other than the one in which the act or thing is done or where the physical activity, the designated project or the project is being carried out, or

(iii) outside Canada; and

(*c*) with respect to aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on

(i) health and socio-economic conditions,

(ii) physical and cultural heritage,

(iii) the current use of lands and resources for traditional purposes, or

(iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Exercise of power or performance of duty or function by federal authority

(2) However, if the carrying out of the physical activity, the designated project or the project requires a federal authority to exercise a power or perform a duty or function conferred on it under any Act of Parliament other than this Act, the following environmental effects are also to be taken into account:

(*a*) a change, other than those referred to in paragraphs (1)(*a*) and (*b*), that may be caused to the environment and that is directly linked or necessarily incidental to

a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of the physical activity, the designated project or the project; and

(*b*) an effect, other than those referred to in paragraph (1)(*c*), of any change referred to in paragraph (*a*) on

(i) health and socio-economic conditions,

(ii) physical and cultural heritage, or

(iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Schedule 2

(3) The Governor in Council may, by order, amend Schedule 2 to add or remove a component of the environment.

Prohibitions

Proponent

6. The proponent of a designated project must not do any act or thing in connection with the carrying out of the designated project, in whole or in part, if that act or thing may cause an environmental effect referred to in subsection 5(1) unless

(*a*) the Agency makes a decision under paragraph 10(*b*) that no environmental assessment of the designated project is required and posts that decision on the Internet site; or

(*b*) the proponent complies with the conditions included in the decision statement that is issued under subsection 31(3) or section 54 to the proponent with respect to that designated project.

Federal authority

7. A federal authority must not exercise any power or perform any duty or function conferred on it under any Act of Parliament other than this Act that would permit a designated project to be carried out in whole or in part unless

(*a*) the Agency makes a decision under paragraph 10(*b*) that no environmental assessment of the designated project is required and posts that decision on the Internet site; or

(*b*) the decision statement with respect to the designated project that is issued under subsection 31(3) or section 54 to the proponent of the designated project indicates that the designated project is not likely to cause significant adverse environmental effects or that the significant adverse environmental effects that it is likely to cause are justified in the circumstances.

Screening

Proponent's obligation – description of designated project

8. (1) The proponent of a designated project – other than one that is subject to an environmental assessment under section 13 or subsection 14(1) – must provide

the Agency with a description of the designated project that includes the information prescribed by regulations made under paragraph 84(*b*).

Additional information

(2) If the Agency is of the opinion, after receiving the description of the designated project from the proponent, that a decision cannot be made under paragraph 10(b) because the description is incomplete or does not contain sufficient details, the Agency may, within 10 days after receiving it, require the proponent to provide an amended description that includes the information and details that the Agency specifies.

Posting of description of designated project and public notice on Internet site

9. When the Agency is satisfied that the description of the designated project includes all of the required information, it must post the following on the Internet site:

(*a*) a summary of the description;

(*b*) an indication of how a copy of the description may be obtained; and

(*c*) a notice that indicates that the designated project is the subject of a screening, invites the public to provide comments respecting the designated project within 20 days after the posting of the notice and indicates the address for filing those comments.

Screening decision

10. Within 45 days after the posting of the notice on the Internet site, the Agency must

(*a*) conduct the screening, which must include a consideration of the following factors:

(i) the description of the designated project provided by the proponent,

(ii) the possibility that the carrying out of the designated project may cause adverse environmental effects,

(iii) any comments received from the public within 20 days after the posting of the notice, and

(iv) the results of any relevant study conducted by a committee established under section 73 or 74; and

(*b*) on completion of the screening, decide if an environmental assessment of the designated project is required.

Federal authority's obligation

11. Every federal authority that is in possession of specialist or expert information or knowledge with respect to a designated project that is subject to a screening must, on request, make that information or knowledge available to the Agency within the specified period.

Posting notice of decision on Internet site

12. The Agency must post a notice of its decision made under paragraph 10(*b*) on the Internet site.

Activities regulated by regulatory body

13. A designated project for which the responsible authority is referred to in any of paragraphs 15(*a*) to (*c*) is subject to an environmental assessment.

Designation of physical activity as designated project

14. (1) A designated project that includes a physical activity designated under subsection (2) is subject to an environmental assessment.

Minister's power to designate

(2) The Minister may, by order, designate a physical activity that is not prescribed by regulations made under paragraph 84(*a*) if, in the Minister's opinion, either the carrying out of that physical activity may cause adverse environmental effects or public concerns related to those effects may warrant the designation.

Minister's power to require that information be provided

(3) The Minister may require any person to provide information with respect to any physical activity that can be designated under subsection (2).

Federal authority

(4) The Minister must specify in the order made under subsection (2) for each designated physical activity one of the following federal authorities to which the physical activity is linked:

(*a*) the Canadian Nuclear Safety Commission;

(*b*) the National Energy Board;

(*c*) any federal authority that performs regulatory functions, that may hold public hearings and that is specified in regulations made under paragraph 83(*b*); or

(*d*) the Agency.

Limitation

(5) The Minister must not make the designation referred to in subsection (2) if

(*a*) the carrying out of the physical activity has begun and, as a result, the environment has been altered; or

(*b*) a federal authority has exercised a power or performed a duty or function conferred on it under any Act of Parliament other than this Act that would permit the physical activity to be carried out, in whole or in part.

Posting of notice of order on Internet site

(6) The Agency must post on the Internet site a notice of any order made under subsection (2).

Environmental assessment of designated projects

Responsible authority

15. For the purposes of this Act, the responsible authority with respect to a designated project that is subject to an environmental assessment is

(*a*) the Canadian Nuclear Safety Commission, in the case of a designated project that includes activities that are regulated under the Nuclear Safety and Control Act and that are linked to the Canadian Nuclear Safety Commission as specified in the regulations made under paragraph 84(*a*) or the order made under subsection 14(2);

(*b*) the National Energy Board, in the case of a designated project that includes activities that are regulated under the National Energy Board Act or the Canada Oil and Gas Operations Act and that are linked to the National Energy Board as specified in the regulations made under paragraph 84(*a*) or the order made under subsection 14(2);

(*c*) the federal authority that performs regulatory functions, that may hold public hearings and that is prescribed by regulations made under paragraph 83(*b*), in the case of a designated project that includes activities that are linked to that federal authority as specified in the regulations made under paragraph 84(*a*) or the order made under subsection 14(2); or

(*d*) the Agency, in the case of a designated project that includes activities that are linked to the Agency as specified in the regulations made under paragraph 84(*a*) or the order made under subsection 14(2).

Co-operation

16. If two designated projects are closely related and the responsible authority with respect to each of them is different, each responsible authority must cooperate with the other with respect to the exercise of their respective powers and the performance of their respective duties and functions under this Act in relation to the projects.

Commencement of environmental assessment

Posting of notice on Internet site

17. The responsible authority with respect to a designated project must ensure that a notice of the commencement of the environmental assessment of a designated project is posted on the Internet site.

Consultation and cooperation with certain jurisdictions

Responsible authority's or Minister's obligations

18. The responsible authority with respect to a designated project - or the Minister if the environmental assessment of the designated project has been referred to a review panel under section 38 - must offer to consult and cooperate with respect to the environmental assessment of the designated project with any jurisdiction referred to in paragraphs (*c*) to (*h*) of the definition "jurisdiction" in subsection 2(1) if that jurisdiction has powers, duties or functions in relation to an assessment of the environmental effects of the designated project.

Factors to be considered

Factors

19. (1) The environmental assessment of a designated project must take into account the following factors:

(*a*) the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out;

(*b*) the significance of the effects referred to in paragraph (*a*);

(*c*) comments from the public – or, with respect to a designated project that requires that a certificate be issued in accordance with an order made under section 54 of the National Energy Board Act, any interested party – that are received in accordance with this Act;

(*d*) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;

(*e*) the requirements of the follow-up program in respect of the designated project;

(*f*) the purpose of the designated project;

(*g*) alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means;

(*h*) any change to the designated project that may be caused by the environment;

(*i*) the results of any relevant study conducted by a committee established under section 73 or 74; and

(*j*) any other matter relevant to the environmental assessment that the responsible authority, or – if the environmental assessment is referred to a review panel – the Minister, requires to be taken into account.

Scope of factors

(2) The scope of the factors to be taken into account under paragraphs (1)(*a*), (*b*), (*d*), (*e*), (*g*), (*h*) and (*j*) is determined by

(*a*) the responsible authority; or

(*b*) the Minister, if the environmental assessment is referred to a review panel.

Community knowledge and Aboriginal traditional knowledge

(3) The environmental assessment of a designated project may take into account community knowledge and Aboriginal traditional knowledge.

Federal authority's obligation

Specialist or expert information

20. Every federal authority that is in possession of specialist or expert information or knowledge with respect to a designated project that is subject to an environmental assessment must, on request, make that information or knowledge available, within the specified period, to

(*a*) the responsible authority;

(*b*) the review panel;

(*c*) a government, an agency or body, or a jurisdiction that conducts an assessment of the designated project under a substituted process authorized by section 32; and

(*d*) a jurisdiction that conducts an assessment, in the case of a designated project that is exempted under subsection 37(1).

Environmental assessment by responsible authority

General rules

Application only when no referral to review panel

21. Sections 22 to 27 cease to apply to a designated project if it is referred by the Minister to a review panel under section 38.

Responsible authority's obligations

22. The responsible authority with respect to a designated project must ensure that

(*a*) an environmental assessment of the designated project is conducted; and

(*b*) a report is prepared with respect to that environmental assessment.

Information

23. (1) The responsible authority may, when conducting the environmental assessment of a designated project and preparing the report with respect to the environmental assessment of the designated project, use any information that is available to it.

Studies and collection of information

(2) However, if the responsible authority is of the opinion that there is not sufficient information available to it for the purpose of conducting the environmental assessment or preparing the report with respect to the environmental assessment of the designated project, it may require the collection of any information or the undertaking of any study that, in the opinion of the responsible authority, is necessary for that purpose, including requiring the proponent to collect that information or undertake that study.

Public participation

24. Subject to section 28, the responsible authority must ensure that the public is provided with an opportunity to participate in the environmental assessment of a designated project.

Public notice in certain cases – draft report

25. (1) When the responsible authority is the Agency, it must ensure that a draft report with respect to the environmental assessment of a designated project is prepared, and must ensure that the following are posted on the Internet site:

(*a*) a copy of the draft report or an indication of how a copy may be obtained; and

(*b*) a notice that invites the public to provide comments on the draft report within the period specified and provides the address for filing those comments.

Final report submitted to Minister

(2) After taking into account any comments received from the public, the Agency must finalize the report with respect to the environmental assessment of the designated project and submit it to the Minister.

Delegation

26. (1) The responsible authority with respect to a designated project may delegate to any person, body or jurisdiction referred to in paragraphs (*a*) to (*f*) of the definition "jurisdiction" in subsection 2(1) the carrying out of any part of the environmental assessment of the designated project and the preparation of the report with respect to the environmental assessment of the designated project, but must not delegate the duty to make decisions under subsection 27(1).

For greater certainty

(2) For greater certainty, the responsible authority must not make decisions under subsection 27(1) unless it is satisfied that any delegated duty or function has been performed in accordance with this Act.

Responsible authority's or Minister's decisions

27. (1) The responsible authority or, when the Agency is the responsible authority, the Minister, after taking into account the report with respect to the environmental assessment of the designated project, must make decisions under subsection 52(1).

Time limit for Minister's decisions

(2) The Minister's decisions must be made no later than 365 days after the day on which the notice of the commencement of the environmental assessment of the designated project is posted on the Internet site.

Extension of time limit by Minister

(3) The Minister may extend that time limit by any further period – up to a maximum of three months – that is necessary to permit the Agency to cooperate with a jurisdiction referred to in section 18 with respect to the environmental assessment of the designated project or to take into account circumstances that are specific to the project.

Extension of time limit by Governor in Council

(4) The Governor in Council may, on the recommendation of the Minister, extend the time limit extended under subsection (3).

Posting notice of extension on Internet site

(5) The Agency must post on the Internet site a notice of any extension granted under subsection (3) or (4).

Excluded period

(6) If, under subsection 23(2), the Agency requires the proponent of a designated project to collect information or undertake a study with respect to the designated project, then the period that is taken by the proponent, in the Agency's opinion, to comply with the requirement is not included in the calculation of the time limit within which the Minister's decisions must be made.

Non application – section 54 of the National Energy Board Act

(7) Subsection (1) does not apply if the carrying out of the designated project requires that a certificate be issued in accordance with an order made under section 54 of the National Energy Board Act.

Section 54 of the National Energy Board Act

Participation of interested party

28. If the carrying out of a designated project requires that a certificate be issued in accordance with an order made under section 54 of the National Energy Board Act, the responsible authority with respect to the designated project must ensure that any interested party is provided with an opportunity to participate in the environmental assessment of the designated project.

Recommendations in environmental assessment report

29. (1) If the carrying out of a designated project requires that a certificate be issued in accordance with an order made under section 54 of the National Energy Board Act, the responsible authority with respect to the designated project must ensure that the report concerning the environmental assessment of the designated project sets out

(*a*) its recommendation with respect to the decision that may be made under paragraph 31(1)(*a*) in relation to the designated project, taking into account the implementation of any mitigation measures that it set out in the report; and

(*b*) its recommendation with respect to the follow-up program that is to be implemented in respect of the designated project.

Submission of report to Minister

(2) The responsible authority submits its report to the Minister within the meaning of section 2 of the National Energy Board Act at the same time as it submits the report referred to in subsection 52(1) of that Act.

Report is final and conclusive

(3) Subject to sections 30 and 31, the report with respect to the environmental assessment is final and conclusive.

Order to reconsider

30. (1) After the responsible authority with respect to a designated project has submitted its report with respect to the environmental assessment under section 29, the Governor in Council may, by order made under section 53 of the National Energy Board Act, refer any of the responsible authority's recommendations set out in the report back to the responsible authority for reconsideration.

Factors and time limit

(2) The order may direct the responsible authority to conduct the reconsideration taking into account any factor specified in the order and it may specify a time limit within which the responsible authority must complete its reconsideration.

Responsible authority's obligation

(3) The responsible authority must, before the expiry of the time limit specified in the order, if one was specified, reconsider any recommendation specified in the order and prepare and submit to the Minister within the meaning of section 2 of the National Energy Board Act a report on its reconsideration.

Content of reconsideration report

(4) In the reconsideration report, the responsible authority must

(*a*) if the order refers to the recommendation referred to in paragraph 29(1)(*a*)

(i) confirm the recommendation or set out a different one with respect to the decision that may be made under paragraph 31(1)(*a*) in relation to the designated project, and

(ii) confirm, modify or replace the mitigation measures set out in the report with respect to the environmental assessment; and

(*b*) if the order refers to the recommendation referred to in paragraph 29(1)(*b*), confirm the recommendation or set out a different one with respect to the follow-up program that is to be implemented in respect of the designated project.

Report is final and conclusive

(5) Subject to section 31, the responsible authority reconsideration report is final and conclusive.

Reconsideration of report under this section

(6) After the responsible authority has submitted its report under subsection (3), the Governor in Council may, by order made under section 53 of the National Energy Board Act, refer any of the responsible authority's recommendations set out in the report back to the responsible authority for reconsideration. If it does so, subsections (2) to (5) apply. However, in subparagraph (4)(*a*)(ii), the reference to the mitigation measures set out in the report with respect to the environmental assessment is to be read as a reference to the mitigation measures set out in the reconsideration report.

Governor in Council's decision

31. (1) After the responsible authority with respect to a designated project has submitted its report with respect to the environmental assessment or its

reconsideration report under section 29 or 30, the Governor in Council may, by order made under subsection 54(1) of the National Energy Board Act.

(*a*) decide, taking into account the implementation of any mitigation measures specified in the report with respect to the environmental assessment or in the reconsideration report, if there is one, that the designated project

(i) is not likely to cause significant adverse environmental effects,

(ii) is likely to cause significant adverse environmental effects that can be justified in the circumstances, or

(iii) is likely to cause significant adverse environmental effects that cannot be justified in the circumstances; and

(*b*) direct the responsible authority to issue a decision statement to the proponent of the designated project that

(i) informs the proponent of the decision made under paragraph (*a*) with respect to the designated project and,

(ii) if the decision is referred to in subparagraph (*a*)(i) or (ii), sets out conditions – which are the implementation of the mitigation measures and the follow-up program set out in the report with respect to the environmental assessment or the reconsideration report, if there is one – that must be complied with by the proponent in relation to the designated project.

Certain conditions subject to exercise of power or performance of duty or function

(2) The conditions that are included in the decision statement regarding the environmental effects referred to in subsection 5(2), that are directly linked or necessarily incidental to the exercise of a power or performance of a duty or function by a federal authority and that would permit the designated project to be carried out, in whole or in part, take effect only if the federal authority exercises the power or performs the duty or function.

Responsible authority's obligation

(3) The responsible authority must issue to the proponent of the designated project the decision statement that is required in accordance with the order relating to the designated project within seven days after the day on which that order is made.

Posting of decision statement on Internet site

(4) The responsible authority must ensure that the decision statement is posted on the Internet site.

Decision statement considered part of certificate

(5) The decision statement issued in relation to the designated project under subsection (3) is considered to be a part of the certificate issued in accordance with the order made under section 54 of the National Energy Board Act in relation to the designated project.

Substitution

Minister's obligation

32. (1) Subject to sections 33 and 34, if the Minister is of the opinion that a process for assessing the environmental effects of designated projects that is followed by the government of a province – or any agency or body that is established under an Act of the legislature of a province – that has powers, duties or functions in relation to an assessment of the environmental effects of a designated project would be an appropriate substitute, the Minister must, on request of the province, approve the substitution of that process for an environmental assessment.

Minister's power

(2) Subject to sections 33 and 34, if the Minister is of the opinion that a process for assessing the environmental effects of designated projects that is followed by any jurisdiction referred to in paragraph (*e*) or (*f*) of the definition "jurisdiction" in subsection 2(1) that has powers, duties or functions in relation to an assessment of the environmental effects of a designated project would be an appropriate substitute, the Minister may approve the substitution of that process for the environmental assessment.

Manner of approval

(3) An approval must be in writing and may be given in respect of a designated project or a class of designated projects.

Posting of notice of approval on Internet site

(4) The Agency must post a notice of the approval on the Internet site.

Exceptions

33. The Minister must not approve the substitution of a process in relation to a designated project

(*a*) for which the responsible authority is referred to in paragraph 15(*a*) or (*b*); or

(*b*) in relation to which the environmental assessment has been referred by the Minister to a review panel under section 38.

Conditions

34. (1) The Minister may only approve a substitution if he or she is satisfied that

(*a*) the process to be substituted will include a consideration of the factors set out in subsection 19(1);

(*b*) the public will be given an opportunity to participate in the assessment;

(*c*) the public will have access to records in relation to the assessment to enable their meaningful participation;

(*d*) at the end of the assessment, a report will be submitted to the responsible authority;

(*e*) the report will be made available to the public; and

(*f*) any other conditions that the Minister establishes are or will be met.

Approval

(2) The Minister may also approve the substitution of a process that has already been completed for an environmental assessment if he or she is satisfied that the conditions under subsection (1) have been met.

Availability

(3) The conditions referred to in paragraph (1)(*f*) must be made available to the public.

Assessment considered in conformity

35. If the Minister approves the substitution of a process under section 32, the assessment that results from the substitution is considered to be an environmental assessment under this Act and to satisfy any requirements of this Act and the regulations in respect of an environmental assessment.

Responsible authority's or Minister's decision

36. After taking into account the report with respect to the environmental assessment of the designated project that is received by the responsible authority at the end of the assessment under the process authorized by section 32, the responsible authority or, when the Agency is the responsible authority, the Minister must make decisions under subsection 52(1).

Equivalent assessment

Exemption

37. (1) When the Minister must, under subsection 32(1), on request, approve the substitution of a process that is followed by the government of a province or any agency or body that is established under an Act of the legislature of a province for an environmental assessment of a designated project, the Governor in Council may, by order and on the Minister's recommendation, exempt the designated project from the application of this Act, if the Governor in Council is satisfied that

(*a*) after the completion of the assessment process, the government or the agency or body determines whether, taking into account the implementation of any mitigation measures that it considers appropriate, the designated project is likely to cause significant adverse environmental effects;

(*b*) the government or the agency or body ensures the implementation of the mitigation measures that are taken into account in making the determination and the implementation of a follow-up program; and

(*c*) any other conditions that the Minister establishes are or will be met.

Availability

(2) The conditions referred to in paragraph (1)(*c*) must be made available to the public.

Posting of notice of order on Internet site

(3) The Agency must post a notice of any order made under subsection (1) on the Internet site.

Environmental assessment by a review panel

General rules

Referral to review panel

38. (1) Subject to subsection (6), within 60 days after the notice of the commencement of the environmental assessment of a designated project is posted on the Internet site, the Minister may, if he or she is of the opinion that it is in the public interest, refer the environmental assessment to a review panel.

Public interest

(2) The Minister's determination regarding whether the referral of the environmental assessment of the designated project to a review panel is in the public interest must include a consideration of the following factors:

(*a*) whether the designated project may cause significant adverse environmental effects;

(*b*) public concerns related to the significant adverse environmental effects that the designated project may cause; and

(*c*) opportunities for cooperation with any jurisdiction that has powers, duties or functions in relation to an assessment of the environmental effects of the designated project or any part of it.

Time limits

(3) If the Minister refers the environmental assessment of the designated project to a review panel, the Minister must establish the following time limits – which combined are not to exceed 24 months – within which

(*a*) the review panel is to be established after the referral;

(*b*) the review panel must submit the report with respect to the environmental assessment of the designated project to the Minister; and

(*c*) the Minister must, after receiving the review panel's report, issue a decision statement under section 54 in relation to the designated project.

Modified time limits

(4) Subject to section 54, the Minister may, as required, modify those time limits.

Posting of notices on Internet site

(5) The Agency must post on the Internet site a notice of any decision made by the Minister to refer the environmental assessment of the designated project to a review panel, and a notice of any time limits that the Minister establishes in relation to the designated project and any changes that he or she may make to those time limits.

Exception

(6) The Minister must not refer to a review panel the environmental assessment of a designated project for which the responsible authority is referred to in paragraph 15(*a*) or (*b*).

Studies and collection of information

39. When the Minister refers the environmental assessment of a designated project to a review panel under section 38, the Agency may, from the day on which the referral is made and until the day on which the panel is established, require the proponent of the designated project to collect any information or undertake any studies that, in the opinion of the Agency, are necessary for the environmental assessment by the review panel.

Agreement to jointly establish review panel

40. (1) When the Minister refers the environmental assessment of a designated project to a review panel under section 38, he or she may enter into an agreement or arrangement with any jurisdiction referred to in paragraphs (*a*) to (*f*) of the definition "jurisdiction" in subsection 2(1) that has powers, duties or functions in relation to the assessment of the environmental effects of the designated project, respecting the joint establishment of a review panel and the manner in which the environmental assessment of the designated project is to be conducted by that panel.

Other jurisdiction

(2) When the Minister refers the environmental assessment of a designated project to a review panel under section 38, the Minister and the Minister of Foreign Affairs may enter into an agreement or arrangement with any jurisdiction referred to in paragraph (*g*) or (*h*) of the definition "jurisdiction" in subsection 2(1) that has powers, duties or functions in relation to an assessment of the environmental effects of the designated project respecting the joint establishment of a review panel and the manner in which the environmental assessment of the designated project is to be conducted by that panel.

Posting on Internet site

(3) Any agreement or arrangement referred to in subsection (1) or (2) must be posted on the Internet site before the commencement of the hearings conducted by the jointly established review panel.

Mackenzie Valley Resource Management Act

41. (1) When a proposal is referred to the Minister under paragraph 130(1)(*c*) of the Mackenzie Valley Resource Management Act, the Minister must refer the proposal to a review panel.

Document establishing review panel

(2) When the Minister is required to refer the proposal to a review panel, he or she and the Mackenzie Valley Environmental Impact Review Board must, in writing, jointly establish a review panel and prescribe the manner of its examination of the impact of the proposal on the environment.

If no agreement

(3) Despite subsection (2), if, in respect of a proposal referred to in subsection 138.1(1) of the Mackenzie Valley Resource Management Act, no agreement is entered into under that subsection within the period fixed by the regulations referred to in subsection 138.1(4) of that Act, an assessment by a review panel of the proposal must be conducted.

Coordination with environmental impact review

(4) The Minister must to the extent possible ensure that any assessment of the proposal required by subsection (3) is coordinated with any environmental impact review of the proposal under the Mackenzie Valley Resource Management Act.

Consultations

(5) Before making decisions under section 47 in relation to the proposal referred to in subsection (4), the Minister must take into account any report concerning the proposal that is issued under subsection 134(2) of the Mackenzie Valley Resource Management Act and must consult the persons and bodies to whom the report is submitted or distributed under subsection 134(3) of that Act.

Posting on Internet site

(6) Any document establishing a review panel under subsection (2) must be posted on the Internet site before the commencement of the hearings conducted by the jointly established review panel.

Terms of reference and appointment of members

42. (1) Subject to subsection (2), if the environmental assessment of a designated project is referred to a review panel, the Minister must establish the panel's terms of reference and appoint as a member one or more persons who are unbiased and free from any conflict of interest relative to the designated project and who have knowledge or experience relevant to its anticipated environmental effects.

Provisions of agreement

(2) When there is an agreement or arrangement to jointly establish a review panel under subsection 40(1) or (2), or when there is a document jointly establishing a review panel under subsection 41(2), the agreement, arrangement or document must provide that the environmental assessment of the designated project includes a consideration of the factors set out in subsection 19(1) and is conducted in accordance with any additional requirements and procedures set out in it and provide that

(*a*) the Minister must establish - or approve - the review panel's terms of reference;

(*b*) subject to section 54, the Minister establishes or approves the period within which the panel must submit its report with respect to the environmental assessment of the designated project and may, at any time, modify the terms of reference in order to extend the period;

(*c*) the Minister must appoint - or approve the appointment of - the chairperson or appoint a co-chairperson and must appoint at least one other member of the review panel; and

(*d*) the members of the panel are to be unbiased and free from any conflict of interest relative to the designated project and are to have knowledge or experience relevant to its anticipated environmental effects.

Establishment of roster

(3) The Minister must establish a roster of persons who may be appointed as members of a review panel established under subsection (1) or under an agreement, arrangement or document referred to in subsection (2).

Review panel's duties

43. (1) A review panel must, in accordance with its terms of reference,

(*a*) conduct an environmental assessment of the designated project;

(*b*) ensure that the information that it uses when conducting the environmental assessment is made available to the public;

(*c*) hold hearings in a manner that offers any interested party an opportunity to participate in the environmental assessment;

(*d*) prepare a report with respect to the environmental assessment that sets out

(i) the review panel's rationale, conclusions and recommendations, including any mitigation measures and follow-up program, and

(ii) a summary of any comments received from the public, including interested parties;

(*e*) submit the report with respect to the environmental assessment to the Minister; and

(f) on the Minister's request, clarify any of the conclusions and recommendations set out in its report with respect to the environmental assessment.

Time limit

(2) Subject to section 54, when a review panel is not jointly established under an agreement, arrangement or document referred to in subsection 42(2), the Minister must, in the terms of reference, set out the period within which the panel must submit the report with respect to the environmental assessment of the designated project to the Minister and may, at any time, modify the terms of reference in order to extend the period.

Information

44. (1) A review panel may, when conducting the environmental assessment of a designated project and preparing the report with respect to the environmental assessment of the designated project, use any information that is available to it.

Studies and collection of information

(2) However, if the review panel is of the opinion that there is not sufficient information available for the purpose of conducting the environmental assessment or preparing the report with respect to the environmental assessment of the designated project, it may require the collection of any information or the undertaking of any study that, in the opinion of the review panel, is necessary for that purpose, including requiring the proponent to collect that information or undertake that study.

Power to summon witnesses

45. (1) A review panel has the power to summon any person to appear as a witness before it and to order the witness to

(*a*) give evidence, orally or in writing; and

(*b*) produce any records and things that the panel considers necessary for conducting its environmental assessment of the designated project.

Enforcement powers

(2) A review panel has the same power to enforce the attendance of witnesses and to compel them to give evidence and produce records and other things as is vested in a court of record.

Hearings to be public

(3) A hearing by a review panel must be public unless the panel is satisfied after representations made by a witness that specific, direct and substantial harm would be caused to the witness or specific harm would be caused to the environment by the disclosure of the evidence, records or other things that the witness is ordered to give or produce under subsection (1).

Non-disclosure

(4) If a review panel is satisfied that the disclosure of evidence, records or other things would cause specific, direct and substantial harm to a witness, the evidence, records or things are privileged and must not, without the witness's authorization, knowingly be or be permitted to be communicated, disclosed or made available by any person who has obtained the evidence, records or other things under this Act.

(5) If a review panel is satisfied that the disclosure of evidence, records or other things would cause specific harm to the environment, the evidence, records or things are privileged and must not, without the review panel's authorization, knowingly be or be permitted to be communicated, disclosed or made available by any person who has obtained the evidence, records or other things under this Act.

Enforcement of summonses and orders

(6) Any summons issued or order made by a review panel under subsection (1) must, for the purposes of enforcement, be made a summons or order of the Federal Court by following the usual practice and procedure.

Immunity

(7) No action or other proceeding lies or is to be commenced against a member of a review panel for or in respect of anything done or omitted to be done during the course of and for the purposes of the assessment by the review panel.

Public notice

46. On receiving a report with respect to the environmental assessment of the designated project by a review panel, the Minister must make the report available to the public in any manner he or she considers appropriate to facilitate public access to the report, and must advise the public that it is available.

Minister's decisions

47. (1) The Minister, after taking into account the review panel's report with respect to the environmental assessment, must make decisions under subsection 52(1).

Studies and collection of information

(2) The Minister may, before making decisions referred to in subsection 52(1), require the proponent of the designated project to collect any information or undertake any studies that, in the opinion of the Minister, are necessary for the Minister to make decisions.

Excluded periods

48. If the Agency, the review panel or the Minister, under section 39 or subsection 44(2) or 47(2), respectively, requires the proponent of a designated project to collect information or undertake a study with respect to the designated project, then

(*a*) the period that is taken by the proponent, in the opinion of the Agency, to comply with the requirement under section 39 is not included in the calculation of the period referred to in paragraph 38(3)(*a*);

(*b*) the period that is taken by the proponent, in the opinion of the review panel, to comply with the requirement under subsection 44(2) is not included in the calculation of the period referred to in paragraph 38(3)(*b*) or 42(2)(*b*) or subsection 43(2); and

(*c*) the period that is taken by the proponent, in the opinion of the Minister, to comply with the requirement under subsection 47(2) is not included in the calculation of the period referred to in paragraph 38(3)(*c*).

Rules in case of termination

Termination

49. (1) The Minister must terminate the assessment by a review panel of a designated project if the review panel fails to submit its report within the specified period including any extension of time limits.

Power to terminate

(2) The Minister may terminate the assessment by a review panel of a designated project if he or she is of the opinion that the review panel will not be able to submit its report within the specified period including any extension of time limits.

Preliminary consultations

(3) However, before the Minister exercises the power referred to in subsection (2) with respect to a review panel that is jointly established under one of the following agreements, arrangements or documents, he or she must

(*a*) in the case of an agreement or arrangement referred to in subsection 40(1), consult the jurisdiction with which the agreement or arrangement was entered into;

(b) in the case of an agreement or arrangement referred to in subsection 40(2), obtain the approval of the Minister of Foreign Affairs and consult the jurisdiction with which the agreement or arrangement was entered into; and

(c) in the case of a document referred to in subsection 41(2), consult the Mackenzie Valley Environmental Impact Review Board.

Completion of environmental assessment by Agency

50. When the assessment by a review panel of a designated project is terminated under section 49, the Agency must, in accordance with directives provided by the Minister, complete the environmental assessment of the designated project and prepare a report and submit it to the Minister.

Minister's decisions

51. The Minister, after taking into account the report with respect to the environmental assessment of the designated project that was submitted by the Agency, must make decisions under subsection 52(1).

Decision making

Decisions of decision maker

52. (1) For the purposes of sections 27, 36, 47 and 51, the decision maker referred to in those sections must decide if, taking into account the implementation of any mitigation measures that the decision maker considers appropriate, the designated project

(a) is likely to cause significant adverse environmental effects referred to in subsection 5(1); and

(b) is likely to cause significant adverse environmental effects referred to in subsection 5(2).

Referral if significant adverse environmental effects

(2) If the decision maker decides that the designated project is likely to cause significant adverse environmental effects referred to in subsection 5(1) or (2), the decision maker must refer to the Governor in Council the matter of whether those effects are justified in the circumstances.

Referral through Minister

(3) If the decision maker is a responsible authority referred to in any of paragraphs 15(*a*) to (*c*), the referral to the Governor in Council is made through the Minister responsible before Parliament for the responsible authority.

Governor in Council's decision

(4) When a matter has been referred to the Governor in Council, the Governor in Council may decide

(a) that the significant adverse environmental effects that the designated project is likely to cause are justified in the circumstances; or

(b) that the significant adverse environmental effects that the designated project is likely to cause are not justified in the circumstances.

Conditions – environmental effects referred to in subsection 5(1)

53. (1) If the decision maker decides under paragraph 52(1)(a) that the designated project is not likely to cause significant adverse environmental effects referred to in subsection 5(1), or the Governor in Council decides under paragraph 52(4)(a) that the significant adverse environmental effects referred to in that subsection that the designated project is likely to cause are justified in the circumstances, the decision maker must establish the conditions in relation to the environmental effects referred to in that subsection with which the proponent of the designated project must comply.

Conditions – environmental effects referred to in subsection 5(2)

(2) If the decision maker decides under paragraph 52(1)(*b*) that the designated project is not likely to cause significant adverse environmental effects referred to in subsection 5(2), or the Governor in Council decides under paragraph 52(4)(*a*) that the significant adverse environmental effects referred to in that subsection that the designated project is likely to cause are justified in the circumstances, the decision maker must establish the conditions – that are directly linked or necessarily incidental to the exercise of a power or performance of a duty or function by a federal authority that would permit a designated project to be carried out, in whole or in part – in relation to the environmental effects referred to in that subsection with which the proponent of the designated project must comply.

Conditions subject to exercise of power or performance of duty or function

(3) The conditions referred to in subsection (2) take effect only if the federal authority exercises the power or performs the duty or function.

Mitigation measures and follow-up program

(4) The conditions referred to in subsections (1) and (2) are

(a) the implementation of the mitigation measures that were taken into account in making the decisions under subsection 52(1); and

(b) the implementation of a follow-up program.

Decision statement issued to proponent

54. (1) The decision maker must issue a decision statement to the proponent of a designated project that

(a) informs the proponent of the designated project of the decisions made under paragraphs 52(1)(a) and (b) in relation to the designated project and, if a matter was referred to the Governor in Council, of the decision made under subsection 52(4) in relation to the designated project; and

(b) includes any conditions that are established under section 53 in relation to the designated project and that must be complied with by the proponent.

Time limit of decision statement

(2) When the decision maker has made a decision under paragraphs 52(1)(a) and (b) in relation to the designated project for the purpose of section 47, the decision maker must issue the decision statement no later than 24 months after the day on which the environmental assessment of the designated project was referred to a review panel under section 38.

Extension of time limit by Minister

(3) The decision maker may extend that time limit by any further period – up to a maximum of three months – that is necessary to permit cooperation with any jurisdiction with respect to the environmental assessment of the designated project or to take into account circumstances that are specific to the project.

Extension of time limit by Governor in Council

(4) The Governor in Council may, on the recommendation of the Minister, extend the time limit extended under subsection (3).

Posting notice of extension on Internet site

(5) The Agency must post a notice of any extension granted under subsection (3) or (4) on the Internet site.

Excluded period

(6) If the Agency, the review panel or the Minister, under section 39 or subsection 44(2) or 47(2), respectively, requires the proponent of the designated project to collect information or undertake a study with respect to the designated project, the calculation of the time limit within which the decision maker must issue the decision statement does not include:

(a) the period that is taken by the proponent, in the opinion of the Agency, to comply with the requirement under section 39;

(b) the period that is taken by the proponent, in the opinion of the review panel, to comply with the requirement under subsection 44(2); and

(c) the period that is taken by the proponent, in the opinion of the Minister, to comply with the requirement under subsection 47(2).

Posting of decision statement on Internet site

55. The responsible authority referred to in any of paragraphs 15(a) to (c) must ensure that any decision statement that it issues under section 54 is posted on the Internet site, and the Agency must post on the Internet site any decision statement that the Minister issues under that section.

Decision statement considered part of licence under Nuclear Safety and Control Act

56. (1) A decision statement issued in relation to a designated project by the responsible authority referred to in paragraph 15(a) is considered to be a part of the licence issued under section 24 of the Nuclear Safety and Control Act in relation to the designated project.

Decision statement considered part of certificate, etc., under National Energy Board Act and Canada Oil and Gas Operations Act

(2) A decision statement issued in relation to a designated project by the responsible authority referred to in paragraph 15(b) is considered to be a part of

(a) the certificate, order, permit or licence issued, the leave or exemption granted or the direction or approval given under the National Energy Board Act in relation to the designated project; or

(b) the authorization or licence issued, the approval granted or the leave given under the Canada Oil and Gas Operations Act in relation to the designated project.

Participant funding programs

Agency's obligation

57. The Agency must establish a participant funding program to facilitate the participation of the public in the environmental assessment of designated projects that have been referred to a review panel under section 38.

Responsible authority's obligation

58. (1) A responsible authority must establish a participant funding program to facilitate the participation of the public in the environmental assessment of any designated project, for which it is the responsible authority, that meets the following conditions:

(a) it includes physical activities that are designated by regulations made under paragraph 84(e) or that are part of a class of activities designated by those regulations; and

(b) the environmental assessment of the designated project was not referred to a review panel under section 38.

Exception

(2) The obligation does not apply with respect to any designated project for which the Minister has approved a substitution under section 32.

Cost recovery

Proponent's obligation to pay costs

59. (1) For the Agency to recover its costs in relation to the environmental assessment of a designated project, the proponent of the designated project must pay to the Agency

(a) if the environmental assessment is conducted by the Agency, any costs that the Agency incurs for prescribed services provided by a third party in the course of the environmental assessment and any prescribed amounts that are related to the exercise of its responsibilities in relation to the environmental assessment; and

(b) if the environmental assessment is referred to a review panel under section 38, any costs that the review panel and the Agency incur for prescribed services provided by a third party in the course of the environmental assessment and any prescribed amounts that are related to the exercise of its responsibilities or to those of the members of the review panel, in relation to the environmental assessment.

User Fees Act

(2) The User Fees Act does not apply to the costs and amounts referred to in subsection (1) that are fixed at the time of the coming into force of this Act.

Services provided during given period

60. For the purposes of section 59, the services or responsibilities are limited to those provided or exercised during the period that begins when the notice of the commencement of the environmental assessment of the designated project is

posted on the Internet site under section 17 and that ends when the decision statement is issued to the proponent under section 54.

Debt due to Her Majesty

61. The costs and amounts that the proponent must pay under section 59 constitute a debt due to Her Majesty in right of Canada and may be recovered as such in any court of competent jurisdiction.

Termination of environmental assessment

Termination by responsible authority or Minister

62. The responsible authority with respect to a designated project – or the Minister if the environmental assessment of the designated project has been referred to a review panel under section 38 – may terminate the environmental assessment if the proponent advises the responsible authority or the Minister in writing that the proponent does not intend to carry out the designated project.

Termination by responsible authority referred to in any of paragraphs 15(a) to (c)

63. The responsible authority referred to in any of paragraphs 15(a) to (c) may terminate the environmental assessment of a designated project for which it is the responsible authority if it decides not to exercise any power or perform any duty or function conferred on it under any Act of Parliament other than this Act that would permit the designated project to be carried out in whole or in part and, if the responsible authority is referred to in paragraph 15(c), the environmental assessment of a designated project was not referred to a review panel under section 38.

Termination by Minister

64. The Minister may terminate the environmental assessment by a review panel of a designated project for which the responsible authority is referred to in paragraph 15(c) if it decides not to exercise any power or perform any duty or function conferred on it under any Act of Parliament other than this Act that would permit the designated project to be carried out in whole or in part.

Confidential information

No disclosure

65. Despite any other provision of this Act, no confidence of the Queen's Privy Council for Canada in respect of which subsection 39(1) of the Canada Evidence Act applies is to be disclosed or made available under this Act to any person.

Duties of certain authorities in relation to projects

Definitions

66. The following definitions apply in sections 5 and 67 to 72.

"authority" means

(a) a federal authority; and

(b) any other body that is set out in Schedule 3.

"project" means a physical activity that is carried out in relation to a physical work and is not a designated project.

Project carried out on federal lands

67. An authority must not carry out a project on federal lands, or exercise any power or perform any duty or function conferred on it under any Act of Parliament other than this Act that would permit a project to be carried out, in whole or in part, on federal lands, unless

(a) the authority determines that the carrying out of the project is not likely to cause significant adverse environmental effects; or

(b) the authority determines that the carrying out of the project is likely to cause significant adverse environmental effects and the Governor in Council decides that those effects are justified in the circumstances under subsection 69(3).

Project outside Canada

68. A federal authority must not carry out a project outside Canada, or provide financial assistance to any person for the purpose of enabling, in whole or in part, a project to be carried out outside Canada, unless

(a) the federal authority determines that the carrying out of the project is not likely to cause significant adverse environmental effects; or

(b) the federal authority determines that the carrying out of the project is likely to cause significant adverse environmental effects and the Governor in Council decides that those effects are justified in the circumstances under subsection 69(3).

Referral to Governor in Council

69. (1) If the authority determines that the carrying out of a project on federal lands or outside Canada is likely to cause significant adverse environmental effects, the authority may refer to the Governor in Council the matter of whether those effects are justified in the circumstances.

Referral through Minister

(2) When the determination is made by an authority other than a federal Minister, then the referral to the Governor in Council is made through the Minister responsible before Parliament for that authority.

Governor in Council's decision

(3) When a matter has been referred to the Governor in Council, the Governor in Council must decide whether the significant adverse environmental effects are justified in the circumstances and must inform the authority of its decision.

Non-application – national emergency or emergency

70. Sections 67 and 68 do not apply to an authority in respect of a project

(a) in relation to which there are matters of national security;

(b) that is to be carried out in response to a national emergency for which special temporary measures are being taken under the Emergencies Act; or

(c) that is to be carried out in response to an emergency, and carrying out of the project without delay is in the interest of preventing damage to property or the environment or is in the interest of public health or safety.

Federal authority's reporting duty

71. (1) The federal authority must, at the end of each fiscal year, report on its activities under sections 67 to 69 during the previous fiscal year.

Tabling in Parliament

(2) The information on its activities must be laid before each House of Parliament during the fiscal year after the fiscal year to which the information relates.

Authority's reporting duty

72. (1) The authority referred to in paragraph (*b*) of the definition "authority" in section 66 must, each year, report on its activities during the previous year under sections 67 and 69.

Availability

(2) The authority must make the information on its activities available to the public.

Regional studies

Establishment of committee – region entirely on federal lands

73. (1) The Minister may establish a committee to conduct a study of the effects of existing or future physical activities carried out in a region that is entirely on federal lands.

Mandate and appointment of members

(2) If the Minister establishes a committee, he or she must establish its terms of reference and appoint as a member of the committee one or more persons.

Joint establishment of committee – other regions

74. (1) If the Minister is of the opinion that it is appropriate to conduct a study of the effects of existing or future physical activities carried out in a region that is composed in part of federal lands or in a region that is entirely outside federal lands,

(*a*) the Minister may enter into an agreement or arrangement with any jurisdiction referred to in paragraphs (*a*) to (*f*) of the definition "jurisdiction" in subsection 2(1) respecting the joint establishment of a committee to conduct the study and the manner in which the study is to be conducted; and

(*b*) the Minister and the Minister of Foreign Affairs may enter into an agreement or arrangement with any jurisdiction referred to in paragraph (*g*) or (*h*) of that definition respecting the joint establishment of a committee to conduct the study and the manner in which the study is to be conducted.

Mandate and appointment of members

(2) If an agreement or arrangement referred to in subsection (1) is entered into, the Minister must establish – or approve – the committee's terms of reference

and appoint one or more persons as a member of the committee – or approve their appointment.

Report to Minister

75. On completion of the study that it conducts, the committee established under section 73 or under an agreement or arrangement entered into under paragraph 74(1)(*a*) or (*b*) must provide a report to the Minister.

Public notice

76. On receiving the committee's report, the Minister must make the report available to the public in any manner he or she considers appropriate to facilitate public access to the report and must advise the public that it is available.

Application of section 45

77. Section 45 applies, with any necessary modifications, to a committee referred to in section 75 and, for the purpose of applying section 45 to a committee, a reference in that section to a review panel is a reference to a committee.

Canadian Environmental Assessment Registry

Establishment of Registry

Canadian Environmental Assessment Registry

78. (1) For the purpose of facilitating public access to records relating to environmental assessments and providing notice in a timely manner of those assessments, there is to be a registry called the Canadian Environmental Assessment Registry, consisting of an Internet site and project files.

Right of access

(2) The Registry must be operated in a manner that ensures convenient public access to it. That right of access to the Registry is in addition to any right of access provided under any other Act of Parliament.

Copy

(3) For the purpose of facilitating public access to records included in the Registry, the responsible authority must ensure that a copy of any of those records is provided in a timely manner on request.

Internet site

Establishment and maintenance

79. (1) The Agency must establish and maintain an Internet site that is available to the public.

Contents – responsible authority

(2) The responsible authority with respect to a designated project must ensure that the following records and information, relating to the environmental

assessment of the designated project that it conducts, are posted on the Internet site:

(a) any public notice that is issued by the responsible authority to request participation of the public – or, with respect to a designated project that requires that a certificate be issued in accordance with an order made under section 54 of the National Energy Board Act, of any interested party – in the environmental assessment;

(b) a description of the factors to be taken into account in the environmental assessment and of the scope of those factors or an indication of how such a description may be obtained;

(c) the report with respect to the environmental assessment that is taken into account by the responsible authority or the Minister for the purpose of making decisions under section 27 or 36, or a summary of the report and an indication of how a copy of the report may be obtained;

(d) the report with respect to the environmental assessment or the reconsideration report that is taken into account by the Governor in Council for the purpose of making a decision under section 31, or a summary of that report and an indication of how a copy of that report may be obtained;

(e) notice of the responsible authority's decision to terminate the environmental assessment under section 62 or 63;

(f) any other information that the responsible authority considers appropriate, including information in the form of a list of relevant records and an indication of how a copy of them may be obtained; and

(g) any other record or information prescribed by regulations made under paragraph 84(f).

Contents – Agency

(3) The Agency must ensure that, in the case of an assessment conducted by a review panel or an environmental assessment completed under section 50, the following records or information are posted on the Internet site:

(a) the review panel's terms of reference;

(b) any public notice that is issued by the review panel to request public participation in an environmental assessment;

(c) the report with respect to the environmental assessment that is taken into account by the Minister for the purpose of making decisions under section 47 or 51, or a summary of the report and an indication of how a copy of the report may be obtained;

(d) notice of the termination of an assessment conducted by the review panel under section 49;

(e) notice of the Minister's decision to terminate an environmental assessment under section 62 or 64;

(f) any other information that the Agency considers appropriate, including information in the form of a list of relevant documents and an indication of how a copy of them may be obtained; and

(g) any other record or information prescribed by regulations made under paragraph 84(f).

Management of Internet site

(4) The Agency must determine

(a) what the form of the Internet site is to be and how it is to be kept;

(b) what information must be contained in any record required to be posted on the Internet site under this Act; and

(c) when information may be removed from the Internet site.

Establishment and maintenance

80. (1) In respect of every designated project for which a screening or an environmental assessment is conducted, a project file must be established and maintained

(a) by the Agency when there is a screening of the designated project, during the screening; and

(b) by the responsible authority from the commencement of the environmental assessment until any follow-up program in respect of the designated project is completed.

Contents of project file

(2) A project file must contain all records produced, collected or received for the purpose of conducting the screening and the environmental assessment of the designated project, including

(a) all records posted on the Internet site;

(b) the description of the designated project;

(c) any report relating to the environmental assessment;

(d) any comments that are received from the public in relation to the screening and the environmental assessment;

(e) any records relating to the design or implementation of any follow-up program; and

(f) any records relating to mitigation measures to be implemented.

General

Categories of available information

81. (1) Despite any other provision of this Act, the Registry must contain a record, part of a record or information only if

(a) it has otherwise been made publicly available; or

(b) the responsible authority, in the case of a record under its control, or the Minister, in the case of a record under the Agency's control,

(i) determines that it would have been disclosed to the public in accordance with the Access to Information Act if a request had been made in respect of that record under that Act at the time the record came under the control of the responsible authority or the Agency, including any record that would be disclosed in the public interest under subsection 20(6) of that Act, or

(ii) believes on reasonable grounds that it would be in the public interest to disclose it because it is required for the public to participate effectively in the

environmental assessment – other than any record the disclosure of which would be prohibited under section 20 of the Access to Information Act.

Applicability of sections 27, 28 and 44 of Access to Information Act

(2) Sections 27, 28 and 44 of the Access to Information Act apply to any information described in subsection 27(1) of that Act that the Agency or a responsible authority intends to be included in the Registry with any necessary modifications, including the following:

(a) the information is deemed to be a record that the head of a government institution intends to disclose; and

(b) any reference to the person who requested access must be disregarded.

Protection from civil proceeding or prosecution

82. Despite any other Act of Parliament, no civil or criminal proceedings lie against a responsible authority, the Agency or the Minister, or against any person acting on behalf of, or under the direction of, any one of them and no proceedings lie against the Crown, the Agency or any responsible authority, for the disclosure in good faith of any record or any part of a record under this Act or for any consequences that flow from that disclosure or for the failure to give any notice required under section 27 or 28 of the Access to Information Act if reasonable care is taken to give the required notice.

Administration

Regulations – Governor in Council

83. The Governor in Council may make regulations

(*a*) amending Schedule 1 or 3 by adding or deleting a body or a class of bodies;

(*b*) prescribing, for the purposes of paragraph 15(*c*), the federal authority that performs regulatory functions and that may hold public hearings;

(*c*) exempting any class of proponents or class of designated projects from the application of section 59;

(*d*) varying or excluding any requirement set out in this Act or the regulations as it applies to physical activities to be carried out

(i) on reserves, surrendered lands or other lands that are vested in Her Majesty and subject to the Indian Act,

(ii) on lands covered by land claim agreements referred to in section 35 of the Constitution Act, 1982,

(iii) under international agreements or arrangements entered into by the Government of Canada, or

(iv) in relation to which there are matters of national security;

(*e*) prescribing anything that, by this Act, is to be prescribed;

(f) prescribing the way in which anything that is required or authorized by this Act to be prescribed is to be determined; and

(*g*) generally, for carrying out the purposes and provisions of this Act.

Regulations – Minister

84. The Minister may make regulations

(*a*) for the purpose of the definition "designated project" in subsection 2(1), designating a physical activity or class of physical activities and specifying for each designated physical activity or class of physical activities one of the following federal authorities to which the physical activity is linked:

(i) the Canadian Nuclear Safety Commission,

(ii) the National Energy Board,

(iii) any federal authority that performs regulatory functions, that may hold public hearings and that is prescribed in regulations made under paragraph 83(*b*), or

(iv) the Agency;

(*b*) prescribing the information that must be contained in a description of a designated project;

(*c*) respecting the procedures, requirements and time periods relating to environmental assessments, including the manner of designing a follow-up program;

(*d*) respecting a participant funding program established under section 57 or established under section 58 by the responsible authority referred to in paragraph 15(*d*);

(*e*) designating, for the purposes of section 58, a physical activity or class of physical activities;

(*f*) respecting the Registry, including the identification of records or information to be posted on the Internet site and the establishment and maintenance of project files referred to in section 80; and

(*g*) respecting the charging of fees for providing copies of documents contained in the Registry.

Externally produced documents

85. (1) A regulation made under this Act may incorporate by reference documents that are produced by a person or body other than the Agency, including a federal authority referred to in any of paragraphs (a) to (d) of the definition "federal authority" in subsection 2(1).

Ambulatory incorporation by reference

(2) A document may be incorporated by reference either as it exists on a particular date or as amended from time to time.

Accessibility of incorporated document

(3) The Minister must ensure that any document incorporated by reference in a regulation is accessible.

No registration or publication

(4) For greater certainty, a document that is incorporated by reference into a regulation is not required to be transmitted for registration or published in the Canada Gazette by reason only that it is incorporated by reference.

Minister's powers

86. (1) For the purposes of this Act, the Minister may

(a) issue guidelines and codes of practice respecting the application of this Act and, without limiting the generality of the foregoing, establish criteria to determine whether a designated project, taking into account the implementation of any appropriate mitigation measures, is likely to cause significant adverse environmental effects or whether such effects are justified in the circumstances;

(b) establish research and advisory bodies in the area of environmental assessment;

(c) enter into agreements or arrangements with any jurisdiction referred to in paragraphs (a) to (f) of the definition "jurisdiction" in subsection 2(1) respecting assessments of environmental effects;

(d) enter into agreements or arrangements with any jurisdiction for the purposes of coordination, consultation, exchange of information and the determination of factors to be considered in relation to the assessment of the environmental effects of designated projects of common interest;

(e) establish criteria for the appointment of members of review panels; and

(f) establish criteria for the appointment of members of committees established under section 73 or 74.

Power to enter into international agreements

(2) The Minister and the Minister of Foreign Affairs may enter into agreements or arrangements with any jurisdiction referred to in paragraphs (g) and (h) of the definition "jurisdiction" in subsection 2(1) respecting assessments of environmental effects, including, without limiting the generality of the foregoing, for the purposes of implementing the provisions of any international agreement or arrangement to which the Government of Canada is a party respecting the assessment of environmental effects.

Opportunity for public to comment

(3) The Minister must provide reasonable public notice of and a reasonable opportunity for anyone to comment on draft guidelines, codes of practice, agreements, arrangements or criteria under this section.

Availability to public

(4) Any guidelines, codes of practice, agreements, arrangements or criteria must be made available to the public.

Non-application – national security

87. (1) The Governor in Council may, by order, exclude a designated project from the application of this Act if, in the Governor in Council's opinion, the designated project is one in relation to which there are matters of national security.

Non-application – national emergency or emergency

(2) The Minister may, by order, exclude a designated project from the application of this Act if, in the Minister's opinion, the designated project is one to be carried out in response to

(a) a national emergency for which special temporary measures are being taken under the Emergencies Act; or

(b) an emergency, and carrying out the designated project without delay is in the interest of preventing damage to property or the environment or is in the interest of public health or safety.

Posting of notice of order on Internet site

(3) The Agency must post on the Internet site a notice of any order made under subsection (2).

Statutory Instruments Act

88. An order made under subsection 14(2), 37(1), 87(1) or (2), 125(7) or 128(2) is not a statutory instrument for the purposes of the Statutory Instruments Act.

Administration and enforcement

Designation

Power to designate

89. (1) The Minister may designate persons or classes of persons for the purposes of the administration and enforcement of this Act.

Certificate

(2) The Minister must provide every person designated under subsection (1) with a certificate of designation. That person must, if so requested, produce the certificate to the occupant or person in charge of a place referred to in subsection 90(1).

Powers

Authority to enter

90. (1) A person who is designated to verify compliance or prevent non-compliance with this Act or orders made under section 94 may, for those purposes, enter a place in which they have reasonable grounds to believe a designated project is being carried out or a record or anything relating to a designated project is located.

Powers on entry

(2) The designated person may, for those purposes,

(a) examine anything in the place;

(b) use any means of communication in the place or cause it to be used;

(c) use any computer system in the place, or cause it to be used, to examine data contained in or available to it;

(d) prepare a document, or cause one to be prepared, based on the data;

(e) use any copying equipment in the place, or cause it to be used;

(f) remove anything from the place for examination or copying;

(g) take photographs and make recordings or sketches;

(h) order the owner or person in charge of the place or a person at the place to establish their identity to the designated person's satisfaction or to stop or start an activity;

(i) order the owner or a person having possession, care or control of anything in the place to not move it, or to restrict its movement, for as long as, in the designated person's opinion, is necessary;

(j) direct any person to put any machinery, vehicle or equipment in the place into operation or to cease operating it; and

(k) prohibit or limit access to all or part of the place.

Duty to assist

(3) The owner or person in charge of the place and every person in the place must give all assistance that is reasonably required to enable the designated person to exercise a power or perform a duty or function under this section and must provide any documents, data or information that are reasonably required for that purpose.

Warrant for dwelling-house

91. (1) If the place is a dwelling-house, the designated person must not enter it without the occupant's consent except under the authority of a warrant issued under subsection (2).

Authority to issue warrant

(2) On *ex parte* application, a justice may issue a warrant authorizing a designated person who is named in it to enter a dwelling-house, subject to any conditions specified in the warrant, if the justice is satisfied by information on oath that

(a) the dwelling-house is a place referred to in subsection 90(1);

(b) entry to the dwelling-house is necessary for any of the purposes of that subsection; and

(c) entry was refused by the occupant or there are reasonable grounds to believe that entry will be refused or that consent to entry cannot be obtained from the occupant.

Entry on private property

92. (1) For the purpose of gaining entry to a place referred to in subsection 90(1), a designated person may enter private property and pass through it, and is not liable for doing so. For greater certainty, no person has a right to object to that use of the property and no warrant is required for the entry, unless the property is a dwelling-house.

Person accompanying designated person

(2) A person may, at the designated person's request, accompany the designated person to assist them to gain entry to the place referred to in subsection 90(1) and is not liable for doing so.

Use of force

93. In executing a warrant to enter a dwelling-house, a designated person must not use force unless the use of force has been specifically authorized in the warrant and the designated person is accompanied by a peace officer.

Orders

Measures required

94. (1) If a person designated to verify compliance with this Act believes on reasonable grounds that there is a contravention of this Act, they may, among other things, order a person to

(a) stop doing something that is in contravention of this Act or cause it to be stopped; or

(b) take any measure that is necessary in order to comply with this Act or to mitigate the effects of non-compliance.

Notice

(2) The order must be provided in the form of a written notice and must include

(a) a statement of the reasons for the order; and

(b) the time and manner in which the order must be carried out.

Duty to comply with order

(3) Any person to whom an order is given under subsection (1) must comply with the order given.

Measures taken by designated person

95. If a person does not comply with an order made under subsection 94(1) within the time specified, the designated person may, on their own initiative and at that person's expense, carry out the measure required.

Injunctions

Court's power

96. (1) If, on the Minister's application, it appears to a court of competent jurisdiction that a person has done, is about to do or is likely to do any act constituting or directed toward the commission of an offence under section 99, the court may issue an injunction ordering the person who is named in the application to

(a) refrain from doing an act that, in the court's opinion, may constitute or be directed toward the commission of the offence; or

(b) do an act that, in the opinion of the court, may prevent the commission of the offence.

Notice

(2) At least 48 hours before the injunction is issued, notice of the application must be given to persons named in the application, unless the urgency of the situation is such that the delay involved in giving the notice would not be in the public interest.

Prohibitions and offences

Obstruction

97. It is prohibited to obstruct or hinder a designated person who is exercising their powers or performing their duties and functions under this Act.

False statements or information

98. It is prohibited to knowingly make a false or misleading statement or knowingly provide false or misleading information in connection with any matter under this Act to any person who is exercising their powers or performing their duties and functions under this Act.

Contravention – section 6

99. (1) Any proponent who contravenes section 6 is guilty of an offence punishable on summary conviction and is liable, for a first offence, to a fine of not more than USD 200 000 and, for any subsequent offence, to a fine of not more than USD 400 000.

Contravention – subsection 94(3)

(2) A person who contravenes subsection 94(3) is guilty of an offence punishable on summary conviction and is liable, for a first offence, to a fine of not more than USD 200 000 and, for any subsequent offence, to a fine of not more than USD 400 000.

Contravention – section 97

(3) Any person who contravenes section 97 is guilty of an offence punishable on summary conviction and is liable, for a first offence, to a fine of not more than USD 100 000 and, for any subsequent offence, to a fine of not more than USD 300 000.

Continuing offences

(4) If an offence under subsection (1) or (2) is committed or continued on more than one day, it constitutes a separate offence for each day on which it is committed or continued.

Due diligence defence

(5) A person must not be found guilty of an offence under subsection (1), (2) or (3) if they establish that they exercised due diligence to prevent the commission of the offence.

Contravention – section 98

100. Any person who contravenes section 98 is guilty of an offence punishable on summary conviction and is liable to a fine of not more than USD 300 000.

Limitation period

101. Proceedings by way of summary conviction in respect of an offence under this Act may be instituted at any time within two years after the day on which the Minister becomes aware of the acts or omissions that constitute the alleged offence.

Admissibility of evidence

102. (1) In proceedings for an offence under this Act, a statement, certificate, report or other document of the Minister, the responsible authority or the designated person that is purported to have been signed by that person or authority is admissible in evidence without proof of the signature or official character of the person appearing to have signed it and, in the absence of evidence to the contrary, is proof of the matters asserted in it.

Copies and extracts

(2) In proceedings for an offence under this Act, a copy of or an extract from any document that is made by the Minister, the responsible authority or the designated person that appears to have been certified under the signature of that person or authority as a true copy or extract is admissible in evidence without proof of the signature or official character of the person appearing to have signed it and, in the absence of evidence to the contrary, has the same probative force as the original would have if it were proved in the ordinary way.

Presumed date of issue

(3) A document referred to in this section is, in the absence of evidence to the contrary, presumed to have been issued on the date that it bears.

Notice

(4) No document referred to in this section may be received in evidence unless the party intending to produce it has provided reasonable notice of that intention to the party against whom it is intended to be produced together with a copy of the document.

Canadian Environmental Assessment Agency

Agency continued

103. (1) The Canadian Environmental Assessment Agency is continued and must advise and assist the Minister in exercising the powers and performing the duties and functions conferred on him or her by this Act.

Minister's responsibility

(2) The Minister is responsible for the Agency.

Delegation to Agency

104. (1) The Minister may, subject to any terms and conditions that the Minister specifies, delegate to an officer or employee of the Agency any of the powers, duties and functions that the Minister is authorized to exercise or perform under this Act.

Restriction

(2) However, the Minister is not authorized to delegate a power to make regulations nor a power to delegate under subsection (1).

Agency's objects

105. The Agency's objects are

(a) to conduct or administer environmental assessments and administer any other requirements and procedures established by this Act and the regulations;

(b) to promote uniformity and harmonization in relation to the assessment of environmental effects across Canada at all levels of government;

(c) to promote or conduct research in matters of environmental assessment and to encourage the development of environmental assessment techniques and practices, including testing programs, alone or in cooperation with other agencies or organizations;

(d) to promote environmental assessment in a manner that is consistent with the purposes of this Act;

(e) to promote, monitor and facilitate compliance with this Act;

(f) to promote and monitor the quality of environmental assessments conducted under this Act; and

(g) to engage in consultation with Aboriginal peoples on policy issues related to this Act.

Agency's duties

106. (1) In carrying out its objects, the Agency must

(a) provide support for review panels and any committees established under section 73 or under an agreement or arrangement entered into under paragraph 74(1)(a) or (b);

(b) provide, on the Minister's request, administrative support for any research and advisory body established under paragraph 86(1)(b); and

(c) provide information or training to facilitate the application of this Act.

Agency's powers

(2) In carrying out its objects, the Agency may

(a) undertake studies or activities or conduct research relating to environmental assessment;

(b) advise persons and organizations on matters relating to the assessment of environmental effects; and

(c) negotiate agreements or arrangements referred to in paragraph 86(1)(c) or (d) on the Minister's behalf.

Using government facilities

107. In exercising its powers and performing its duties and functions under this Act, the Agency must, when appropriate, make use of the services and facilities of departments, boards and agencies of the Government of Canada.

President

108. (1) The Governor in Council appoints an officer to be the President of the Agency, to hold office during pleasure, who is, for the purposes of this Act, a deputy of the Minister.

President – chief executive officer

(2) The President is the Agency's chief executive officer, and may exercise all of the Minister's powers under this Act as authorized by the Minister.

Acting President – Executive Vice-president

(3) Subject to subsection (5), in the event of the absence or incapacity of the President or a vacancy in that office, the Executive Vice-president acts as, and exercises the powers of, the President in the interim.

Acting President – other person

(4) Subject to subsection (5), the Minister may appoint a person other than the Executive Vice-president to act as the President in the interim.

Governor in Council's approval required

(5) The Executive Vice-president, or a person appointed under subsection (4), must not act as the President for a period exceeding 90 days without the Governor in Council's approval.

Executive Vice-president

109. (1) The Governor in Council may appoint an officer to be the Executive Vice-president of the Agency and to hold office during pleasure.

Powers, duties and functions

(2) The Executive Vice-president must exercise any powers and perform any duties and functions that the President may assign.

Remuneration

110. The President and the Executive Vice-president are to be paid any remuneration that the Governor in Council may fix.

Appointment under Public Service Employment Act

111. The employees who are necessary to carry out the Agency's work are to be appointed in accordance with the Public Service Employment Act.

Head office

112. The head office of the Agency is to be in the National Capital Region as described in the schedule to the National Capital Act.

Contracts, etc., binding on Her Majesty

113. (1) Every contract, memorandum of understanding and arrangement entered into by the Agency in its own name is binding on Her Majesty in right of Canada to the same extent as it is binding on the Agency.

Legal proceedings

(2) Actions, suits or other legal proceedings in respect of any right or obligation acquired or incurred by the Agency, whether in its own name or in the name of Her Majesty in right of Canada, may be brought or taken by or against the Agency in its own name in any court that would have jurisdiction if the Agency were a corporation that is not an agent of Her Majesty.

Annual report

Annual report to Parliament

114. (1) The Minister must, at the end of each fiscal year, prepare a report on the Agency's activities and the administration and implementation of this Act during the previous fiscal year.

Tabling in Parliament

(2) The Minister must, during the fiscal year after the fiscal year for which the report is prepared, cause the report to be laid before each House of Parliament.

Transitional provisions

Definitions

115. The following definitions apply in this section and sections 116 to 129.

"former Act" means the Canadian Environmental Assessment Act, chapter 37 of the Statutes of Canada, 1992.

"former Agency" means the Canadian Environmental Assessment Agency established by section 61 of the former Act.

President of former Agency

116. The person who holds the office of President of the former Agency immediately before the day on which this Act comes into force continues in office as the President of the Agency until the expiry or revocation of the appointment.

Executive Vice-president of former Agency

117. The person who holds the office of Executive Vice-president of the former Agency immediately before the day on which this Act comes into force continues in office as the Executive Vice-president of the Agency until the expiry or revocation of the appointment.

Employment continued

118. (1) Nothing in this Act is to be construed to affect the status of an employee who, immediately before the day on which this Act comes into force, occupied a position in the former Agency, except that the employee is to, on that day, occupy their position in the Agency.

Definition of "employee"

(2) For the purposes of this section, "employee" has the same meaning as in subsection 2(1) of the Public Service Employment Act.

References

119. Every reference to the former Agency in any deed, contract, agreement or other document executed by the former Agency in its own name is, unless the context otherwise requires, to be read as a reference to the Agency.

Transfer of rights and obligations

120. All rights and property of the former Agency and of Her Majesty in right of Canada that are under the administration and control of the former Agency and all obligations of the former Agency are transferred to the Agency.

Commencement of legal proceedings

121. Any action, suit or other legal proceeding in respect of an obligation or liability incurred by the former Agency may be brought against the Agency in any court that would have had jurisdiction if the action, suit or other legal proceeding had been brought against the former Agency.

122. Any action, suit or other legal proceeding to which the former Agency is party that is pending in any court immediately before the day on which this Act comes into force may be continued by or against the Agency in like manner and to the same extent as it could have been continued by or against the former Agency.

Appropriations

123. Any amount appropriated, for the fiscal year in which this Act comes into force, by an appropriation Act based on the Estimates for that year for defraying the charges and expenses of the former Agency and that, on the day on which this Act comes into force, is unexpended is considered, on that day, to be an amount appropriated for defraying the charges and expenses of the Agency.

Completion of screenings commenced under former Act

124. (1) Subject to subsections (3) to (5), any screening of a project commenced under the former Act before the day on which this Act comes into force must, if the project is a designated project, be continued and completed as if the former Act had not been repealed.

Minister's power

(2) The Minister may, only on the day on which this Act comes into force, exercise the power conferred by subsection 14(2) with respect to a physical activity that is included in a project that was the subject of a screening commenced under the former Act before the day on which this Act comes into force, and that is not completed on that day and that is not, on that day, a designated project.

Time limit

(3) The responsible authority with respect to the project to which subsection (1) applies must take a course of action under section 20 of the former Act no later than 365 days after the day on which this Act comes into force.

Exclusion

(4) If the responsible authority under subsection 18(2) of the former Act requires the proponent of the project to collect information or undertake a study with respect to the project, the period that is taken by the proponent, in the opinion of the responsible authority, to comply with the requirement, is not included in the calculation of the 365-day time limit.

Project requiring assessment by review panel

(5) If, during the screening or once the screening is completed, the Minister is of the opinion that the project must be referred to a review panel, the environmental assessment of the project is continued under the process established under this Act. The project is considered to be a designated project and the Minister must refer the environmental assessment of the project to a review panel under section 38.

Completion of comprehensive studies commenced under former Act

125. (1) Subject to subsections (2) to (6), any comprehensive study of a project commenced under the former Act before the day on which this Act comes into force is continued and completed as if the former Act had not been repealed.

Establishing Timelines for Comprehensive Studies Regulations

(2) The Establishing Timelines for Comprehensive Studies Regulations are deemed to have come into force on July 12, 2010 with respect to a comprehensive study to which subsection (1) applies.

Six-month time limit

(3) With respect to any comprehensive study commenced before July 12, 2010 to which subsection (1) applies with respect to a project for which the responsible authority is not the Canadian Nuclear Safety Commission, the responsible authority must ensure that the Minister and the Agency are provided with the comprehensive study report no later than six months after the day on which this Act comes into force.

(4) With respect to any comprehensive study to which subsection (1) applies and which was commenced before July 12, 2010 by a port authority established under section 8 of the Canada Marine Act, the port authority must ensure that the comprehensive study report is provided to the Minister of Transport and the Agency no later than six months after the day on which this Act comes into force.

Excluded periods

(5) If, under the former Act, the responsible authority or the port authority requires the proponent to collect information or undertake a study with respect to the project, then

(a) the period that is taken by the proponent, in the opinion of the responsible authority, to comply with the requirement, is not included in the calculation of the six-month time limit referred to in subsection (3); and

(b) the period that is taken by the proponent, in the opinion of the port authority, to comply with the requirement, is not included in the calculation of the six-month time limit referred to in subsection (4).

Project requiring assessment by review panel

(6) If, during the comprehensive study, the Minister is of the opinion that the project must be referred to a review panel, the environmental assessment of the project is continued under the process established under this Act. The project is considered to be a designated project and the Minister must refer the environmental assessment of the project to a review panel under section 38.

Minister's powers

(7) The Minister may, by order, exclude any comprehensive study of a project from the application of subsection (1) and provide that the environmental assessment of the project is continued under the process established under this Act. In such a case, the project is considered to be a designated project and, despite subsection 27(2), when the Minister must make decisions under section 27 with respect to the designated project, he or she must specify in the order the time limit for the decisions to be made. Subsections 27(3), (4) and (6) apply with respect to the time limit.

Posting of notice of order on Internet site

(8) The Agency must post a notice of any order made under subsection (7) on the Internet site.

Completion of assessment by a review panel commenced under former Act

126. (1) Despite subsection 38(6) and subject to subsections (2) to (6), any assessment by a review panel, in respect of a project, commenced under the process established under the former Act before the day on which this Act comes into force is continued under the process established under this Act as if the environmental assessment had been referred by the Minister to a review panel under section 38. The project is considered to be a designated project for the purposes of this Act and Part 3 of the Jobs, Growth and Long-term Prosperity Act, and

(a) if, before that day, a review panel was established under section 33 of the former Act, in respect of the project, that review panel is considered to have been established - and its members are considered to have been appointed - under subsection 42(1) of this Act;

(b) if, before that day, an agreement or arrangement was entered into under subsection 40(2) of the former Act, in respect of the project, that agreement or arrangement is considered to have been entered into under section 40 of this Act; and

(c) if, before that day, a review panel was established by an agreement or arrangement entered into under subsection 40(2) of the former Act or by document referred to in subsection 40(2.1) of the former Act, in respect of the project, it is considered to have been established by – and its members are considered to have been appointed under – an agreement or arrangement entered into under section 40 of this Act or by document referred to in subsection 41(2) of this Act.

Time limit for issuing decision statement under section 54

(2) The Minister must establish the time limit within which, from the day on which this Act comes into force, the decision statement that is required under section 54 in respect of the project must be issued. Subsection 54(3) applies with respect to the time limit.

Other time limits

(3) The Minister must, in respect of the project, also establish any of the time limits set out in paragraphs 38(3)(a) to (c) – which combined are not to exceed the time limit referred to in subsection (2) – that are necessary, depending on whether, on the day on which this Act comes into force, the review panel has or

has not been established or the report with respect to the environmental assessment of the project has or has not been submitted to the Minister.

Certain time limits established jointly

(4) In respect of a project to which paragraph (1)(b) applies and for which the responsible authority is referred to in paragraph 15(a) or (b), the Minister jointly establishes the time limits under subsections (2) and (3) with the responsible authority with respect to the project.

Posting time limits on Internet site

(5) The Agency must post on the Internet site a notice of any time limits established under subsection (2) or (3) in respect of the project.

Excluded periods

(6) If the Agency, the review panel or the Minister, under section 39 or subsection 44(2) or 47(2), respectively, requires the proponent of the project to collect information or undertake a study with respect to the designated project, the following periods are not included in the calculation of the time limit within which the Minister must issue the decision statement in respect of the project nor in the calculation of any of the time limits that are established under subsection (3):

(a) the period that is taken by the proponent, in the opinion of the Agency, to comply with the requirement under section 39;

(b) the period that is taken by the proponent, in the opinion of the review panel, to comply with the requirement under subsection 44(2); and

(c) the period that is taken by the proponent, in the opinion of the Minister, to comply with the requirement under subsection 47(2).

Substitution under former Act

127. The environmental assessment of a project commenced under the former Act before the day on which this Act comes into force for which the Minister has, before that date, approved the substitution of a process under section 43 of the former Act is continued and completed as if the former Act had not been repealed.

Non-application of this Act

128. (1) This Act does not apply to a project, as defined in the former Act, that is a designated project as defined in this Act, if one of the following conditions applies:

(a) the proponent of the project has, before the day on which this Act comes into force, initiated the construction of the project;

(b) it was determined by the Agency or a federal authority under the former Act that an environmental assessment of the project was likely not required;

(c) the responsible authority has taken a course of action under paragraph 20(1)(a) or (b) or subsection 37(1) of the former Act in relation to the project; or

(d) an order issued under subsection (2) applies to the project.

Minister's powers

(2) On the day on which this Act comes into force, the Minister may, by order, exclude from the application of this Act a project, as defined in the former Act, that is a designated project under this Act, if the Minister is of the opinion that the project was not subject to the former Act and that another jurisdiction that has powers, duties or functions in relation to the assessment of the environmental effects of the project has commenced that assessment.

Posting of notice of order on Internet site

(3) The Agency must post a notice of any order made under subsection (2) on the Internet site.

Privileged evidence, documents or things

129. The evidence, documents or things that, before the day on which this Act comes into force, are privileged under subsection 35(4) or (4.1) of the former Act are considered to be privileged under subsection 45(4) or (5), respectively, of this Act.

Schedule 1

(Subsection 2(1) and paragraph 83(a))

Federal authorities

1. Port authority as defined in subsection 2(1) of the Canada Marine Act.

2. Board as defined in section 2 of the Canada-Newfoundland Atlantic Accord Implementation Act.

3. Board as defined in section 2 of the Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act.

Schedule 2

(Subparagraph 5(1)(a)(iv) and subsection 5(3))

Components of the environment

Schedule 3

(Section 66 and paragraph 83(a))

Bodies

1. Designated airport authority as defined in subsection 2(1) of the Airport Transfer (Miscellaneous Matters) Act.

Japan

Act for Establishment of a Nuclear Regulation Authority (Act No. 47 of 2012)*

Purpose

Article 1

In order to eliminate the harmful effects of the vertically segmented nature of administration related to policy on nuclear power research, development and use (hereinafter "nuclear power use"), which became evident as a result of the nuclear plant accident following the Great East Japan Earthquake of 11 March 2011, while also resolving the problems caused by a single administrative body both promoting and regulating nuclear power use, at all times envisaging the potential for an accident arising from nuclear power use and based on an awareness of the need to make the optimum efforts possible to prevent the recurrence of such an accident, the purpose of this Act is to enact the necessary measures to ensure safety in nuclear power use based on established international standards, or exert centralised control over the implemented business (including refining, processing, storage, reprocessing and disposal operations associated with nuclear power as well as matters related to the regulation of nuclear reactors), and set up a Nuclear Regulation Authority, which exercises its authority independently from a neutral and fair standpoint based on the expert knowledge of its chairperson and commissioners, and thereby to protect the lives, health and property of the population, preserve the environment and contribute to the national security of Japan.

Establishment

Article 2

Based on the provisions of Article 3, paragraph 2 of the National Government Organisation Act (Act No. 120 of 1948), a Nuclear Regulation Authority shall be established as an external organ of the Ministry of the Environment.

* This document is an excerpt of the key portions of an unofficial translation of the original Japanese text and it is intended for general information and reference purposes only. This document may contain errors. In the event of any discrepancy between this version and the original official Japanese language version, the latter will take precedence. For a complete copy of the unofficial translation of the original Japanese text, please contact the NEA Legal Affairs Section at law@oecd-nea.org.

Task

Article 3

In order to protect the lives, health and property of the population, preserve the environment and contribute to the national security of Japan, the task of the Nuclear Regulation Authority is to ensure safety in nuclear power use (refining, processing, storage, reprocessing and disposal operations associated with nuclear power as well as matters related to the regulation of nuclear reactors).

Affairs under jurisdiction

Article 4

1. In order to fulfil the task described in the preceding article, the Nuclear Regulation Authority shall have charge of the following affairs:

i) Matters related to ensuring safety in nuclear power use.

ii) Matters related to ensuring safety with regard to refining, processing, storage, reprocessing and disposal operations associated with nuclear power as well as the regulation of nuclear reactors and other matters.

iii) Matters related to ensuring safety with regard to regulation concerning the use of nuclear source material and nuclear fuel material and other matters.

iv) Matters related to ensuring the uniformity of technical standards concerning the prevention of radiation damage.

v) Matters related to the formulation and promotion of basic policy concerning the monitoring and measuring of radioactive material or radiation levels, as well as expense allocation planning for related administrative bodies.

vi) Matters related to the cultivation and training of researchers and technicians in relation to ensuring safety in nuclear power use (except where related to education and research in university).

vii) Matters related to coordinating the business affairs of administrative bodies with regard to the protection of nuclear fuel material or other radioactive material.

viii) Matters related to research to identify the cause(s) of a nuclear accident arising from the operation of a nuclear reactor, etc. (operation of a nuclear reactor, etc. as defined in Section 2.1 of the Act on Compensation for Nuclear Damage (Act No. 147 of 1961)) (hereinafter "nuclear accident"), and the cause(s) of damage arising from the nuclear accident.

ix) Matters related to international cooperation associated with the affairs under jurisdiction.

x) Performing the surveys and research required to carry out the aforementioned affairs.

xi) As well as the foregoing items, affairs assigned to the Nuclear Regulation Authority based on legislation (including orders based on acts).

2. If deemed necessary in order to execute the affairs under its jurisdiction, the Nuclear Regulation Authority may solicit advice from the heads of related administrative bodies concerning matters related to ensuring safety in nuclear power use, and request a report on the measures adopted based on such advice.

Exercise of authority

Article 5

The chairperson and commissioners of the Nuclear Regulation Authority shall exercise their authority independently.

Organisation

Article 6

1. The Nuclear Regulation Authority shall be composed of a chairperson and four commissioners.

2. The chairperson shall preside over the commission's business and represent the Nuclear Regulation Authority.

3. Should anything happen to the chairperson, or if the position of chairperson is vacant, the commissioner specified in advance shall perform the chairperson's duties on his or her behalf.

Appointment of chairperson and commissioners

Article 7

1. The chairperson and commissioners shall be appointed by the Prime Minister, based on the agreement of both Houses, from among persons of the highest moral character and integrity who possess expert knowledge and experience, as well as insight, with regard to ensuring safety in nuclear power use.

2. The appointment and dismissal of the chairperson shall be attested by the Emperor.

3. If during a session of the Diet, a declaration of a nuclear emergency situation has been issued pursuant to the provisions of Article 15, paragraph 2 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Act No. 156 of 1999), or other circumstances of special emergency apply, and the posts of both the chairperson and the commissioner performing the chairperson's duties on his or her behalf based on the provisions of paragraph 3 of the preceding article are vacant (hereafter in this paragraph, "an emergency appointment is necessary"), and a resolution concerning agreement related to appointment of the chairperson pursuant to the provisions of paragraph 1 is not passed within 10 days counting from the date on which a request was made in writing, stating the necessity of an emergency appointment, to both or one of the Houses for its agreement (or when a situation arises in which an emergency appointment is necessary after a request has been made for agreement related to appointment of the chairperson based on the provisions of paragraph 1, counting from the date on which notification was received to that effect), excluding any period in which the Diet or Houses are in recess (except when the other House has issued a resolution to the effect that it will not grant said agreement), the Prime Minister may appoint a chairperson from among persons who possess the qualifications specified in said paragraph, notwithstanding the provisions of said paragraph.

4. In the case described in the preceding paragraph, when the declaration of cancellation of a nuclear emergency situation has been issued pursuant to the provisions of Article 15, paragraph 4 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, or other circumstances of special emergency no longer apply, the ex post facto approval of both Houses must be obtained as soon as possible thereafter. In this case, if the ex post facto approval of both Houses has

been sought in a Diet session but is not obtained, the Prime Minister must immediately dismiss the chairperson.

5. If upon the expiry of the term of office of the chairperson or a commissioner, or the vacancy of their post, it is not possible to obtain the agreement of both Houses due to the Diet being out of session or the dissolution of the House of Representatives, the Prime Minister may appoint a chairperson or commissioner from among persons who possess the qualifications specified in paragraph 1, notwithstanding the provisions of said paragraph.

6. The provisions of paragraph 4 shall apply *mutatis mutandis* to the case set forth in the preceding paragraph. In this case, the words "preceding paragraph" in paragraph 4 shall be replaced with the words "next paragraph", the words "when the declaration of cancellation of a nuclear emergency situation has been issued pursuant to the provisions of Article 15, paragraph 4 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, or other circumstances of special emergency no longer apply, the ex post facto approval of both Houses must be obtained as soon as possible thereafter" shall be replaced with the words, "the ex post facto approval of both Houses must be obtained in the first Diet session after the appointment (concerning ex post facto approval of the chairperson when a declaration of a nuclear emergency situation has been issued pursuant to the provisions of Article 15, paragraph 2 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, or other circumstances of special emergency apply, and where notification to this effect has been made to both Houses, as soon as possible after said circumstances of special emergency no longer apply)", and the word "chairperson" shall be replaced with the words "chairperson or commissioner".

7. When any of the following circumstances apply, a person may not become chairperson or a commissioner.

i) A bankrupt person whose rights have yet to be restored, following an order for the commencement of bankruptcy proceedings.

ii) A person punished by imprisonment or heavier punishment.

iii) A person engaged in nuclear power-related refining, processing, storage, reprocessing or disposal operations, a person who installs a nuclear reactor, a person caused to enter a foreign nuclear vessel in Japanese territorial waters or a person engaged in the use of nuclear source material or nuclear fuel material, or when any such person is a juridical person, an officer of such person (including a person with equivalent or higher authority or control, regardless of their title) or an employee or other worker of such person.

iv) A director of a body of any of the persons set forth in the preceding item (including a person with equivalent or higher authority or control, regardless of their title), or an employee or other worker of such person.

Term of office

Article 8

1. The term of office of the chairperson and commissioners shall be 5 years. However, the term of office of the chairperson or commissioner chosen to fill a vacancy shall be the remaining term of office of his/her predecessor.

2. A commissioner may be reappointed.

3. Upon expiry of the term of office of the chairperson or a commissioner, said chairperson or commissioner shall continue to perform their duties until a successor is appointed.

Dismissal

Article 9

1. The Prime Minister must dismiss the chairperson or a commissioner when any of the circumstances described in the items under Article 7 paragraph 7 apply to the chairperson or commissioner.

2. If it is found that the chairperson or a commissioner cannot perform his or her duties due to a mental or physical disorder, or the chairperson or a commissioner has committed a breach of obligations in the course of their duties or otherwise has committed an act that is inappropriate for a chairperson or commissioner, the Prime Minister may dismiss the chairperson or commissioner after hearing the opinion of the Nuclear Regulation Authority beforehand, and after obtaining the consent of both Houses.

Meetings

Article 10

1. The Nuclear Regulation Authority shall be convened by the chairperson.

2. The Nuclear Regulation Authority cannot hold a meeting or make resolutions without the attendance of the chairperson and at least two commissioners.

3. The proceedings of the Nuclear Regulation Authority shall be determined by a majority of the attendees, or by the chairperson in the event of a voting tie.

4. Notwithstanding the provisions of the preceding two paragraphs, in the cases described below the chairperson may temporarily represent the commission in relation to the matters described under each item below when it is deemed that there is no time to convene a meeting due to particular urgent necessity, or when a meeting of the commission or the proceedings of the commission fall short of a quorum.

i) Either of the circumstances described in the items in Article 15, paragraph 1 of the Act on Special Measures Concerning Nuclear Emergency Preparedness applies: Recognition of the occurrence of a nuclear emergency situation and report to the Prime Minister pursuant to the provisions of said paragraph, public announcement pursuant to the provisions of paragraph 2 of said article and submission of a draft directive pursuant to the provisions of paragraph 3 of said article.

ii) When during the period from the declaration of a nuclear emergency situation pursuant to the provisions of Article 15, paragraph 2 of the Act on Special Measures Concerning Nuclear Emergency Preparedness until the declaration of cancellation of the nuclear emergency situation pursuant to the provisions of paragraph 4 of said article: Relating to emergency response measures as provided for in Article 2 item v) of said Act.

iii) When a bulletin has been received pursuant to the first part of Article 105, paragraph 1 of the Act concerning the Measures for Protection of the People in Armed Attack Situations, etc. (Act No. 112 of 2004; hereafter in this paragraph “People's Protection Act”): Report to Chief of the Emergency Response Headquarters pursuant to the provisions of paragraph 2 of said article (Chief of the Emergency Response Headquarters as defined in Article 11, paragraph 1 of the Act on the Peace and Independence of Japan and Maintenance of the Nation and the People's Security in Armed Attack (Act No. 79 of 2003; hereafter in this

paragraph "Armed Attack Response Act"); likewise in item v)) and notification to related designated public institutions.

iv)When a fact exists pursuant to Article 105, paragraph 1 of the People's Protection Act: Recognition of occurrence of said fact in accordance with paragraph 4 of said article.

v) When a bulletin is received pursuant to the provisions of Article 105, paragraph 3 of the People's Protection Act: Report to Chief of the Emergency Response Headquarters pursuant to the provisions of paragraph 2 of said article, which apply *mutatis mutandis* pursuant to the provisions of paragraph 4 of said article, and notification to related designated public bodies, as well as notification to the competent prefectural governor, competent mayor of the municipality and related neighbouring prefectural governors, as well as nuclear operators (nuclear operator as defined in Article 2 item iii) of the Act on Special Measures Concerning Nuclear Emergency Preparedness; likewise hereinafter) pursuant to the provisions of the latter part of paragraph 4 of said article.

vi) In an armed attack situation, etc. (as defined in Article 1 of the Armed Attack Response Act): Order the enactment of the necessary measures pursuant to the provisions of Article 106 of the People's Protection Act.

5. When the chairperson temporarily represents the commission pursuant to the provisions of the preceding paragraph, this fact and the represented matters must be reported by the chairperson at the next meeting, as prescribed by the Nuclear Regulation Authority Rules.

6. Concerning the application of the provisions of paragraph 2, paragraph 4 and the preceding paragraph, if anything happens to the chairperson or if the position of chairperson is vacant, the commissioner performing the chairperson's duties on his or her behalf in accordance with the provisions of Article 6, paragraph 3 shall be regarded as the chairperson.

Service

Article 11

1. The chairperson and commissioners must not divulge any secret that may have come to their knowledge in the course of their duties. The same shall apply after they retire from their duties.

2. The chairperson and commissioners must not be a director of a political party or other political organisation while holding office, or be actively involved in a political campaign.

3. The chairperson and commissioners must not engage in any other duty for fees or operate a profit-making business or provide other services for the purpose of gaining monetary profit while holding office, except where permission has been obtained from the Prime Minister.

4. In order to prevent actions that invite the suspicion or distrust of the population in relation to the neutrality and fairness of the duties of the chairperson and commissioners, the Nuclear Regulation Authority shall disclose information concerning donations from nuclear operators, etc. related to research undertaken by the chairperson or a commissioner, specify internal rules to be complied with by the chairperson and commissioners, including limiting donations from nuclear operators, etc. while holding the position of chairperson or commissioner, and make public these rules. The same procedure applies when amending the rules.

5. In in order to be able to respond promptly and appropriately in the event of the occurrence of a nuclear accident, the Nuclear Regulation Authority shall prescribe internal rules, which envisage a variety of potential scenarios, comprising a Code of Conduct that the chairperson and commissioners must comply with, including the methods of holding meetings and voting, and must operate these rules properly.

Salaries

Article 12

The salaries of the chairperson and commissioners shall be defined separately by law.

Councils

Article 13

1. The following councils shall be established in the Nuclear Regulation Authority:

Expert Commission on Nuclear Reactor Safety

Expert Commission on Nuclear Fuel Safety

2. In addition to the provisions of the preceding paragraph, the following councils shall be established in the Nuclear Regulation Authority, as provided for by applicable law:

Radiation Council

Evaluation Committee for Independent Administrative Agencies

Expert Commission on Nuclear Reactor Safety

Article 14

The Expert Commission on Nuclear Reactor Safety shall investigate and consider matters concerning nuclear reactor safety when instructed to do so by the Nuclear Regulation Authority.

Article 15

1. The Expert Commission on Nuclear Reactor Safety shall be composed of up to the number of investigative commissioners prescribed by cabinet order.

2. The investigative commissioners shall be appointed by the Nuclear Regulation Authority from among persons of learning and experience.

3. The investigative commissioners shall be part-time.

4. The term of office of the investigative commissioners shall be 2 years.

5. An investigative commissioner may be reappointed.

Article 16

1. The Expert Commission on Nuclear Reactor Safety shall have one chairperson, to be elected from among the investigative commissioner

2. The chairperson shall oversee the business of the commission.

3. Should anything happen to the chairperson, the investigative commissioner specified in advance shall perform the chairperson's duties on his or her behalf.

Article 17

In addition to the provisions of the preceding three articles, any necessary matters related to the Expert Commission on Nuclear Reactor Safety shall be prescribed by cabinet order.

Expert Commission on Nuclear Fuel Safety

Article 18

The Expert Commission on Nuclear Fuel Safety shall investigate and consider matters concerning the safety of nuclear fuel material when instructed to do so by the Nuclear Regulation Authority.

Article 19

1. The Expert Commission on Nuclear Fuel Safety shall be composed of up to the number of investigative commissioners prescribed by cabinet order.

2. The provisions of Article 15, paragraphs 2 through 5, and of Article 16 and Article 17, apply *mutatis mutandis* with regard to the Expert Commission on Nuclear Fuel Safety.

Radiation Council

Article 20

The Radiation Council shall be as provided for by the Act on Technical Standards for the Prevention of Radiation Damage (Act No. 162 of 1958; including orders based thereon).

Evaluation Committee for Independent Administrative Agencies

Article 21

The Evaluation Committee for Independent Administrative Agencies shall be as provided for by the Act on General Rules for Independent Administrative Agencies (Act No. 103 of 1999; including orders based thereon).

Commissioner(s) for emergency response measures

Article 22

1. One or more commissioners for emergency response measures shall be installed in the Nuclear Regulation Authority, if so instructed by the Nuclear Regulation Authority, to investigate and consider matters related to emergency response measures in a nuclear emergency situation as stipulated in Article 2, item ii) of the Act on Special Measures Concerning Nuclear Emergency Preparedness, up to the number of commissioners prescribed by cabinet order (hereinafter "emergency response commissioner").

2. An emergency response commissioner shall be appointed by the Nuclear Regulation Authority from among persons of learning and experience.

3. An emergency response commissioner shall be part-time, and his or her term of office shall be 2 years.

4. An emergency response commissioner may be reappointed.

Nuclear accident investigation

Article 23

1. The Nuclear Regulation Authority may take the following measures if deemed necessary in order to perform the matters set forth in Article 4, paragraph 1, item viii).

i) Obtain a report from a nuclear operator, from a party that has enacted measures to prevent the spreading of damage arising from a nuclear accident, or from another party related to a nuclear accident (hereinafter "related party" or "related parties").

ii) Gain access to a nuclear site or other site of a nuclear accident, the office of a nuclear operator or other location deemed necessary, examine books, documents and other nuclear accident-related articles (hereinafter "related article" or "related articles"), question related parties, or remove samples such as nuclear source material and nuclear fuel material for testing, provided that this is only in the minimum quantity necessary.

iii) Request the attendance of related parties for questioning.

iv) Request that the owner, holder or keeper of a related article submits said related article, or retain a related article.

v) Order that the owner, holder or keeper of a related article preserves said related article, or prohibit its transfer.

vi) Prohibit persons from gaining access to a nuclear site or other site of a nuclear accident other than persons who have access as part of their official duties and persons who the Nuclear Regulation Authority deems will cause no hindrance.

2. If deemed necessary, the Nuclear Regulation Authority may have the chairperson, a commissioner or a staff member of the Nuclear Regulatory Agency take the measures described under the preceding paragraph.

3. A person taking the measures described under paragraph 1 item ii) pursuant to the provisions of the preceding paragraph must carry a personal identification document and present this if so requested by a related party.

4. Authority for the measures stipulated in paragraph 1 or paragraph 2 shall not be construed as granted for the purposes of criminal investigation.

Reporting to the Diet

Article 24

The Nuclear Regulation Authority must report each year to the Diet via the Prime Minister on the status of the affairs under its jurisdiction, and also publish a summary thereof.

Information disclosure

Article 25

In order to contribute to guaranteeing the people's right to know, the Nuclear Regulation Authority must fully disclose the information it holds in order to ensure transparency in its operations.

Enactment of rules

Article 26

The Nuclear Regulation Authority may enact Nuclear Regulation Authority Rules in order to implement acts or cabinet orders in respect of the affairs under its jurisdiction, or on the basis of a special delegation under an act or cabinet order.

Nuclear Regulatory Agency

Article 27

1. In order to process the business of the Nuclear Regulation Authority, a secretariat shall be established at the Nuclear Regulation Authority.

2. The secretariat under the preceding paragraph shall be known as the Nuclear Regulatory Agency.

3. The Nuclear Regulatory Agency shall have a Head of the Secretariat and other staff.

4. The Head of the Secretariat under the preceding paragraph shall be known as the Director General of the Nuclear Regulatory Agency.

5. The Director General of the Nuclear Regulatory Agency shall administer the matters of the secretariat in accordance with the instructions of the chairperson.

6. The internal organisation of the Nuclear Regulatory Agency shall be based, *mutatis mutandis*, on the provisions of articles 7, paragraph 3, 7, paragraph 4 and 7, paragraph 6, as well as Articles 21, paragraph 1 and 5 of the National Government Organisation Act, notwithstanding the provisions of Article 7, paragraph 7 of said Act. In this case, the words "ministerial ordinance" in Articles 7, paragraph 6 and 21, paragraph 5 of said Act shall be replaced with the words "Nuclear Regulation Authority Rules".

Operation of the Nuclear Regulation Authority

Article 28

In addition to the provisions of this Act, any necessary matters related to the operation of the Nuclear Regulation Authority shall be defined by the Nuclear Regulation Authority.

Punitive provisions

Article 29

A party who violates the provisions of Article 11, paragraph1 shall be punished with imprisonment of up to one year or a fine of up to JPY 500,000.

Article 30

A person corresponding to any of the following shall be punished with a fine of up to JPY 300, 000.

i) A person who has made a false statement in connection with the preparation of a report as prescribed by Article 23, paragraph 1, item i) or Article 23, paragraph 2.

ii) A person who has refused, obstructed, or evaded an inspection or the submission of a sample as prescribed by Article 23, paragraph 1, item ii) or Article 23, paragraph 2, or who has made a false statement in response to a question as prescribed by these provisions.

iii) A person who has made a false statement in response to a question as prescribed by Article 23, paragraph1, item iii) or Article 23, paragraph 2.

iv) A person who does not submit an article in contravention of the measure prescribed by Article 23, paragraph 1, item iv) or Article 23, paragraph 2.

v) A person who does not preserve an article, or transfers an article, in contravention of the measure prescribed by Article 23, paragraph 1, item v) or Article 23, paragraph 2.

Article 31

If the representative of a corporation, or the agent, employee or other engaged person of a corporation or individual violates the provisions of the preceding article in relation to the business of that corporation or individual, the person who committed the act shall be punished, and the corresponding corporation or individual shall be subject to the punishment specified in said article.

Supplementary provisions

Date of enforcement

Article 1

This Act is enforced from the date prescribed by cabinet order, provided that this is not later than three months from the date of its promulgation. However, the provisions set forth in the items below shall be enforced from the dates specified in each item.

i) The provisions under Article 7, paragraph 1 (limited to that part pertaining to obtaining the agreement of both Houses), and in the Supplementary Provisions, the provisions under Articles 2, paragraph 3 (limited to that part pertaining to obtaining the agreement of both Houses), 5, 6, 14, paragraph 1, 34 and 87: The date of promulgation.

ii) In Article 54 of the Supplementary Provisions, the below mentioned provision added after the paragraph "Article 34, paragraph 1" in the table under Article 28, paragraph 1 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, the provisions revising the paragraphs "Article 40, paragraph 2, item ii)" and "42, paragraph 2, item ii)" in said table, the below mentioned provision added after the paragraph "Article 42, paragraph 2, item ii)" in said table, the provisions revising the paragraphs "Article 46, paragraph 2" and "47, paragraph 1" in said table (limited to the part pertaining to the paragraph Article 47, paragraph 1), the provisions revising the paragraphs "Article 46, paragraph 2" and "Article 47, paragraph 1" in said table (limited to the part pertaining to the paragraph "Article 47, paragraph1"), the below mentioned provision added after the paragraph "Article 47, paragraph 1" in said table, and the provisions revising the paragraphs "Article 49" and "Article 51" in said table (limited to the part pertaining to the paragraph "Article 49"): The date prescribed by cabinet order, provided that this is not later than 6 months from the date of enforcement of this Act (hereafter in this article "date of enforcement").

iii) The provisions of Articles 16, 20, 31, 32, 58, 69, 91 and 96 of the Supplementary Provisions: April 1, 2013.

iv) The provisions of Articles 17, 21-26, 37, 39, 41-48, 50, 55, 61, 65, 67, 71 and 78 of the Supplementary Provisions: The date prescribed by cabinet order, provided that this is not later than 10 months from the date of enforcement.

v) The provisions of Articles 18 and 27-30 (excluding the revised provision set forth in the following item) of the Supplementary Provisions: The date defined by cabinet order, provided that this is not later than 1 year and 3 months from the date of enforcement.

vi) In Article 18 of the Supplementary Provisions, the provision revising Article 28 of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (Act No. 166 of 1957) (limited to the part where a paragraph is added in said article), the provision revising Article 29 of said Act (limited to the part where a paragraph is added in said article), the provision adding a paragraph to Article 55-2 of said Act and the provision revising Article 65, paragraph 1, item i) of said Act (limited to the part adding "Article 28, paragraph 3", under "Article 16-3, paragraph 3 (", the part adding "Article 29, paragraph 3", under "Article 16-5 paragraph 3 (", and the part revising "and Article 51-10, paragraph 3" to "Article 51.10 paragraph 3 and Article 55-2, paragraph 3"): April 1, 2014.

vii) The provisions of Article 85 of the Supplementary Provisions: The date of enforcement or the date of promulgation of the Act on the Arrangement of Related Acts that Accompany the Enforcement of Acts that Revise Parts of the Act on General Rules for Independent Administrative Agencies (Act No. XXX of 2012), whichever is later.

Appointment of first chairperson and commissioners

Article 2

1. The term of office of the commissioners to be first appointed after the enforcement of this Act shall be two years for two of the four persons, and three years for the other two persons, notwithstanding the provisions of the main clause of Article 8, paragraph 1.

2. The term of office of each commissioner prescribed by the preceding paragraph shall be determined by the Prime Minister.

3. If the date of enforcement of this Act is during a session of the Diet, and moreover a declaration of a nuclear emergency situation has been issued at the time of its enforcement pursuant to the provisions of Article 15, paragraph 2 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, and a resolution concerning agreement pursuant to the provisions of Article 7, paragraph 1 is not passed within ten days counting from the date on which a request was made in writing, stating that one or both Houses had declared a nuclear emergency situation (or when the declaration of a nuclear emergency situation is made after agreement has been requested based on the provisions of said paragraph, from the date on which such notification of declaration was received) excluding any period in which the Diet or Houses are in recess (except when the other House has issued a resolution to the effect that it will not grant said agreement), the Prime Minister may appoint the chairperson or commissioners to be first appointed after the enforcement of this Act from among persons who possess the qualifications specified in said paragraph, notwithstanding the provisions of said paragraph.

4. The provisions of Article 7, paragraph 4 shall apply *mutatis mutandis* to the case set forth in the preceding paragraph. In this case, the words "preceding paragraph" in Article 7, paragraph 4 shall be replaced with the words "Article 2, paragraph 3 of the Supplementary Provisions"), the words "when the declaration of cancellation of a nuclear emergency situation has been issued pursuant to the provisions of Article 15, paragraph 4 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, or other circumstances of special emergency no longer apply", shall be replaced with the words "when the cancellation of a nuclear emergency situation has been issued pursuant to the provisions of Article 15, paragraph 4 of the Act on Special Measures Concerning Nuclear Emergency Preparedness", and the word "chairperson" shall be replaced with the words "chairperson or commissioner".

5. Concerning the appointment of the chairperson and commissioners to be first appointed after the enforcement of this Act, if it is not possible to obtain the agreement of both Houses due to the Diet being out of session or the dissolution of the House of Representatives, the Prime Minister may appoint a chairperson or commissioner from among persons who possess the qualifications specified in Article 7, paragraph 1, notwithstanding the provisions of said paragraph.

6. The provisions of Article 7, paragraph 4 shall apply *mutatis mutandis* to the case set forth in the preceding paragraph. In this case, the words “preceding paragraph” in Article 7, paragraph 4 shall be replaced with the words “Article 2, paragraph 5 of the Supplementary Provisions”, the words “when the declaration of cancellation of a nuclear emergency situation has been issued pursuant to the provisions of Article 15, paragraph 4 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, or other circumstances of special emergency no longer apply, the ex post facto approval of both Houses must be obtained as soon as possible thereafter” shall be replaced with the words, “the ex post facto approval of both Houses must be obtained in the first Diet session after the appointment (when a declaration of a nuclear emergency situation has been issued pursuant to the provisions of Article 15, paragraph 2 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, and where notification to this effect has been made to both Houses, as soon as possible after cancellation of the nuclear emergency situation has been issued pursuant to the provisions of paragraph 4 of said article)”, and the word “chairperson” shall be replaced with the words “chairperson or commissioner”.

Transitional measures concerning punishment, etc.

Article 3

1. Unless otherwise provided for in laws and regulations, any permissions, approvals, authorisations, designations or other dispositions or notices or other acts effected by a former state organ (hereafter in this article “former organ”) pursuant to the provisions of the respective acts (including orders based thereon; hereafter in this article and paragraph 1 of the following article “former laws and regulations”) prior to the revision by this Act before the enforcement thereof shall be deemed to be the permissions, approvals, authorisations, designations or other dispositions or notices or other acts effected by the relevant state organ (hereafter in this article “new organ”) pursuant to the provisions of the respective acts (including orders based thereon; hereafter in this article “new laws and regulations”) following the revision by this Act after the enforcement thereof.

2. Unless otherwise provided for in laws and regulations, any applications, notices or other acts made to a former organ at the time of the enforcement of this Act pursuant to the provisions of the former laws and regulations shall be deemed to be

applications, notices or other acts made to the new organ based on the corresponding provisions under the new laws and regulations.

3. Concerning a matter for which a report, notice, submission or other procedure had to be made to a former organ pursuant to the provisions of the former laws and regulations prior to the enforcement of this Act, where such procedure had not been carried out prior to the date of enforcement of this Act, following the enforcement of this Act it shall be deemed that the procedure to be made to the new organ pursuant to the corresponding provisions of the new laws and regulations has not been carried out, and said corresponding provisions shall apply, unless otherwise provided for in laws and regulations.

Transitional measures concerning the effectiveness of orders

Article 4

1. Concerning a ministerial ordinance under Article 7, paragraph 3 of the Act for Establishment of the Cabinet Office (Act No. 89 of 1999) or a ministerial ordinance under Article 12, paragraph 1 of the National Government Organisation Act (in the next paragraph "former ministerial ordinance"), issued pursuant to the provisions of former laws and regulations and effective at the time of the enforcement of this Act, any matter to be specified by the Nuclear Regulation Authority Rules pursuant to the provisions of the new laws and regulations shall have validity as a Nuclear Regulation Authority rule where it has been so specified.

2. Unless otherwise provided for in laws and regulations, a former ministerial ordinance shall be effective as a ministerial ordinance under the corresponding Article 7, paragraph 3 of the Act for Establishment of the Cabinet Office (Act No. 89 of 1999) or Article 12, paragraph 1 of the National Government Organisation Act issued based on the corresponding provisions of the new laws and regulations.

Examination concerning the administrative organ with jurisdiction over affairs with regard to ensuring safety in nuclear power use

Article 5

1. Concerning the administrative organ with jurisdiction over affairs with regard to ensuring safety in nuclear power use, within three years of the enforcement of this Act, based on the status of implementation of this Act, the contents of the report submitted by the National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission (NAIIC), and the latest international standards with regard to ensuring safety in nuclear power use, etc., duly considering that the business of ensuring safety in nuclear power use, including the protection of radioactive material, is linked to the national security of Japan, a review shall be conducted concerning matters including the establishment of an independent administrative commission in the Cabinet Office, so as to better align with international standards, and the necessary measures shall be taken based on the results thereof.

Government measures, etc.

Article 6

1. In the light of the nuclear plant accident in the Great East Japan Earthquake, duly considering that regulation to ensure safety in nuclear power use is an issue of urgent necessity, the government shall promptly enact the necessary measures with regard to the following items and other important matters in relation to the staff of

the Nuclear Regulatory Agency, in order to continually secure talented and motivated human resources who have a thorough knowledge of related international trends.

i) Establish a pay structure appropriate to duties and responsibility requiring expert knowledge and experience, while also taking into account the individual's qualifications, and aim to provide other comprehensive benefits.

ii) After fully securing capacity with regard to new recruits, actively recruit persons possessing expert knowledge and experience from among domestic universities, research institutes, private sector enterprises, etc., and also actively recruit persons possessing expert knowledge and experience from among overseas universities, research institutes, private sector enterprises, etc., duly considering the importance of actively incorporating the latest knowledge from overseas with regard to ensuring safety in nuclear power use, including recruitment to positions in which these persons can state third party opinions to Japan's nuclear energy administration.

iii) Secure opportunities for studying abroad, secondment to international institutions and foreign government bodies, etc., and also for working at diplomatic missions abroad, etc., and conduct personnel exchanges with universities and research institutes inside and outside Japan.

iv) Install training facilities to enhance work skills and establish other training structures.

v) Secure human resources, including the recruitment of staff, and otherwise enhance the human or material structure of the Nuclear Regulation Authority, including training-related policies, and introduce accounting categories.

2. Do not permit staff of the Nuclear Regulatory Agency to be assigned or transferred to the administrative organ having jurisdiction over affairs related to the promotion of nuclear power use, in order to achieve regulatory independence to ensure safety in nuclear power use, both with regard to the senior staff and other staff of the Nuclear Regulatory Agency. However, during the five-year period from the enforcement of this Act, this shall not apply when particularly unavoidable circumstances are found to exist, taking into consideration the relevant staff member's motivation, suitability, etc.

3. Restrict the re-employment of staff of the Nuclear Regulatory Agency where this invites the suspicion or distrust of the people with regard to the impartial execution of their duties, in order to achieve regulatory independence to ensure safety in nuclear power use.

4. In order for the operations undertaken by the Japan Nuclear Energy Safety Organisation to be undertaken by the Nuclear Regulatory Agency, the government shall abolish the Japan Nuclear Energy Safety Organisation as soon as possible, and quickly enact the necessary legislative measures, including so that the staff of the Japan Nuclear Energy Safety Organisation can become corresponding staff of the Nuclear Regulatory Agency.

5. In addition to the provisions of the preceding paragraph, the government shall review the organisation and operations of independent administrative agencies and other related bodies in order to more efficiently and effectively regulate with regard to ensuring safety in nuclear power use, and enact the necessary measures based on the results thereof.

6. The government shall consider policies to achieve a more effective system related to reporting under the provisions of Article 66-2, paragraph 1 of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, and enact the necessary measures based on the results thereof.

7. In the light of the enormous damage caused by the Great East Japan Earthquake, the government shall undertake a drastic review of the government organisation for dealing with large-scale natural disasters, in order to deal more flexibly and effectively with large-scale natural disasters including nuclear disasters, and enact the necessary measures based on the results thereof.

8. In the light of the nuclear plant accident resulting from the Great East Japan Earthquake, the government shall promptly review the method of disclosing to local governments information about nuclear plants and disasters, etc. involving nuclear accidents, and enact the necessary measures based on the results thereof, as well as enact the measures to achieve the sharing of information among the state, local governments, citizens, nuclear operators, etc. and among related administrative organs, in view of the importance of establishing a system of even closer communication and cooperation among related parties, as well as other necessary measures.

9. Nuclear operators, acutely aware that they bear primary responsibility for ensuring safety in nuclear power facilities and the resolution of accidents, shall enact measures based on the provisions of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, etc., as well as enact further voluntary measures in order to establish a comprehensive crisis management system for each nuclear power facility, in order to prevent the occurrence of an accident in the nuclear facility and the expansion of a disaster resulting from such accident.

[TEXT OMITTED]

Partial Amendment of the Basic Act on Atomic Energy

Article 12

1. The Basic Act on Atomic Energy (Act No. 186 of 1955) is partially amended as follows:

In Article 1, "(hereinafter "nuclear power use")" is added after "use".

In Article 2, "nuclear power research, development and use" is amended to "nuclear power use", and the following paragraph is added to said article.

2. With regard to ensuring safety referred to in the preceding paragraph, this shall be carried out in order to protect the lives, health and property of the population, preserve the environment and contribute to the national security of Japan, based on established international standards.

The following two chapters are added after Chapter I:

Chapter I-2 Nuclear Regulation Authority:

Article 3-2

In order to ensure safety in nuclear power use, a Nuclear Regulation Authority shall be established as an external organ of the Ministry of the Environment, as provided for by applicable law.

Chapter I-3 Nuclear Disaster Prevention Council:

Establishment

Article 3-3

A Nuclear Disaster Prevention Council shall be established in the Cabinet (hereinafter "Council").

Affairs under Jurisdiction

Article 3-4

The Council shall have charge of the following affairs:

i) Promotion of measures based on the nuclear disaster countermeasures guidelines (nuclear disaster countermeasures guidelines as stipulated in Article 6-2, paragraph 1 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Act No. 156 of 1999)) and promotion of the implementation of other measures to secure the government's comprehensive efforts in the event of a nuclear accident (an accident arising from the operation of a nuclear reactor, etc. (operation of a nuclear reactor, etc. as defined in Section 2, paragraph 1 of the Act on Compensation for Nuclear Damage (Act No. 147 of 1961)); likewise in the next item).

ii) Promotion of measures necessitated by comprehensive efforts over a long period of time by a large number of related parties in the event of a nuclear accident.

Organisation

Article 3-5

1. The Council shall be composed of a chairperson, deputy chairpersons and councillors.

2. The Prime Minister shall serve as chairperson.

3. The deputy chairpersons shall be a person appointed by the Prime Minister from among the Chief Cabinet Secretary, the Minister for Environment, and a Minister of State other than the Chief Cabinet Secretary and the Minister for Environment, and the chairperson of the Nuclear Regulation Authority.

4. The following shall serve as councillors.

i) All Ministers of State other than the chairperson and deputy chairpersons, and the Deputy Chief Cabinet Secretary for Crisis Management.

ii) A person or persons appointed by the Prime Minister from among the Deputy Chief Cabinet Secretary, the Deputy Minister for Environment or the deputy ministers of related ministries and agencies, the Parliamentary Secretary for Environment or the parliamentary secretaries of related ministries and agencies, or the chiefs of related administrative organs other than ministers of state.

Secretariat

Article 3-6

1. The Council shall have a Secretariat to process its business affairs.

2. The Secretariat shall have a Head of the Secretariat and other staff.

3. The Minister for Environment shall serve as Head of the Secretariat.

4. The Head of the Secretariat shall take control of the affairs of the Secretariat in accordance with orders of the chairperson, with the cooperation of the appointed Deputy Chief Cabinet Secretary and Prime Minister, the minister who takes charge of and manages the affairs stipulated in Article 4, paragraph 3 of the Act for Establishment of the Cabinet Office (Act No. 89 of 1999).

Entrustment to cabinet order

Article 3-7

In addition to the provisions of this Act, any necessary matters related to the Council shall be prescribed by cabinet order.

[TEXT OMITTED]

(Partial Amendment of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors)

[The following three articles are added after Article 64:]

Designation of specified nuclear facilities

Article 64-2

1. In a case in which a nuclear operator, etc. has enacted the measures set forth in paragraph 1 of the preceding article at its refining facilities, fabricating or enrichment facilities, reactor facilities, spent fuel interim storage facilities, reprocessing facilities, waste disposal facilities or waste storage facilities or usage facilities (including when measures have been enacted following the receipt of an order pursuant to the provisions of paragraph 3 of said article, said measures), the Nuclear Regulation Authority may designate said facilities as facilities necessitating special measures with regard to safety or the protection of specified nuclear fuel material (hereinafter “specified nuclear facilities”), where deemed particularly necessary in order to manage said facilities using appropriate methods according to the state of the facilities, in order to prevent a disaster being caused by the nuclear fuel material or material contaminated with nuclear fuel material, or by a nuclear reactor, or in order to protect specified nuclear fuel material.

2. When the Nuclear Regulation Authority has designated specified nuclear facilities, it may immediately indicate to the nuclear operator, etc. of said specified nuclear facilities (referred to in the next article as "specified nuclear operator, etc.") the matters for which measures should be taken and the time limit thereof, and request the submission of a plan to implement measures pertaining to the safety of said specified nuclear facilities or in order to protect specified nuclear fuel material (hereinafter "implementation plan").

3. When the circumstance for the designation stipulated in paragraph 1 with regard to the specified nuclear facilities is deemed to no longer apply, the Nuclear Regulation Authority shall cancel the designation stipulated in said paragraph concerning said specified nuclear facilities.

4. When the Nuclear Regulation Authority designates specified nuclear facilities pursuant to the provisions of paragraph 1, or cancels the designation of specified nuclear facilities pursuant to the provisions of the preceding paragraph, it must give public notice of this fact.

Implementation plan

Article 64-3

1. When a designation has been made under paragraph 1 of the preceding article, a specified nuclear operator, etc. must draw up an implementation plan concerning the indicated matters in accordance with the provisions of paragraph 2 of said article, submit this to the Nuclear Regulation Authority not later than the deadline indicated by the provisions of said paragraph, and obtain its approval.

2. If a specified nuclear operator, etc. that has received approval under the preceding paragraph seeks to change the implementation plan for which it received approval, it must first obtain the approval of the Nuclear Regulation Authority.

3. The Nuclear Regulation Authority must not grant approval under the preceding two paragraphs if it deems that the implementation plan is insufficient to prevent a disaster caused by nuclear fuel material or material contaminated with nuclear fuel material, or by a nuclear reactor, or if it is insufficient in protecting specified nuclear fuel material.

4. If deemed necessary to prevent a disaster caused by nuclear fuel material or material contaminated with nuclear fuel material, or by a nuclear reactor, or to protect specified nuclear fuel material, the Nuclear Regulation Authority may order a specified nuclear operator, etc. to change its implementation plan.

5. A specified nuclear operator, etc. must implement measures pertaining to the safety of specified nuclear facilities or in order to protect specified nuclear fuel material, in accordance with the implementation plan.

6. If it is deemed that the measures to ensure the safety of the specified nuclear facilities or in order to protect specified nuclear fuel material violate the provisions of the preceding paragraph, or are otherwise insufficient to prevent a disaster caused by nuclear fuel material or material contaminated with nuclear fuel material, or by a nuclear reactor, or are insufficient in protecting specified nuclear fuel material, the Nuclear Regulation Authority may order the specified nuclear operator, etc. to enact the measures necessary for the safety of the specified nuclear facilities or in order to protect specified nuclear fuel material.

7. A specified nuclear operator, etc. must undergo an inspection by the Nuclear Regulation Authority, as prescribed by the implementation plan, to determine whether it is carrying out measures to ensure the safety of the specified nuclear facilities or in order to protect specified nuclear fuel material in accordance with its implementation plan.

8. The provisions of Article 12 paragraphs 6 through 8 shall apply *mutatis mutandis* to the inspection referred to in the preceding paragraph. In this case, the words "preceding paragraph" in paragraph 6 of said article shall be replaced with the words "Article 64-3, paragraph 7", and the words "prescribed in the Nuclear Regulation Authority Rules" shall be replaced with the words "prescribed in the Nuclear Regulation Authority".

Special provisions for specified nuclear facilities

Article 64-4

1. With regard to specified nuclear facilities, the provisions of this Act may be only partially applied thereto, as prescribed by cabinet order, provided that the measures to ensure safety or in order to protect specified nuclear fuel material based on the

implementation plan are being implemented appropriately. In this case, the necessary matters shall be prescribed by cabinet order.

[TEXT OMITTED]

[The following section is added after Article 43-3-4 paragraph 1, in Chapter IV of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors:]

Section 2 Regulations concerning the installment, operation, etc. of power generation reactors

Permission for installment

Article 43.3.5

1. A person seeking to install a power generation reactor must obtain the permission of the Nuclear Regulation Authority, as prescribed by cabinet order.

2. A person seeking to obtain the permission referred to in the preceding paragraph must submit an application form containing the matters listed below to the Nuclear Regulation Authority.

i) Name or title and address, and name of representative in the case of a corporation.

ii) Purpose of use.

iii) Type of power generation reactor, thermal output and number of reactors.

iv) Name and address of plant or business location at which the power generation reactor is to be installed.

v) Position, structure and facilities of power generation reactor and its ancillary facilities (hereinafter "power generation reactor facilities").

vi) Construction plan for power generation reactor facilities.

vii) Type of fuel material for use in power generation reactor and the forecast annual usage volume.

viii) Method of disposal of spent fuel.

ix) Matters concerning the management of radiation at the power generation reactor facilities.

x) Matters concerning the provision of the necessary facilities and structure to deal with the occurrence of significant damage to the core of the power generation reactor or other accident.

Criteria for permission

Article 43-3-6

1. Following an application for permission under paragraph 1 of the preceding article, the Nuclear Regulation Authority must grant permission under said paragraph when the application conforms to all of the following items.

i) There is no risk of the power generation reactor being used for non-peaceful purposes.

ii) The person has the technical capability and financial basis for installing the power generation reactor.

iii) The person has the technical capability required to implement the necessary measures for dealing with the occurrence of a serious accident (significant damage to the core of the reactor for power generation or other serious accident as defined in the Nuclear Regulation Authority Rules; likewise in Article 43-3-22 paragraph 1) and for preventing the expansion thereof, as well as the technical capability required to properly carry out operation of the power generation reactor, etc.

iv) The position, structure and equipment of the power generation reactor facilities conform to the standards defined in the Nuclear Regulation Authority Rules, as not hindering the prevention of disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material or power generation reactors.

2. In the case referred to in the preceding paragraph, the design of the specified equipment stipulated in Article 43-3-29 paragraph 1, which has received type certification pursuant to the provisions of said paragraph, shall be deemed to conform to the criteria set forth in item iv) of the preceding paragraph (limited to the part pertaining to technical criteria).

3. When granting permission under paragraph 1 of the preceding article, the Nuclear Regulation Authority must hear in advance the opinion of the Atomic Energy Commission concerning the application of the criteria stipulated in item i) of paragraph 1.

Ineligibility for permission

Article 43-37

Permission under Article 43-3-5 paragraph 1 shall not be granted to a person corresponding to any of the following:

i) A person whose permission under Article 43-3-5, paragraph 1 has been rescinded pursuant to the provisions of Article 43-3-20, paragraph 2, and for whom two years has not yet elapsed since the date of rescission.

ii) A person who has been sentenced to a penalty consisting of a fine or severer punishment for violating the provisions of this Act or an order pursuant to this Act, and for whom two years have not yet elapsed after the penalty was executed or suspended.

iii) An adult ward.

iv) A juridical person any of whose executive officials falls under any of the three preceding items.

Permission for and notification, etc. of changes

Article 43-3-8

1. When a person who has received permission under Article 43-3-5, paragraph 1 (hereinafter "licensee of power generation reactor operation") seeks to change the matters set forth under items ii) through v) or items viii) through x) in paragraph 2 of the same article, they must obtain the permission of the Nuclear Regulation Authority, as prescribed by cabinet order. However, this shall not apply if they seek only to change the name of the plant or business location among the matters set forth in item iv) of said paragraph, or when changing a matter set forth in item v) of

the same paragraph, but where this is only a change defined in the Nuclear Regulation Authority Rules under paragraph 4.

2. The provisions of Article 43-3-6 shall apply *mutatis mutandis* to the permission in the main clause of the preceding paragraph.

3. When a licensee of power generation reactor operation seeks to amend a matter set forth in item i), vi) or vii) of Article 43-3-5, paragraph 2, except where stipulated in Article 43-3-19, paragraph 1, it must notify this fact to the Nuclear Regulation Authority within 30 days of the date of the change. The same shall apply even when seeking to change only the name of the plant or business location among the matters set forth in item iv) of the same paragraph.

4. When a licensee of power generation reactor operation seeks to change a matter set forth in Article 43-3-5, paragraph 2 item v), where it is clear that this does not hinder the prevention of disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material or power generation reactors (the addition of the same kind of facilities or other change specified by the Nuclear Regulation Authority Rules that does not hinder the prevention of disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material or power generation reactors), it must notify the Nuclear Regulation Authority of the details of this change, as defined in the Nuclear Regulation Authority Rules. In this case, the licensee of power generation reactor operation who has made this notification must not carry out the change pertaining to the notification until 30 days have elapsed from the date on which the notification was received.

5. The Nuclear Regulation Authority may shorten the period stipulated in the second sentence of the preceding paragraph when it finds that the change notified pursuant to the provisions of the first sentence of the preceding paragraph conforms to all of the items under Article 43-3-6, paragraph 1.

6. If the Nuclear Regulation Authority finds that the change notified pursuant to the provisions of the first sentence of paragraph 4 does not conform to any of the items under Article 43-3-6, paragraph 1, it may order the licensee of power generation reactor operation that made the notification to amend said notification or suspend it, provided that this is within 30 days of the date on which said notification was received (or if the period stipulated in the second sentence of paragraph 4 was extended pursuant to the provisions of the next paragraph, the period after such extension).

7. When the Nuclear Regulation Authority has reasonable grounds for believing that it will take a considerable period of time to examine whether or not the change notified pursuant to the provisions of the first sentence of paragraph 4 conforms to all of the items under Article 43-3-6, paragraph 1 and that such examination will not be completed within the period prescribed in the second sentence of paragraph 4, it may extend said period to a period it finds to be reasonable. In this case, the Nuclear Regulation Authority shall, without delay, give notice of the extended period of time and the reasons for the extension to the licensee of power generation reactor operation that made the notification.

8. If the change pertaining to the application for permission under the main clause of paragraph 1 is found to be highly necessary in preventing a disaster resulting from nuclear fuel material, material contaminated by nuclear fuel material or a power generation reactor, the Nuclear Regulation Authority may prioritise the examination pertaining to permission under the main clause of said paragraph with regard to said change over examinations pertaining to permission under the main clause of said paragraph for other power generation reactor facilities.

Permission for construction plan

Article 43-3-9

1. A licensee of power generation reactor operation who seeks to install or modify power generation reactor facilities (except where specified by the Nuclear Regulation Authority Rules as not hindering the prevention of disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material or power generation reactors) must obtain the approval of the Nuclear Regulation Authority with regard to the construction plan, before embarking on said installment or modification, as prescribed by the Nuclear Regulation Authority Rules. However, this shall not apply to any unavoidable temporary work to be implemented in the event of loss of or damage to the power generation reactor facilities or in the event of a disaster or other emergency.

2. If a person who has received approval under the preceding paragraph seeks to change the construction plan for which it received approval, it must first obtain the approval of the Nuclear Regulation Authority, as prescribed by the Nuclear Regulation Authority Rules. However, this shall not apply to a minor change as specified by the Nuclear Regulation Authority Rules.

3. If an application for approval under the preceding two paragraphs conforms to all of the following items, the Nuclear Regulation Authority must grant the approval under the preceding two paragraphs.

i) The construction plan has been granted the approval set forth in Article 43-3-5 paragraph 1 or in paragraph 1 of the preceding article, or has been notified pursuant to the provisions of paragraph 3 or the first sentence of paragraph 4 of the same article.

ii) The power generation reactor facilities comply with the technical criteria under Article 43-3-14.

iii) The person's quality control method pertaining to the design and construction, and the organisation for inspection, conform to the technical criteria defined in the Nuclear Regulation Authority Rules.

4. In the case of the preceding paragraph, type design specified equipment stipulated in Article 43-3-30 paragraph 1, of a type that has received designation under the same paragraph, is deemed to conform to the technical criteria in item ii) of the preceding paragraph.

5. When a licensee of power generation reactor operation undertakes unavoidable temporary work pursuant to the proviso in paragraph 1, it must notify the Nuclear Regulation Authority of this fact without delay after the start of work.

6. When a person who has received approval under paragraph 1 makes a minor change, as specified by the Nuclear Regulation Authority Rules, to the construction plan pursuant to the proviso in paragraph 2, they must submit the amended construction plan to the Nuclear Regulation Authority as soon as possible after the construction plan has been amended. However, this shall not apply where specified by the Nuclear Regulation Authority Rules.

Notification of construction plan

Article 43-3-10

1. A licensee of power generation reactor operation who seeks to undertake installment or modification work to power generation reactor facilities (limited to where specified by the Nuclear Regulation Authority Rules under paragraph 1 of the

preceding article) where specified by the Nuclear Regulation Authority Rules must notify the Nuclear Regulation Authority about the construction plan, as specified by the Nuclear Regulation Authority Rules. The same applies when seeking to amend a construction plan (except for minor amendments specified by the Nuclear Regulation Authority Rules).

2. A person who has made a notification pursuant to the provisions of the preceding paragraph must not carry out the work pertaining to the notification until 30 days have elapsed from the date on which the notification was received.

3. The Nuclear Regulation Authority may shorten the period stipulated in the preceding paragraph when it finds that the construction plan notified pursuant to the provisions of paragraph 1 conforms to all of the items under paragraph 3 of the preceding article.

4. If the Nuclear Regulation Authority finds that the construction plan notified pursuant to the provisions of paragraph 1 not conform to any of the items under paragraph 3 of the preceding article, it may order the person that made the notification to amend or abolish the construction plan, provided that this is within 30 days of the date on which the notification was received (or if the period stipulated in paragraph 2 was extended pursuant to the provisions of the following paragraph, the period after such extension).

5. When the Nuclear Regulation Authority has reasonable grounds for believing that it will take a considerable period of time to examine whether or not the construction plan notified pursuant to the provisions of paragraph 1 conforms to all of the items under paragraph 3 of the preceding article, and that such examination will not be completed within the period prescribed in paragraph 2, it may extend said period to a period it finds to be reasonable. In this case, the Nuclear Regulation Authority shall, without delay, give notice of the extended period of time and the reasons for the extension to the person who made the notification.

6. In the case of the preceding three paragraphs, type design specified equipment stipulated in Article 43-3-30, paragraph 1, of a type that has received designation under the same paragraph, is deemed to conform to the technical criteria in item ii) of paragraph 3 of the preceding article.

Pre-service inspection

Article 43-3-11

1. Power generation reactor facilities that are to be installed or modified following receipt of the permission under Article 43-3-9, paragraph 1 or paragraph 2, or power generation reactor facilities that are to be installed or modified following notification under the provisions of paragraph 1 of the preceding article (except where there was an order regarding the construction plan pursuant to the provisions of paragraph 4 of the preceding article, and notification pursuant to paragraph 1 of the same article has not been made) must undergo an inspection by the Nuclear Regulation Authority with regard to this construction work, as specified by the Nuclear Regulation Authority Rules, and must not be used until they have passed this inspection. However, this shall not apply where specified by the Nuclear Regulation Authority Rules.

2. The inspection set forth in the preceding paragraph shall be considered as passing when the power generation reactor facilities conform to all of the following items.

i) The work has been carried out in accordance with the construction plan for which approval was received pursuant to the provisions of Article 43-3-9 paragraph 1 or paragraph 2 (including minor amendments specified by the

Nuclear Regulation Authority Rules, under the proviso to said paragraph) or the construction plan notified pursuant to the provisions of paragraph 1 of the preceding article (including where a minor amendment has been made as specified by the Nuclear Regulation Authority Rules, under the second sentence of said paragraph).

ii) They comply with the technical criteria under Article 43-3-14.

3. The provisions of Article 16-3, paragraphs 3 and 4 shall apply *mutatis mutandis* to the inspection referred to in paragraph 1.

Fuel assembly inspection

Article 43-3-12

1. Nuclear fuel material to be used as fuel by the power generation reactor (referred to hereafter in this article and in Article 78 as "fuel assembly") must not be used by the licensee of power generation reactor operation until it undergoes and passes an inspection conducted by the Nuclear Regulation Authority, as specified by the Nuclear Regulation Authority Rules, for each processing stage specified by the Nuclear Regulation Authority Rules. However, this shall not apply where specified in paragraph 4 and in the Nuclear Regulation Authority Rules.

2. A person who intends to undergo the inspection under the preceding paragraph must obtain approval in advance from the Nuclear Regulation Authority with regard to the design of the fuel assembly, as specified by the Nuclear Regulation Authority Rules.

3. The inspection set forth in paragraph 1 shall be considered as passing when the fuel assembly conforms to all of the following items.

i) Its processing has been implemented based on a design approved under the preceding paragraph.

ii) It conforms to the technical criteria specified by the Nuclear Regulation Authority Rules.

4. An imported fuel assembly must not be used by the licensee of power generation reactor operation until it undergoes and passes an inspection conducted by the Nuclear Regulation Authority.

5. The inspection set forth in the preceding paragraph shall be considered as passing when the fuel assembly conforms to the technical criteria in paragraph 3 item ii).

6. The Nuclear Regulation Authority may have JNES carry out part of the affairs related to the inspection referred to in paragraphs 1 and 4, as specified by the Nuclear Regulation Authority Rules.

7. If JNES carries out part of the inspection pursuant to the provisions of the preceding paragraph, it must notify the result to the Nuclear Regulation Authority, without delay, as specified by the Nuclear Regulation Authority Rules.

Safety management inspection on welding

Article 43-3-13

1. A licensee of power generation reactor operation who installs a reactor vessel pertaining to a power generation reactor or other power generation reactor facilities specified by the Nuclear Regulation Authority Rules (hereafter in this paragraph "reactor vessel, etc."), which is welded, or a welded reactor vessel, etc. that has been imported, must undergo an operator's inspection with regard to this welding, as

specified by the Nuclear Regulation Authority Rules, prior to commencing use thereof, and must record and retain the result of the inspection. However, this shall not apply where specified by the Nuclear Regulation Authority Rules.

2. In the inspection referred to in the preceding paragraph (hereafter in this article and Article 43-3-24 "operator's inspection on welding"), it must be confirmed that this welding conforms to the technical criteria set forth in the following article.

3. A licensee of power generation reactor facilities that are subject to an operator's inspection on welding must undergo an examination carried out by JNES with regard to the structure pertaining to implementation of the operator's inspection on welding, as specified by the Nuclear Regulation Authority Rules, within the period specified by the Nuclear Regulation Authority Rules (in the case that notification under paragraph 7 has been received, the period specified by the Nuclear Regulation Authority Rules depending on the past evaluation of the operator's inspection on welding pertaining to this notification).

4. The examination referred to in the preceding paragraph shall be conducted, in accordance with the principle of ensuring safety management for power generation reactor facilities, with regard to the organisation for implementation of the operator's inspection on welding, the inspection method, process control, and other matters specified by the Nuclear Regulation Authority Rules.

5. When JNES carries out the examination referred to in paragraph 3, it must notify the result thereof to the Nuclear Regulation Authority, without delay, as specified by the Nuclear Regulation Authority Rules.

6. The Nuclear Regulation Authority shall, based on the results of the examination conducted under paragraph 3, for which notification was received pursuant to the provisions of the preceding paragraph, comprehensively evaluate the organisation for conducting an operator's inspection on welding by the licensee of power generation reactor operation.

7. The Nuclear Regulation Authority must notify the results of the examination under paragraph 3 and the evaluation under the preceding paragraph to the person who underwent the examination.

Maintenance of power generation reactor facilities

Article 43-3-14

A licensee of power generation reactor operation must maintain the power generation reactor facilities so that they conform to the technical criteria specified by the Nuclear Regulation Authority Rules. However, this shall not apply to a power generation reactor that has gained approval under Article 43-3-32, paragraph 2, except where specified by the Nuclear Regulation Authority Rules.

Periodic inspection of facilities

Article 43-3-15

1. With regard to designated major power generation reactor facilities (other than those specified by the Nuclear Regulation Authority Rules as not hindering the prevention of disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material or power generation reactors; likewise hereafter in this article), a licensee of said designated major power generation reactor facilities must undergo an inspection by the Nuclear Regulation Authority at an interval specified by the Nuclear Regulation Authority Rules, as prescribed by the Nuclear Regulation Authority Rules. However, this shall not apply when approval has been received

under Article 43-3-32, paragraph 2, or where otherwise specified by the Nuclear Regulation Authority Rules.

2. The provisions of Article 16-5, paragraphs 3 and 4 shall apply *mutatis mutandis* to an inspection under the preceding paragraph, whereby the facilities are designated major power generation reactor facilities and where specified by the Nuclear Regulation Authority Rules.

Periodic safety management inspection

Article 43-3-16

1. A licensee of designated major power generation reactor facilities (a reactor provided for power generation, the vessel containing the reactor and other power generation reactor facilities, as specified by the Nuclear Regulation Authority Rules; likewise hereafter in this article) must periodically undergo an operator's inspection with regard to said designated major power generation reactor facilities, as specified by the Nuclear Regulation Authority Rules, and must record and retain the result of the inspection. However, this shall not apply to a power generation reactor that has gained approval under Article 43-3-32, paragraph 2, except where specified by the Nuclear Regulation Authority Rules.

2. In the inspection referred to in the preceding paragraph (hereafter in this article and Article 43-3-24 "periodic operator's inspection"), it must be confirmed that the designated major power generation reactor facilities conform to the technical criteria set forth in Article 43-3-14.

3. If at the time of a periodic operator's inspection, it is found that with regard to designated major power generation reactor facilities that are specified by the Nuclear Regulation Authority Rules, there is a risk that after the elapse of a certain period of time, in some areas the facilities may no longer conform to the technical criteria set forth in Article 43-3-14, the licensee of the designated major power generation reactor facilities that are subject to a periodic operator’s inspection must conduct an evaluation regarding the anticipated period in which said areas will no longer conform to the technical criteria under said article and other matters specified by the Nuclear Regulation Authority Rules, record and retain the result, as specified by the Nuclear Regulation Authority Rules, and also report to the Nuclear Regulation Authority with respect to the matters specified by the Nuclear Regulation Authority Rules.

4. A licensee of designated major power generation reactor facilities that are subject to a periodic operator’s inspection must undergo an examination carried out by JNES with regard to the structure pertaining to implementation of the periodic operator's inspection, as specified by the Nuclear Regulation Authority Rules, within the period specified by the Nuclear Regulation Authority Rules. However, this shall not apply to a power generation reactor that has gained approval under Article 43-3-32, paragraph 2, except where specified by the Nuclear Regulation Authority Rules.

5. The examination referred to in the preceding paragraph shall be conducted, in accordance with the principle of ensuring safety management for power generation reactor facilities, with regard to the organisation for implementation of the periodic operator's inspection, the inspection method, process control, and other matters specified by the Nuclear Regulation Authority Rules.

6. The provisions of Article 43-3-13, paragraphs 5 through 7 shall apply *mutatis mutandis* to the examination referred to in paragraph 4. In this case, the words “preceding three paragraphs” in paragraphs 5 through 7 of the same article are replaced with the words “Article 43-3-16, paragraph 4”.

Operation plan

Article 30

A licensee of reactor operation must draw up an operation plan for the power generation reactor pertaining to the installment, as specified by the Nuclear Regulation Authority Rules, and notify the Nuclear Regulation Authority. The same procedure applies when making an amendment thereto. However, this shall not apply to a power generation reactor that has gained approval under Article 43-3-32, paragraph 2.

Merger and demerger

Article 43-3-18

1. In the case of a merger of a juridical person who is a licensee of power generation reactor operation (except when a juridical person who is a licensee of power generation reactor operation continues to exist after a juridical person who is a licensee of power generation reactor operation conducts a merger with a juridical person who is not a licensee of power generation reactor operation), or in the case of demerger of such a juridical person (limited to a case in which all power generation reactor facilities pertaining to said permission as well as nuclear fuel material and material contaminated by nuclear fuel material are transferred in their entirety), the juridical person who continues to exist after the merger or is established by the merger, or the juridical person who succeeds to said power generation reactor facilities as well as nuclear fuel material and material contaminated by nuclear fuel material in their entirety after the demerger, shall succeed to the title of licensee of power generation reactor operation, if the merger or demerger has been approved by the Nuclear Regulation Authority.

2. The provisions of Article 43-3-6 paragraph 1 items i) to iii) and paragraph 3 as well as Article 43-3-7 shall apply *mutatis mutandis* to the approval set forth in the preceding paragraph.

Inheritance

Article 43-3-19

1. In the case of an inheritance with regard to a licensee of power generation reactor operation, the inheritor shall succeed to the status of licensee of power generation reactor operation.

2. The inheritor who has inherited the status of the licensee of power generation reactor operation pursuant to the provision set forth in the preceding paragraph shall notify the Nuclear Regulation Authority of the inheritance within thirty days from the date of the inheritance, enclosing documents to prove the inheritance.

Rescission of Permission, etc.

Article 43-3-20

1. The Nuclear Regulation Authority may rescind the permission under Article 43-3-5, paragraph 1 if a licensee of power generation reactor operation does not start operation of the power generation reactor within the period specified by the Nuclear Regulation Authority Rules, without justifiable grounds, or suspends operation continuously for a year or longer.

2. If any of the following applies to a licensee of power generation reactor operation, the Nuclear Regulation Authority may rescind the permission under Article 43-3-5, paragraph 1, or order suspension of the power generation reactor for a period of up to one year.

i) Any of items ii) to iv) of Article 43-3-7 apply.

ii) Permission should have been obtained pursuant to the provision in the main clause of Article 43-3-8, paragraph 1, but was not obtained.

iii) There has been a violation of the provision in the second part of Article 43-3-8, paragraph 4, or there has been a violation of an order stipulated by the provisions of paragraph 6 of the same article.

iv) There has been a violation of an order stipulated by the provisions of Article 43-3-23.

v) There has been a violation of the provisions of Article 43-3-24, paragraph 1 or paragraph 4, or there has been a violation of an order stipulated by the provisions of paragraph 3 of the same article.

vi) There has been a violation of an order stipulated by the provisions of Article 43- 3 as applied *mutatis mutandis* pursuant to Article 43-3-26, paragraph 2.

vii) There has been a violation of the provisions of Article 43-3-27, paragraph 1.

viii) There has been a violation of an order stipulated by the provisions of Article 12-2, paragraph 3 as applied *mutatis mutandis* pursuant to Article 43-3-27, paragraph 2.

ix) There has been a violation of the provisions of Article 12-2, paragraph 4 as applied *mutatis mutandis* pursuant to Article 43-3-27, paragraph 2.

x) There has been a violation of the provisions of Article 43-3-28, paragraph 1.

xi) There has been a violation of an order stipulated by the provisions of Article 12-5 as applied *mutatis mutandis* pursuant to Article 43-3-28, paragraph 2.

xii) A power generation reactor has been operated beyond the period extended pursuant to the provisions of Article 43-4-31, paragraph 2.

xiii) A power generation reactor has been operated beyond the period during which operation is possible as stipulated in Article 43-3-31, paragraph 1, in violation of the provisions of paragraph 4 of the same article.

xiv) A power generation reactor has been decommissioned in violation of the provisions of Article 43-3-32, paragraph 1.

xv) There has been a violation of the provisions of Article 43-3-32, paragraph 2.

xvi) There has been a violation of the provisions of Article 58, paragraph 2, or there has been a violation of an order stipulated by the provisions of paragraph 3 of the same article.

xvii) There has been a violation of the provisions of Article 59, paragraph 2, or there has been a violation of an order stipulated by the provisions of paragraph 4 of the same article.

xviii) There has been a violation of the provisions of Article 59-2, paragraph 2.

xix) There has been a violation of the provisions of Article 62-8, paragraph 1 or paragraph 4, or there has been a violation of an order stipulated by the provisions of paragraph 3 of the same article.

xx) There has been a violation of the conditions set forth in Article 62-2, paragraph 1 or paragraph 2.

xxi) There has been a violation of the provisions of Article 6 of the Act on Compensation for Nuclear Damage.

xxii) There has been a violation of an order stipulated by the provisions of Article 7, paragraph 4, Article 8, paragraph 5, Article 9, paragraph 7, Article 11, paragraph 6 or Article 13, paragraph 2, item ii) of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

Records

Article 43-3-21

A licensee of power generation reactor operation must record the matters specified by the Nuclear Regulation Authority Rules with regard to the operation of the power generation reactor and other matters concerning use of the power generation reactor facilities and keep this record at its plant or place of business, as specified by the Nuclear Regulation Authority Rules.

Measures to be taken for operational safety and the protection of specified nuclear fuel material

Article 43-3-22

1. A licensee of power generation reactor operation must enact the necessary safety measures with regard to the matters set forth below, as specified by the Nuclear Regulation Authority Rules (including matters concerning measures in the event of a serious accident).

i) The safety of the power generation reactor facilities.

ii) Operation of the power generation reactor.

iii) Transportation, storage or disposal of nuclear fuel material or material contaminated by nuclear fuel material (concerning transportation and disposal, limited to transportation or disposal carried out at the plant or place of business at which the power generation reactor facilities are installed; likewise in paragraph 1 of the following article).

2. A licensee of power generation reactor operation must enact protection measures when specified nuclear fuel material is handled at the plant or place of business at which the power generation reactor facilities are installed if prescribed by cabinet order, as specified by the Nuclear Regulation Authority Rules.

Suspension, etc. of the use of facilities

Article 43-3-23

1. If it is found that the location, structure or the equipment of power generation reactor facilities do not conform to the criteria set forth in Article 43-3-6, paragraph 1, item iv), or that the power generation reactor facilities do not conform to the technical criteria set forth in Article 43-3-14, or the preservation of the power generation reactor facilities, operation of the power generation reactor or measures related to the transportation, storage or disposal of nuclear fuel material or material contaminated by nuclear fuel material violate the provisions of the Nuclear Regulation Authority Rules based on the provisions of paragraph 1 of the preceding article, the Nuclear Regulation Authority may order the licensee of power generation

reactor operation to suspend use of the said power generation reactor facilities, remodel, repair or relocate the power generation reactor facilities, designate the method of operation of the power generation reactor or order other necessary measures to ensure safety.

2. If it is found that the protection measures violate the provisions of the Nuclear Regulation Authority Rules based on the provisions of paragraph 2 of the preceding article, the Nuclear Regulation Authority may order the licensee of power generation reactor operation to take corrective measures, etc.

Operational safety provisions

Article 43-3-24

1. A licensee of power generation reactor operation must specify operational safety provisions (including rules related to education on the operational safety of power generation reactors, operator's inspection on welding and periodic operator's inspection; likewise hereafter in this article), as specified by the Nuclear Regulation Authority Rules, and must obtain the approval of the Nuclear Regulation Authority before starting operation of a power generation reactor. The same procedure applies when making an amendment.

2. The Nuclear Regulation Authority must not grant approval under the preceding two paragraphs if it deems that the operational safety measures are insufficient to prevent a disaster caused by nuclear fuel material or material contaminated with nuclear fuel material, or by a nuclear reactor.

3. If deemed necessary to prevent a disaster caused by nuclear fuel material or material contaminated with nuclear fuel material, or by a nuclear reactor, or to protect specified nuclear fuel material, the Nuclear Regulation Authority may order a licensee of power generation reactor operation to change its operational safety provisions.

4. A licensee of power generation reactor operation and its employees must observe the operational safety provisions.

5. A licensee of power generation reactor operation must undergo a periodic inspection by the Nuclear Regulation Authority, as specified by the Nuclear Regulation Authority Rules, concerning the status of compliance with the provisions set forth in the preceding paragraph (excluding the structure pertaining to implementation of the operator's inspection on welding and other matters specified by the Nuclear Regulation Authority Rules, and the structure for implementation of the periodic operator's inspection and other matters specified by the Nuclear Regulation Authority Rules).

6. The provisions of Article 12, paragraphs 6 through 8 shall apply *mutatis mutandis* to the inspection referred to in the preceding paragraph. In this case, the words "preceding paragraph" in paragraph 6 of the same article are replaced with the words "Article 43-3-24, paragraph 5".

Acceptance, etc. of power generation reactor

Article 43-3-25

1. Any person who intends to receive a power generation reactor or entire facilities that include a power generation reactor from a licensee of power generation reactor operation must obtain the permission of the Nuclear Regulation Authority, as prescribed by cabinet order.

2. The provisions of Article 43-3-6 and Article 43-3-7 shall apply *mutatis mutandis* to the permission set forth in the preceding paragraph.

3. A person who has received a power generation reactor or entire facilities that include a power generation reactor from a licensee of power generation reactor operation after obtaining the permission referred to in paragraph 1 shall succeed to the status of licensee of power generation reactor operation pertaining to the said power generation reactor.

Chief engineer of power generation reactor

Article 43-3-26

1. In order to supervise the safety of operation of a power generation reactor, a licensee of power generation reactor operation must appoint a Chief Engineer of Power Generation Reactor from among persons with the practical experience specified by the Nuclear Regulation Authority Rules, being a person who is a licensed chief engineer of reactors under Article 41-1, as specified by the Nuclear Regulation Authority Rules.

2. The provisions of Article 40-2, Article 42 and Article 43 apply *mutatis mutandis* to the Chief Engineer of Power Generation Reactor referred to in the preceding paragraph. In this case, in Article 40-2 and Article 43 the words "licensee of reactor operation for testing and research, etc." are replaced with the words "licensee of power generation reactor operation", and in Article 42-2 the words "of a reactor for testing and research, etc." are replaced with the words "of a power generation reactor".

Physical protection programme

Article 43-3-27

1. If stipulated by Article 43-3-22, paragraph 2, a licensee of power generation reactor operation must provide a physical protection programme and obtain the permission of the Nuclear Regulation Authority before starting to handle specified nuclear fuel material, as specified by the Nuclear Regulation Authority Rules. The same procedure applies when making an amendment.

2. The provisions of Article 12-2, paragraph 2 to paragraph 5 apply *mutatis mutandis* to the physical protection programme set forth in the preceding paragraph, and the provisions of paragraph 6 to paragraph 8 of the same article apply *mutatis mutandis* to the inspection under paragraph 5 of the same article, which are applicable *mutatis mutandis* in this paragraph. In this case, the words "preceding paragraph" in paragraph 2 of the same article are replaced with the words "Article 43-3-27, paragraph 1", and in the provisions in paragraphs 3 through 5 of the same article, the words "licensee of refining activity" are replaced with the words "licensee of power generation reactor operation".

Physical protection manager

Article 43-3-28

1. If stipulated by Article 43-3-22, paragraph 2, a licensee of power generation reactor operation must appoint a physical protection manager from among persons who satisfy the requirements specified by the Nuclear Regulation Authority Rules with regard to their knowledge, etc. of the handling of specified nuclear fuel material, as

specified by the Nuclear Regulation Authority Rules, in order to manage activity related to the protection of specified nuclear fuel material in a consistent manner.

2. The provisions of Article 12-3, paragraph 2, Article 12-4 and Article 12-5 shall apply *mutatis mutandis* to the physical protection manager set forth in the preceding paragraph. In this case, in these provisions the words "licensee of refining activity" are replaced with the words "licensee of power generation reactor operation", and the words "refining facilities" are replaced with the words "power generation reactor facilities".

Type certification for the design of specified equipment pertaining to power generation reactor facilities

Article 43-3-29

1. The Nuclear Regulation Authority shall, upon application, carry out type certification concerning design of the types specified by the Nuclear Regulation Authority Rules (hereinafter "specified equipment") from among containment vessels, emergency power equipment and other machinery or apparatuses pertaining to power generation reactor facilities.

2. The Nuclear Regulation Authority shall, upon an application under the preceding paragraph, grant type certification under the preceding paragraph if it deems that the design of the type of specified equipment described in the application complies with the criteria of Article 43-3-6, paragraph 1, item iv) (limited to the part concerning technical criteria; likewise hereafter in this article).

3. If a person who has received type certification concerning this type design seeks to change the design of the specified equipment of said type, it must first obtain the approval of the Nuclear Regulation Authority. The same shall apply when there has been a change to the criteria under Article 43-3-6, paragraph 1, item iv), and the specified equipment of the type for which type certification has been received with respect to that type design no longer complies with the criteria set forth in said item.

4. The Nuclear Regulation Authority shall, upon application for approval under the preceding paragraph, examine whether the design in the application complies with the criteria set forth in Article 43-3-6 paragraph 1, item iv), and grant approval if it finds that it does comply with these criteria.

5. If the specified equipment of the type for which type certification has been received with respect to that type design no longer complies with the criteria set forth in Article 43-3-6 paragraph 1, item iv), the Nuclear Regulation Authority may rescind said type certification.

6. The procedure for the certification under paragraph 1 and other necessary matters concerning type certification shall be specified by the Nuclear Regulation Authority Rules.

Designation of type of specified equipment pertaining to power generation reactor facilities

Article 43-3-30

1. In order to promote the safety of power generation reactor facilities, the Nuclear Regulation Authority shall, upon application, designate the type of specified equipment pertaining to the design for which type certification was received under paragraph 1 of the preceding article (hereinafter "type design specified equipment").

2. The application for the designation provided for in the preceding paragraph may be submitted with regard to specified equipment to be exported to Japan by a person who manufactures as his/her business said specified equipment in a foreign state or a person who has a contract with the above-mentioned person for the purchase of said specified equipment and who exports as his/her business said specified equipment to Japan.

3. The designation under paragraph 1 shall be carried out by determining whether the said type design specified equipment pertaining to the application falls under all of the following items.

i) It is based on a design that has received type certification under paragraph 1 of the preceding article.

ii) It complies with the technical criteria set forth in Article 43-3-14.

iii) It has uniformity.

4. The designation in paragraph 1 is limited to the scope within which said type design specified equipment can be used, or can be carried out by attaching conditions.

5. If it finds that type design specified equipment for which designation has been received as regards type no longer falls under any of the items in paragraph 3, the Nuclear Regulation Authority may rescind this designation.

6. In addition to the provisions of the preceding paragraph, the Nuclear Regulation Authority may rescind the designation under paragraph 1 pertaining to a specified foreign equipment manufacturer, etc. (a person stipulated in paragraph 2, the type of whose manufactured or exported type design specified equipment has received designation under paragraph 1; likewise hereafter in this paragraph), if the specified foreign equipment manufacturer, etc. falls under any of the following items.

i) The specified foreign equipment manufacturer, etc. has violated the Nuclear Regulation Authority Rules based on the provisions in the following paragraph.

ii) The Nuclear Regulation Authority, in so far as it is necessary for the enforcement of this Act, has requested the specified foreign equipment manufacturer, etc. to report on its business activities, but no report has been made, or a false report has been made.

iii) The Nuclear Regulation Authority, in so far as it is necessary for the enforcement of this Act, has ordered its personnel to conduct an on-site inspection of said type design specified equipment, books, documents or other objects at the offices or other workplaces of the specified foreign equipment manufacturer, etc., or at locations where the designated type design specified equipment is believed to be stored, or question the relevant parties, and this inspection is refused, obstructed or evaded, or no statement is made in reply to any questions or a false statement is made.

7. The procedure for the designation under paragraph 1 and other necessary matters concerning type designation shall be specified by the Nuclear Regulation Authority Rules.

Period of operation, etc.

Article 43-3-31

1. The period during which a licensee of power generation reactor operation is able to operate its installed power generation reactor is 40 years, counting from the date

on which the plant at which said power generation reactor is installed first passed the inspection set forth in Article 43-3-11, paragraph 1.

2. Upon expiry of the period referred to in the preceding paragraph, the period may be extended once only, after obtaining the approval of the Nuclear Regulation Authority.

3. The extension based on the provision of the preceding paragraph shall be not more than 20 years, and cannot exceed the period specified by cabinet order.

4. A licensee of power generation reactor operation who intends to obtain the approval under paragraph 2 must obtain the permission of the Nuclear Regulation Authority, as specified by the Nuclear Regulation Authority Rules.

5. The Nuclear Regulation Authority, taking into consideration the state of deterioration of the reactor and other facilities associated with their long-term operation, may only grant the approval set forth in the preceding paragraph if the power generation reactor pertaining to the application in the preceding paragraph complies with the criteria specified by the Nuclear Regulation Authority Rules, which ensure safety during the intended extension period pursuant to the provisions of paragraph 2.

Measures associated with decommissioning of a power generation reactor

Article 43-3-32

1. When a licensee of power generation reactor operation intends to decommission a power generation reactor, it must dismantle the power generation reactor facilities, transfer the nuclear fuel material that it possesses, eliminate any contamination caused by nuclear fuel material, dispose of material contaminated by nuclear fuel material and take any other measures specified by the Nuclear Regulation Authority Rules (referred to as "decommissioning measures" hereafter in this article and in the following article).

2. When a licensee of power generation reactor operation intends to take decommissioning measures, it shall draw up a plan concerning said decommissioning measures (hereinafter referred to as "decommissioning plan" in the following Article) in advance, pursuant to the Nuclear Regulation Authority Rules, and obtain the approval of the Nuclear Regulation Authority.

[TEXT OMITTED]

Assessment to enhance the safety of power generation reactor facilities

Article 43-3-29

1. A licensee of power generation reactor operation shall, in order to enhance the safety of its power generation reactor facilities in accordance with the Nuclear Regulation Authority Rules, carry out a self-assessment of the safety of the power generation reactor facilities at the interval specified by the Nuclear Regulation Authority Rules. However, this shall not apply to a power generation reactor that has gained approval under Article 43-3-33, paragraph 2, except where specified by the Nuclear Regulation Authority Rules.

2. The assessment referred to in the preceding paragraph must be a comprehensive assessment concerning the overall safety of the power generation reactor facilities in which the matters set forth below are examined, analysed, and the results of this examination and analysis are taken into consideration.

i) In the event that the measures set forth below are taken in order to prevent the occurrence and expansion of an anticipated accident at the power generation reactor facilities (hereinafter in this item “prevention of accident occurrence, etc.”), matters concerning these measures and the effectiveness of these measures in the prevention of accident occurrence, etc.

a) the installment of facilities or equipment other than those that need to be installed to comply with the technical criteria specified in Article 43-3-14, which contribute to the prevention of accident occurrence, etc.

b) the establishment of a structure for steady implementation of the prevention of accident occurrence, etc., by means such as reinforcing personnel to ensure operational safety and enhancing operational safety training.

ii) Matters concerning the possibility of occurrence of a serious accident, despite the implementation of the measures set forth in items a. and b. above, when there is the possibility of such an accident occurring.

3. When a licensee of power generation reactor operation has carried out the assessment set forth in paragraph 1, it must notify the Nuclear Regulation Authority of the results of the assessment, the method of the examination and analysis pertaining to the assessment as well as the method of the assessment and other matters specified by the Nuclear Regulation Authority Rules (referred to in paragraph 5 as "results of assessment, etc."), as specified by the Nuclear Regulation Authority Rules. However, this shall not apply to a power generation reactor that has gained approval under Article 43-3-33, paragraph 2, except where specified by the Nuclear Regulation Authority Rules.

4. Among the matters notified pursuant to the provisions of the preceding paragraph, if the Nuclear Regulation Authority finds that the method of the examination and analysis pertaining to the assessment as well as the method of the assessment does not conform to the method specified by the Nuclear Regulation Authority Rules, it may order the licensee of power generation reactor operation who made the notification to change the method of examination, analysis or assessment.

5. When a licensee of power generation reactor operation has made a notification pursuant to the provisions of paragraph 3, it shall make public the notified results of assessment, etc., as specified by the Nuclear Regulation Authority Rules.

[TEXT OMITTED]

The following two articles are added after Article 43-26.

Type certification for the design of specified container, etc. pertaining to spent fuel interim storage facilities

Article 43-26-2

1. The Nuclear Regulation Authority shall, upon application, carry out type certification concerning design of the types specified by the Nuclear Regulation Authority Rules (hereinafter "specified container, etc.") from among containers and other apparatuses used for the storage of spent fuel pertaining to spent fuel interim storage facilities.

2. The Nuclear Regulation Authority shall, upon an application under the preceding paragraph, grant type certification under the preceding paragraph if it deems that the design of the type of specified container, etc. described in the application

complies with the criteria of Article 43-5, paragraph 1, item iii) (limited to the part concerning technical criteria; likewise hereafter in this article).

3. If a person who has received type certification concerning this type design seeks to change the design of the specified container, etc. of said type, it must first obtain the approval of the Nuclear Regulation Authority. The same shall apply when there has been a change to the criteria under Article 43-5, paragraph 1, item iii), and the specified container, etc. of the type for which type certification has been received with respect to that type design no longer complies with the criteria set forth in said item.

4. The Nuclear Regulation Authority shall, upon application for approval under the preceding paragraph, examine whether the design in the application complies with the criteria set forth in Article 43.5, paragraph 1, item iii), and grant approval if it finds that it does comply with these criteria.

5. If the specified container, etc. of the type for which type certification has been received with respect to that type design no longer complies with the criteria set forth in Article 43.5, paragraph 1, item iii), the Nuclear Regulation Authority may rescind said type certification.

6. The procedure for the certification under paragraph 1 and other necessary matters concerning type certification shall be specified by the Nuclear Regulation Authority Rules.

Designation of type of specified container, etc. pertaining to spent fuel interim storage facilities

Article 43-26-3

1. In order to promote the safety of spent fuel interim storage facilities, the Nuclear Regulation Authority shall, upon application, designate the type of specified container, etc. pertaining to the design for which type certification was received under paragraph 1 of the preceding article (hereinafter "type design specified container, etc.").

2. The application for the designation provided for in the preceding paragraph may be submitted with regard to specified container, etc. to be exported to Japan by a person who manufactures as his/her business said specified container, etc. in a foreign state or a person who has a contract with the above-mentioned person for the purchase of said specified container, etc. and who exports as his/her business said specified container, etc. to Japan.

3. The designation under paragraph 1 shall be carried out by determining whether the type design specified container, etc. pertaining to the application falls under all of the following items.

i) It is based on a design that has received type certification under paragraph 1 of the preceding article.

ii) It complies with the technical criteria set forth in Article 43-8, paragraph 3, item ii).

iii) It has uniformity.

4. The designation in paragraph 1 is limited to the scope within which said type design specified container, etc. can be used, or can be carried out by attaching conditions.

5. If it finds that type design specified container, etc. for which designation has been received as regards type no longer falls under any of the items in paragraph 3, the Nuclear Regulation Authority may rescind this designation.

6. In addition to the provisions of the preceding paragraph, the Nuclear Regulation Authority may rescind the designation under paragraph 1 pertaining to a specified foreign container, etc. manufacturer, etc. (a person stipulated in paragraph 2, the type of whose manufactured or exported specified container, etc. has received designation under paragraph 1; likewise hereafter in this paragraph), if the specified foreign container, etc. manufacturer, etc. falls under any of the following items.

i) The specified foreign container, etc. manufacturer, etc. has violated the Nuclear Regulation Authority Rules based on the provisions in the following paragraph.

ii) The Nuclear Regulation Authority, in so far as it is necessary for the enforcement of this Act, has requested the specified foreign container, etc. manufacturer, etc. to report on its business activities, but no report has been made, or a false report has been made.

iii) The Nuclear Regulation Authority, in so far as it is necessary for the enforcement of this Act, has ordered its personnel to conduct an on-site inspection of said type design specified container, etc., books, documents or other objects at the offices or other workplaces of the specified foreign container, etc. manufacturer, etc., or at locations where the designated specified container, etc. is believed to be stored, or question the relevant parties, and this inspection is refused, obstructed or evaded, or no statement is made in reply to any questions or a false statement is made.

7. The procedure for the designation under paragraph 1 and other necessary matters concerning type designation shall be specified by the Nuclear Regulation Authority Rules.

[TEXT OMITTED]

The following article is added after Article 50-4:

Assessment to enhance the safety of reprocessing facilities

Article 50-4-2

1. A licensee of reprocessing activity shall, in order to enhance the safety of its reprocessing facilities in accordance with the Nuclear Regulation Authority Rules, carry out a self-assessment of the safety of the reprocessing facilities at the interval specified by the Nuclear Regulation Authority Rules. However, this shall not apply when approval has been received under paragraph 2 of the following article (except where otherwise specified by the Nuclear Regulation Authority Rules).

2. The assessment referred to in the preceding paragraph must be a comprehensive assessment concerning the overall safety of the reprocessing facilities in which the matters set forth below are examined, analysed, and the results of this examination and analysis are taken into consideration.

i) In the event that the measures set forth below are taken in order to prevent the occurrence and expansion of an anticipated accident at the reprocessing facilities (hereinafter in this item "prevention of accident occurrence, etc."), matters concerning these measures and the effectiveness of these measures in the prevention of accident occurrence, etc.

a) the installment of facilities or equipment other than those that need to be installed to comply with the technical criteria specified in Article 45-3, item ii), which contribute to the prevention of accident occurrence, etc.

b) the establishment of a structure for steady implementation of the prevention of accident occurrence, etc., by means such as reinforcing personnel to ensure operational safety and enhancing operational safety training.

ii) Matters concerning the possibility of occurrence of a serious accident, despite the implementation of the measures set forth in items a. and b. above, when there is the possibility of such an accident occurring.

3. When a licensee of reprocessing activity has carried out the assessment set forth in paragraph 1, it must notify the Nuclear Regulation Authority of the results of the assessment, the method of the examination and analysis pertaining to the assessment as well as the method of the assessment and other matters specified by the Nuclear Regulation Authority Rules (referred to in paragraph 5 as "results of assessment, etc."), as specified by the Nuclear Regulation Authority Rules. However, this shall not apply when approval has been received under paragraph 2 of the following article (except where otherwise specified by the Nuclear Regulation Authority Rules).

4. Among the matters notified pursuant to the provisions of the preceding paragraph, if the Nuclear Regulation Authority finds that the method of the examination and analysis pertaining to the assessment as well as the method of the assessment does not conform to the method specified by the Nuclear Regulation Authority Rules, it may order the licensee of reprocessing activity who made the notification to change the method of examination, analysis or assessment.

5. When a licensee of reprocessing activity has made a notification pursuant to the provisions of paragraph 3, it shall make public the notified results of assessment, etc., as specified by the Nuclear Regulation Authority Rules.

[TEXT OMITTED]

Nuclear Power Plant Exporters' Principles of Conduct*

Preamble

Considering that responsible use of nuclear power plant technology is vital to help meet global energy requirements and address climate change in a sustainable manner;

Desiring to continuously improve safety, security, and environmental protection;

Conscious of the sensitive nature of nuclear materials and technology, and thus the necessity of using nuclear power plant technology exclusively for peaceful purposes;

Inspired by and seeking to complement national laws and regulations, international laws and norms, and the recommendations of vital institutions such as the International Atomic Energy Agency that promote the peaceful use of nuclear technology as a safe, secure, reliable, and efficient source of energy;[1]

Committing to export strictly in compliance with Nuclear Suppliers Group guidelines and with the laws and policies of Vendor and Customer States;

Recognizing that the establishment of any nuclear power program requires an effective legal and regulatory framework and technological and industrial infrastructure, and qualified personnel;

Mindful that a harmful event at a nuclear power plant anywhere can be considered to be a harmful event everywhere, and limit the contributions of nuclear energy;

Seeking to enhance public confidence by upholding high standards of transparency, integrity, ethical behavior, and social responsibility and to promote continuous improvement toward the implementation of global best practices;

Acknowledging that Customer States have the ultimate responsibility to regulate the construction, operation, and decommissioning of nuclear power plants in their jurisdictions;

Vendors adopting these Principles of Conduct will undertake good faith efforts to implement the best practices described in six principles: Safety, Security, Environmental Protection, Compensation for Nuclear Damage, Non-proliferation, and Ethics.

These principles are based upon best practices derived from the experience of nuclear power plant vendors and operators and the guidelines of the International

* This document is an unofficial reproduction of the original July 2012 text and is intended for general information and reference purposes only. This document may contain errors and/or omissions. In the event of any discrepancy between this version and the original version, the latter will take precedence. The Principles of Conduct are available in English, French, Japanese, Korean and Russian at: http://nuclearprinciples.org/the-principles.

1. These Principles cite documents in Appendix B, which will be reviewed by the participants as they evolve. Documents are highlighted in **boldface text**.

Atomic Energy Agency. They were developed for the public good over several years through a non-governmental consensus process facilitated by the Carnegie Endowment for International Peace, with input and advice from regulators, operators, and internationally recognized experts.

These Principles have been and will be reviewed and revised as appropriate, including to reflect the lessons learned from the Fukushima nuclear accident following the earthquake and tsunami.

Participating Vendors express their intention to follow these principles in designing nuclear power plants and in performing their activities. Participating Vendors will inform their customers, suppliers, subcontractors, and other participants in the nuclear power plant industry about the nature, purposes, and benefits of these Principles of Conduct, and welcome their cooperation in applying them.

These Principles are voluntary, create no legal duty, and are not legally binding, but nevertheless reflect the genuine aspiration of the participants to apply these principles and make a good faith effort to achieve these goals. The reference language of these Principles of Conduct is English.

Principle 1: Safety, Health, and Radiological Protection

Before entering into a contract to supply a nuclear power plant to a Customer, Vendors expect that the Customer State:

1.1 Is a party to the IAEA's Convention on Nuclear Safety, or has indicated its intention to become a party before operation of the plant begins.

Before entering into a contract to supply a nuclear power plant to a Customer, Vendors will have made a reasonable judgment that the Customer State has:

1.2 A legislative, regulatory, and organisational infrastructure needed for implementing a safe nuclear power program with due attention to safety either in place or under development following the guidance provided in the **IAEA Safety Standard "Establishing the Safety Infrastructure for a Nuclear Power Programme"** (The information on infrastructure and the plans concerning its development should be provided by the Customer State based on its self-assessment or an independent external assessment such as a peer review conducted under the auspices of the IAEA);

1.3 Either an existing industrial infrastructure to support safe long-term operation, or a credible plan to develop such an infrastructure before operation of the nuclear power plant begins;[2] and

1.4 Taken into account international operating experience and severe accident considerations in determining the plant sit.

Vendors commit to:

1.5 Export nuclear power plants that

2. An essential part of this industrial infrastructure is a power transmission grid suitable to provide reliable external power supply to the nuclear power plant.

1.5.1 Apply consistent, high safety standards, reflecting the Vendors' safety goals;

1.5.2 Reflect the uncompromising application of recognized safety principles, including the **IAEA Fundamental Safety Principles**;

1.5.3 Are based on reliable technology, which is proven either a) in operation or b) by a test program or analysis consistent with internationally recognized safety principles, before operation of the plant begins;

1.5.4 Are designed in accordance with the **IAEA Safety Requirements**,[3] giving due consideration to relevant **IAEA Safety Guides**, and meeting regulatory requirements of the Customer State;

1.5.5 Use components manufactured in accordance with appropriate nuclear standards; and

1.5.6 Incorporate design provisions to address severe accident management and to take into account emergency response requirements.

1.6 Exchange information with the scientists and experts of the Customer State, as needed, to assist plant designers in adequately understanding the site-specific environmental and other circumstances affecting nuclear safety so as to be able to adapt the design as necessary to local conditions. Specifically, the adaptation should adequately address the extreme site specific hazards that may challenge safe plant operations.

When contracting to supply a nuclear power plant, Vendors will address the tasks and issues that require due attention during project implementation for achieving and demonstrating a high level of safety and quality. The responsibility for these tasks and issues should be clearly assigned in the contractual arrangements between the Vendor and the Customer.

1.7 Among the tasks which the parties should seek to address in contracting are:

1.7.1 Provision of safety documentation and validated safety analysis reports that are at least as rigorous as what one would provide if the nuclear power plant was built in the Vendor State;

1.7.2 Promotion of a high safety culture as defined in the IAEA International Nuclear Safety Group report "Key Practical Issues in Strengthening Safety Culture", in all work on the nuclear power plant site throughout the construction project;

1.7.3 Assurance of competent construction management;

1.7.4 Assurance that the systems, structures, and components of the plant are constructed or manufactured and installed to meet the requirements in the specified standards;

1.7.5 Making possible subcontracts on design, construction, manufacturing, installation, and quality control only with companies that have proven their qualifications and competence or have been evaluated and found to meet the requirements by the Vendor;

1.7.6 Managing the work of the subcontractors as needed to ensure their performance in compliance with the specified standards and requirements;

3. See entry in Appendix B under **IAEA Safety Standards.**

1.7.7 Development of the Customer's human resources and competencies for safe, long-term operation; and

1.7.8 Development of written work procedures, and other guidance needed for safe operation, including emergency operating procedures and severe accident management procedures.

Recognizing their unique expertise, Vendors may provide, if requested by the Customer and separately agreed, relevant information and guidance to the Customer's State and the Customer to help:

1.8 Improve the elements of the Customer State's national infrastructure that influence safe nuclear power plant operation, for example:

1.8.1 Safety aspects of the site selection process;

1.8.2 Development of local skills needed to maintain the nuclear plant in safe operational conditions;

1.8.3 Development of comprehensive plans for offsite emergency management, including local and regional infrastructure;

1.8.4 Transparent and public communication, including timely provision of information in emergency situations.[4]

Before operation of the nuclear power plant begins, the Vendors will inform Customers of the benefits of establishing connections with other operators of nuclear power plants, including pre-start-up reviews by the IAEA and World Association of Nuclear Operators[5] for the purpose of learning from others' experiences and safety practices.

Principle 2: Physical Security

In designing nuclear power plants, Vendors will:

2.1 Incorporate design provisions made for security;

2.2 Ensure security design provisions are compatible with safety and emergency response requirements;[6]

2.3 Cooperate with the Customer to incorporate the Customer State's Design Basis Threat;

2.4 Incorporate within design provisions the potential for damage from security threats in accordance with the Customer State's Design Basis Threat.

Before entering into a contract to supply a nuclear power plant to a Customer, Vendors will have made a reasonable judgment that the Customer State has or in a timely fashion will have:

2.5 Provided information to the Vendor on the results of the Customer State's Design Basis Threat analysis sufficient to allow the Vendor to complete the

4. As specified by the **Convention on Early Notification of a Nuclear Accident** and the **Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency**.
5. For more information, see the **Charter of the World Association of Nuclear Operators.**
6. As discussed in the International Nuclear Safety Group's report on the **Interface between Safety and Security at Nuclear Power Plants.**

design. The threat and risk analysis should take into account plant location and conditions in the region as well as internationally accepted standards;

2.6 Become a party to the IAEA's Convention on the Physical Protection of Nuclear Materials and its 2005 Amendment;

2.7 Participated in the United Nations International Convention for the Suppression of Acts of Nuclear Terrorism; and

2.8 Developed a national legislative and regulatory infrastructure for nuclear security, including adequate policies and procedures governing:

2.8.1 Allocation of responsibility for security among government and plant management;

2.8.2 Implementation of a security response capability appropriate to the Design Basis Threat; and

2.8.3 The interests of the population at large with respect to physical security provisions.

Recognizing their unique expertise, in support of effective security provisions, Vendors may provide, if requested by the Customer and separately agreed, relevant information and guidance to the Customer State and the Customer to help establish in a timely fashion that:

2.9 Plant physical security provisions have been undertaken based on a well-established standard, such as the IAEA's Convention on the Physical Protection of Nuclear Materials, which typically:

2.9.1 Use the Design Basis Threat to determine how to appropriately equip security staff and to limit the potential use of force to only that necessary;

2.9.2 Establish appropriate standards for the selection, training, and testing of security staff and provisions to enforce them;

2.9.3 Incorporate and address plant design sensitivities;

2.9.4 Take into account provisions for efficient plant operation, safety, and emergency response in security planning; and

2.9.5 Ensure physical plant security and acknowledge respect for human rights;

2.10 Routine evaluations of the sufficiency of security response capabilities are undertaken;

2.11 An integrated safety and security oversight organisation is established with responsibility for establishing, monitoring, and continuously adjusting the balance among security, safety, emergency response, and efficient plant operation;

2.12 Continuous improvement and coordination between law enforcement, other Customer State agencies, and plant security are undertaken through follow-up, support, and joint training.

Principle 3: Environmental Protection and the Handling of Spent Fuel and Nuclear Waste

Before entering into a contract to supply a nuclear power plant to a Customer, the Vendor will have made a reasonable judgment that the Customer State either has or will have in a timely manner:

3.1 Enacted national nuclear laws or developed a regulatory framework that:

3.1.1 Formalizes and keeps current a credible national strategy and/or a plan to, in a safe, secure and environmentally sound manner:

3.1.1.1 Store, treat/recycle, or otherwise manage spent fuel and radioactive waste;

3.1.1.2 Decommission closed-down nuclear facilities; and

3.1.1.3 Dispose of all radioactive wastes;

3.1.2 Addresses safeguards obligations, safety, national and international security, human health, effective management of radioactive releases at all times, and environmental stewardship; and

3.2 Ratified, accepted, or otherwise applied the principles of the IAEA's Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

Vendors will seek to design plants that:

3.3 Enhance environmental benefits and minimize environmental impact in operations, including waste production, by applying relevant best practices such as those defined by International Standards Organization and the IAEA;[7]

3.4 Provide for safe and secure on-site storage of spent fuel; and

3.5 Facilitate ultimate plant decommissioning.

In contracting to sell nuclear power plants, Vendors will seek to:

3.6 Address the responsible management by Customers of spent fuel and other radioactive materials and waste.

Recognizing their unique expertise, Vendors will undertake, as specifically agreed, to cooperate with and provide relevant information to pertinent governments and Customers to help promote:

3.7 Protection of the environment through the responsible use of natural resources, the reduction of waste and emissions, and the minimization of harmful impacts to the environment, in accordance with the best technically and economically sound practices of the worldwide nuclear power industry;

3.8 A precautionary approach to the environment consistent with the definition provided in the United **Nations Global Compact** and the **Rio Declaration**; and

3.9 Development in Customer States of systems for the long-term management of spent fuel and/or radioactive waste that are rational, economic, safe, secure, and consistent with Customer States' safeguards obligations.

7. Including the ALARA principle.

Principle 4: Compensation for Nuclear Damage

Before entering into a contract to supply a nuclear power plant to a Customer, the Vendor will independently make a reasonable judgment that the Customer State has in force, or will have in force before fuel is delivered in the Customer State's territory, a legal regime providing adequate and prompt compensation for the public in the unlikely event of an accident, with protection in effect equivalent to one or more of the following best practices:

4.1 A legal regime for compensation and nuclear liability that, *inter alia*:

4.1.1 Contains adequate liability limits and financial protection consistent with current international standards;

4.1.2 Is backed by Customer State guarantees;

4.1.3 Ensures that claims for compensation by possible victims will be channeled to the operator of the nuclear power plant(s) that would be strictly and exclusively liable and will be channeled to one single competent court;

4.1.4 Includes compensation for personal injury, property damage, environmental damage, loss of income, economic loss, and preventive measures;

4.1.5 Does not allow compensation amounts to be set aside or reduced by unilateral strict reciprocity requirements

4.2 A treaty relationship with the Vendor State under either the IAEA's **Vienna Convention on Civil Liability for Nuclear Damage**, as amended or, if eligible, the Organisation for Economic Cooperation and Development's **Paris Convention on Third Party Liability in the Field of Nuclear Energy,** as amended; and/or

4.3 The IAEA's **Convention on Supplementary Compensation for Nuclear Damage** (CSC) – which is the IAEA's unified global nuclear liability regime that any State can join if it is a Party to the Vienna Convention or Paris Convention or has a domestic law that is consistent with the CSC Annex. Such action would enable global treaty relations crucial to assure worldwide compensation and liability protection during plant operation and transnational transport.

Principle 5: Non-proliferation and Safeguards

The Vendors are committed to the peaceful use of nuclear energy.

Each Vendor recognizes that its Vendor State is committed to a policy that nuclear power plants and related materials, equipment and technology[8] *shall be provided to and used by Customer States exclusively for peaceful purposes, consistent with the* ***Treaty on the Non-Proliferation of Nuclear Weapons,*** *and in conformity with* ***Nuclear Suppliers Group Guidelines*** *and pertinent* ***United Nations Security Council Resolutions.***

8. As defined in the latest revision of IAEA INFCIRC/254/Part 1.

Each Vendor further recognizes that its Vendor State has enacted export laws and/or regulations intended to implement that policy, declares that it is bound by and fully committed to implementing that policy, and supports a strong non-proliferation regime.

Accordingly, each Vendor exports nuclear power plants and related materials, equipment and technology solely in accordance with relevant national export laws and/or regulations, which implement the foregoing.

As a manifestation of their strong commitment to peaceful uses of nuclear energy and nonproliferation, Vendors undertake to:

5.1 Pay special attention to and promote proliferation-resistant designs and take IAEA safeguards requirements into account in design;

5.2 Pay special attention to the exclusively peaceful use of trigger list and sensitive dual use items delivered by the Vendor, including the requirements, as applicable to Vendors, in bilateral agreements between Vendor State and Customer State, Nuclear Suppliers Group guidelines, pertinent United Nations Security Council Resolutions and Vendor contracts;

5.3 Seek to obtain a commitment from the Customer to implement in a timely manner at the facility a System of Accounting for and Control of Nuclear Materials and a safeguards approach consistent with its IAEA obligations;

5.4 Inform in a timely manner the appropriate authority of the Vendor State and, as appropriate, other Vendors adhering to these Principles, of any serious nonproliferation concerns related to the equipment, materials, and technology provided by the Vendor to the Customer; and

5.5 Consult closely with the Vendor State and act in accordance with its instructions upon being informed by the Vendor State or becoming directly aware of actions or events that would raise serious concerns about compliance with the global nonproliferation regime.[9]

In addition to the above-mentioned provisions, Vendors welcome the inclusion by Vendor States of provisions in bilateral agreements requiring a Customer State to implement effective nuclear export controls and to have an ***IAEA Additional Protocol*** *in force.*

Principle 6: Ethics

Vendors seek in their activities to:

6.1 Comply with high ethical business standards in their interactions with Customers;

6.2 Communicate with good faith, and in the spirit of transparency, about these principles;

6.3 Promote worker safety and protect public health and the environment;

6.4 Take into account the principle of sustainable development, including the effects of projects on the environment and society;

6.5 Proactively cooperate with Customers to inform and consult in a participatory manner with nearby communities regarding public information about planned project activities and their potential social and environmental effects;

9. Examples of such actions or events are given in the Appendix A.

6.6 Have in place internal programs to discourage corruption and conflicts of interest and to encourage compliance with anticorruption laws, such as those implementing the United Nations Convention Against Corruption and/or the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, and seek to obtain a reciprocal commitment from Customers;

6.7 Respect through word and deed fundamental labor rights, including the prohibitions on child and forced labor, non-discrimination in employment, and the rights to freedom of association and collective bargaining;

6.8 Respect human rights pursuant to the Universal Declaration of Human Rights, recognizing that States bear responsibility for protecting human rights; and

6.9 Encourage their suppliers, subcontractors, and other participants in the nuclear power plant industry to demonstrate the same respect for these ethical commitments.

Appendix A

Appendix to Principle 5: Non-proliferation and Safeguards

Examples of actions and events that would constitute serious concerns about compliance with the global non-proliferation regime:

A.1 A State issues a withdrawal notification from the **Treaty on the Non-Proliferation of Nuclear Weapons** or has unilaterally terminated or suspended the implementation of a safeguards agreement with the IAEA.

A.2 The IAEA finds, with respect to a State's activities, that the IAEA is no longer able, because of the obstruction by or lack of transparency and cooperation from a State, to fully implement the **IAEA Comprehensive Safeguards Agreement** or the **IAEA Additional Protocol**, or verify that there has been no diversion of nuclear material required to be safeguarded.

A.3 A State is found by the IAEA to be in non-compliance with its safeguards agreement(s) under Article XII.C of the IAEA Statute.

A.4 A State proceeds with the test of a nuclear explosive device.

Upon being informed by the Vendor State or becoming directly aware of any such case the Vendor will consult and act in accordance with instructions from the appropriate authorities of the Vendor State. Vendor State responses may include, among others, those indicated in **UN Security Council Resolution 1887**, in the **Final Document of the 2010 NPT Review Conference**, and consistent with Article XII.C of the IAEA Statute.

Appendix B: References

- International Conventions

United Nations Convention Against Corruption – Adopted by the UN General Assembly in resolution A/RES/58/4, October 31, 2003.

OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions – Adopted by the Organisation for Economic Cooperation and Development, signed December 17, 1997.

Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency - Reproduced in IAEA INFCIRC/336, adopted September 26, 1986.

Convention on Early Notification of a Nuclear Accident – Reproduced in IAEA INFCIRC/335, adopted September 26, 1986.

Convention on Nuclear Safety – "Convention on Nuclear Safety," IAEA INFCIRC/449, adopted June 17, 1994.

Convention on the Physical Protection of Nuclear Material (CPPNM) – Reproduced in IAEA INFCIRC/274/Rev.1, May 1980, and including its amendment, reproduced in GOV/INF/2005/10-GC(49)/INF/6, September 6, 2005.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management – "Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management," Reproduced in IAEA INFCIRC/546, adopted December 1997.

Convention on Supplementary Compensation for Nuclear Damage (CSC) – "Convention on Supplementary Compensation for Nuclear Damage," IAEA INFCIRC/567, adopted September 12, 1997.

International Convention for the Suppression of Acts of Nuclear Terrorism – Adopted by the UN General Assembly in resolution A/RES/59/290, April 2005.

Paris Convention on Third Party Liability in the Field of Nuclear Energy – Adopted by the Organisation for Economic Cooperation and Development, February 12, 2004.

Vienna Convention on Civil Liability for Nuclear Damage – Reproduced in IAEA INFCIRC/566, adopted September 12, 1997.

- IAEA Documents

Considerations to Launch a Nuclear Power Program – "Considerations to Launch a Nuclear Power Program," International Atomic Energy Agency, Reproduced in IAEA GOV/INF/2007.

IAEA Action Plan on Nuclear Safety – Approved by the Board of Governors on September 13, 2011.

- IAEA Safety Standards

Standards of safety issued pursuant to Article III(A)(6)10 of the IAEA Statute. Safety standards issued since 1997 in the IAEA Safety Standards Series are designated as *Safety Fundamentals, Safety Requirements* or *Safety Guides*.

Establishing the Safety Infrastructure for a Nuclear Power Program – "Establishing the Safety Infrastructure for a Nuclear Power Program," Specific Safety Guides, IAEA Safety Standards Series, No. SSG-16, 2012.

IAEA Fundamental Safety Principles – "Fundamental Safety Principles," Safety Fundamentals, IAEA Safety Standards Series No. SF-1, 2006.

IAEA Safety Requirements – Refers to "Safety of Nuclear Power Plants: Design," Specific Safety Requirements, IAEA Safety Standards Series No. SSR 2-1, 2012.

- IAEA International Nuclear Safety Group (INSAG) Reports

Key Practical Issues in Strengthening Safety Culture – "Key Practical Issues in Strengthening Safety Culture," Report by the IAEA International Nuclear Safety Group, INSAG-15, 2002.

The Interface between Safety and Security at Nuclear Power Plants – "The Interface between Safety and Security at Nuclear Power Plants," Report by the IAEA International Safety Group, INSAG-24, 2010.

- IAEA Safeguards

IAEA Additional Protocol – "Model Protocol Additional to the Agreement(s) between State(s) and the International Atomic Energy Agency for the application of Safeguards," International Atomic Energy Agency, INFCIRC/540 (Corrected), September 1997.

IAEA Comprehensive Safeguards Agreement – "The Structure and Content of Agreements Between the Agency and States Required in Connection with the Treaty on the Non-proliferation of Nuclear Weapons," International Atomic Energy Agency, INFCIRC/153 (Corrected), June 1972.

State System of Accounting for and Control of Nuclear Materials See "Systems – of Accounting for and Control of Nuclear Material," *IAEA Bulletin* Vol. 17, no. 2, 1975.

- Other Documents and International Agreements

Charter of the World Association of Nuclear Operators – February 1, 2010.

Final Document of the 2010 NPT Review Conference – NPT/CONF.2010/L.2, May 27, 2010.

Nuclear Suppliers Group Guidelines – Refers to 1.) "Guidelines for Nuclear Transfers," Reproduced in IAEA INFCIRC/254/Part 1, as amended November 7, 2007; and 2.) "Guidelines for Transfers of Nuclear-Related Dual-Use Equipment, Materials, Software and Related Technology," Reproduced as IAEA INFCIRC/254/ Part 2, as amended March 20, 2006.

Pertinent United Nations Security Council Resolutions – Refers to resolutions adopted by the United Nations Security Council under Chapter VII of the UN Charter that address issues relevant to nuclear non-proliferation and illicit trafficking. It includes UN Security Council resolutions S/RES/1540 (2004), S/RES/1810 (2009), S/RES/1887 (2009) and state specific resolutions such as S/RES/1718 (2006) and S/RES/1929 (2010).

Rio Declaration – Rio Declaration on Environment and Development, A/CONF.151/26 (Vol. I), adopted June 14, 1992.

Treaty on the Non-Proliferation of Nuclear Weapons (NPT) - Reproduced in IAEA INFCIRC/140, March 5, 1970.

United Nations Global Compact – "Ten Principles of the United Nations Global Compact," 2000.

UN Security Council Resolution 1887 – Adopted by the UN Security Council in S/RES/1887, September 24, 2009.

Universal Declaration of Human Rights – Adopted by the UN General Assembly in resolution A/RES/217(III) A, December 10, 1948.

International Expert Group on Nuclear Liability (INLEX)

Recommendations on how to facilitate achievement of a global nuclear liability regime, as requested by the IAEA Action Plan on Nuclear Safety*

In order to facilitate the achievement of a global nuclear liability regime, Member States should take the following steps:

1. All Member States with nuclear installations should adhere to one or more of the relevant international nuclear liability instruments that contain commonly shared international principles reflecting the enhancements developed under the auspices of the IAEA during the 1990s. In addition, all Member States with nuclear installations should adopt national laws that are consistent with the principles in those instruments and that incorporate the best practices identified below.

2. All Member States with nuclear installations should strive to establish treaty relations with as many States as practical with a view to ultimately achieving universal participation in a global nuclear liability regime that establishes treaty relations among all States. The INLEX experts note that the CSC[1] establishes treaty relations among States that belong to the Paris Convention,[2] the Vienna Convention[3] or neither, while leaving intact the Joint Protocol[4] that establishes treaty relations among States that belong to the Paris Convention or the Vienna Convention. In addition to providing treaty relations, the CSC mandates the adoption of the enhancements developed under the auspices of the IAEA and contains features to promote appropriate compensation, including an international fund to supplement the amount of compensation available for nuclear damage.

3. Member States with no nuclear installations should give serious consideration to adhering to a global regime, taking into account the benefits

* This document is an unofficial reproduction of the original text and is intended for general information and reference purposes only. This document may contain errors and/or omissions. In the event of any discrepancy between this version and the original version, the latter will take precedence. The INLEX recommendations, preceded by a short explanatory note prepared by the IAEA Office of Legal Affairs, are available at: http://ola.iaea.org/OLA/documents/ActionPlan.pdf. The recommendations are referenced in a supplement to the report of the IAEA Director General on Progress in the Implementation of the IAEA Action Plan on Nuclear Safety, (GOV/INF/2012/11-GC(56)/INF/5), at p. 24 (15 August 2012), available at: http: //www.iaea.org/About /Policy/GC/GC56/GC56Inf Documents/English/gc56inf-5-att1_en.pdf.

1. Note: the expression "CSC" covers the 1997 Convention on Supplementary Compensation for Nuclear Damage and any amendment thereto in force for a Contracting Party.
2. Note: the expression "Paris Convention" covers the 1960 Paris Convention and any amendment thereto in force for a Contracting Party.
3. Note: the expression "Vienna Convention" covers the 1963 Vienna Convention and any amendment thereto in force for a Contracting Party.
4. Note: the expression "Joint Protocol" covers the 1988 Joint Protocol relating to the Application of the Vienna Convention and Paris Convention and any amendment thereto in force for a Contracting Party.

which such a regime can offer for victims once it achieves adherence by a significant number of States with nuclear installations.

4. All Member States with nuclear installations should ensure that there are adequate funds available to compensate all victims of a nuclear incident, without discrimination. Therefore, such Member States should in particular:

   a) Establish compensation and financial security amounts significantly higher than the minimum amounts envisaged under the existing instruments;

   b) Undertake regular reviews of the adequacy of compensation amounts in order to ensure that their value is maintained and that they reflect developments in the understanding of the possible impact of incidents involving the installations on their territory, noting that there is a trend towards establishing unlimited liability of the operator;

   c) Undertake regular reviews of the adequacy of financial security amounts in order to ensure that those amounts reflect available capacity in insurance markets, as well as other sources of financial security;

   d) Be prepared to set up appropriate funding mechanisms in cases where the amount of damage to be compensated exceeds the available compensation and financial security amounts;

   e) Provide compensation for latent injuries, noting that the revised Vienna and Paris Conventions set a 30-year time limit for filing claims for personal injury; and

   f) Ensure that compensation is available in the case of an incident directly due to a grave natural disaster of an exceptional character.

5. All Member States should:

   a) Ensure that all claims arising from a nuclear accident are dealt with in a single forum in a prompt, equitable and non-discriminatory manner with minimal litigation, which could include a claims-handling system (which may be set up in close cooperation with insurers or other financial guarantors) in order to deal equitably and expeditiously with all claims; and

   b) Use the model legislation developed by the IAEA as a guide, as appropriate, when drafting or revising national nuclear liability legislation.

News briefs

International Nuclear Law Association 2012 Congress

The International Nuclear Law Association held its bi-annual congress at the Hilton Hotel in Manchester, United Kingdom, from 8 to 11 October 2012. The main theme of the congress was "The Evolution of Nuclear Law after Fukushima". Sessions focused on safety and regulation, security and safeguards, transport, newbuild, small modular reactors, radiological protection, radioactive waste management and decommissioning, and nuclear liability. Approximately 200 professionals from around the world attended the congress. All papers from the congress are available at: www.burges-salmon.com/INLA_2012/default.aspx.

The next International Nuclear Law Association congress will take place in Buenos Aires, Argentina in the fall of 2014.

Nuclear Law Association (India) Second Annual Conference, 2 March 2013, Mumbai, India

The Nuclear Law Association of India will hold its second annual conference entitled "India's Nuclear Energy Sector: Business Opportunities and Legal Challenges" on 2 March 2013 in Mumbai, India. Additional information is available at: www.nlain.org/workshop–conferences/first-annual-conference 2012/second-annual-conference-2013.

World Nuclear University

The World Nuclear University (WNU) Summer Institute was held at the University of Oxford's Christ Church College from 7 July to 18 August 2012. Supported annually by the NEA, this year's WNU brought together 80 fellows from 25 countries to attend an intensive six-week nuclear leadership development programme. The fellows are promising young professionals selected by employers or governments because of their potential to take up senior leadership positions in the future. The WNU Summer Institute addresses important issues related to the development of peaceful uses of nuclear science and technology and helps foster a global perspective of how different countries are addressing these issues. This year's summer institute featured a special session to discuss the impact and lessons learnt from the accident at the Fukushima Daiichi nuclear power plants.

The WNU Summer Institute 2013 will be held from 29 June to 10 August 2013 at Christ Church College, Oxford, United Kingdom. More information is available at: www.world-nuclear-university.org.

Seminar series "*Les droits et contentieux du nucléaire*" ("Applicable Laws and Litigation in the field of Nuclear Energy"): seminar on "Democracy and Nuclear Activities" (25 October 2012)

The University of Nîmes, the CNRS (*Centre national de la recherche scientifique* – French National Scientific Research Centre) and the CEA (*Commissariat à l'énergie atomique et aux énergies alternatives* – French Atomic Energy and Alternative Energies Commission) jointly organised a seminar entitled "*Démocratie et Nucléaire*" around the core question of how civil nuclear activities can be conducted as democratically as possible. The one-day seminar was the third annual session of a seminar series themed "*Les droits et contentieux du nucléaire*" at the CEA Centre in Marcoule (France), and was chaired by Marc Léger, General Counsel at CEA.

Ten presentations were made by recognised academics from France, China and South Africa, as well as by senior lawyers from Areva, the CEA, EDF (*Electricité de France S.A.*), and the United States Nuclear Regulatory Commission. Contributions covered a wide range of topics from nuclear law to sociology and psychology. The relevant national and international instruments – particularly the Aahrus and Espoo conventions – were examined and their efficacy was discussed during debates with stakeholders of all sides.

Particular attention was given to the French legal framework on transparency and participation in the nuclear field, which has gained special importance since the Environmental Charter – containing the principles of public information and participation in environmental matters – was incorporated into the French Constitution in 2004. Although a right to access to administrative documents has existed in France since 1978, the 2006 Act on Nuclear Transparency and Security (*Loi n° 2006-686 du 13 juin 2006 relative à la transparence et à la sécurité en matière nucléaire* or *"loi TSN"*) has played a central role in developing transparency and public participation in the nuclear sector. Industry representatives explained their approach in implementing several legal mechanisms such as those of "*débat public*" (public debate), "*enquête publique*" (public survey), "*étude d'impact*" (impact assessement) and "*mise à disposition*" (obligation to make available to the public, in their entirety, certain projects bringing changes to a nuclear installation or its operation).

The issue was also explored from the perspective of lobbying, of economic theory, as well as from an international and comparative law perspective, with presentations from the American, the Chinese and the South African contexts.

The programme of the presentations is available at: www.unimes.fr/fr/recherche/evenements_scientifiques/colloques--seminaires--journees-d-etudes.html

15th meeting of the Working Group of the Parties to the Aarhus Convention: Thematic session on Public Participation in International Forums (4 September 2012)

A thematic session on Public Participation in International Forums ("PPIF thematic session") was held in the framework of the 15th Meeting of the Parties to the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the "Aarhus Convention"), on 4 September 2012, in Geneva. It was attended by representatives of the Contracting Parties, as well as by representatives from observer organisations and organisations of the civil society.

The object of the meeting was to report on the implementation of the "public participation" pillar of the Aarhus Convention (Article 6 of the Convention) in international forums relating to environmental issues at large. What used to be managed by the former "Task Force on Public Participation in International Forums" (established in 2010) is now being examined at the level of the Contracting Parties, emphasising the growing importance of the issue.

The session focused on the following three key issues: efforts by the Parties to promote public participation before, during and after the Rio Conference on Sustainable Development ("Rio+20 Conference", held in June 2012); measures taken by Parties at the national level to systematically promote public participation in all international environmental forums; and public participation in projects funded by international financial institutions.

The main modalities presented by the Contracting Parties to ensure participation of the civil society in the decision-making process of international events were: (i) to establish a dedicated committee, and (ii) to include civil society representatives in official delegations. The Working Parties requested the Secretariat of the Convention to set up a "checklist" of the measures to be taken in a national action plan to systematically promote the principles of the Convention.

The Secretariat of the UN Framework Convention on Climate Change (UNFCCC) suggested holding high-level events with observer organisations (encompassing the OECD), civil society and other stakeholders during the conferences and meetings of the Parties.

The UN Division on Sustainable Development, for its part, recalled the decision taken at Rio+20 to create a High-level Forum on Sustainable Development to replace the Commission on Sustainable Development, in order to increase the focus on public participation.

The NGOs attending the meeting generally expressed concern with the increasing use of informal negotiations, although recognising that progress had been made with respect to the inclusion of civil society into international decision-making. It was underlined that the principles of the Convention had to be promoted in all international forums dealing with matters related to the environment, not only the most high profile "purely environmental" ones.

More detailed information on the thematic session and on the 15th Meeting of the Working Group of the Contracting Parties can be found at www.unece.org/fileadmin/DAM/env/pp/wgp/WGP-15/WGP_15_List_decisions-final.pdf.

European Roundtable (December 2012) and Final European Conference (March 2013) of the "Aarhus Convention and Nuclear approach"

The European Community, along with the 27 European Union (EU) Member States, is a Signatory to the Convention on Public Access to Information, Public Participation in Decision-making and Access to Justice in Environmental matters (the "Aarhus Convention"). The "Aarhus Convention & Nuclear (ACN) approach" was launched in 2008 by ANCCLI (*Association nationale des Comités et Commissions locales d'information,* a federation of the French Local Commissions of Information) and the European Commission to evaluate the practical implementation of the Convention through pluralistic European and national roundtables associating civil society and decision-makers.

The fourth European roundtable will take place in Brussels on 4 and 5 December 2012 on the "Aarhus Convention Implementation in the context of nuclear safety". It will be hosted by the European Economical and Social Committee (EESC) and supported by the IRSN.

The ACN approach will end in March 2013 at a final European conference where the conclusions of the roundtables will be introduced and practical actions to improve transparency in the nuclear field at European level will be discussed.

More detailed information is available on the ANCCLI website at: www.anccli.fr/Europe-International/ACN-Aarhus-Convention-Nuclear/European-round-tables-Tables-rondes-europeennes, and www.anccli.fr/Europe-International /ACN-Aarhus-Convention-Nuclear.

Recent publications

Sûreté nucléaire. Droit et gouvernance mondiale ("Nuclear Safety: Law and Global Governance") by Jean-Pierre Mignard, Sébastien Mabile and Michel Mabile with a Foreword by Pascale Idoux.[1]

Nuclear safety is a global public good. This message is the focal point of the book and centres itself around the authors' perspective on nuclear law and the global governance of nuclear energy.

The pedagogical nature of this book can be attributed to the unification of the legal expertise of Jean-Pierre Mignard and Sebastian Mabile, masters of law and lawyers at the firm Lysias Partners with the technical expertise of Michel Mabile who graduated from the *École Polytechnique* and the *École nationale supérieure de techniques avances* (ENSTA). He holds a postgraduate degree in nuclear reactor physics and is now a consultant, having worked as an engineer at the French Atomic Energy and Alternative Energies Commission (CEA or *Commissariat à l'énergie atomique et aux énergies alternatives*) and at the firm Techniatome.

The first chapter of the book provides a series of clarifications necessary for the general public and non-specialists in the field of nuclear law within the legal community to understand "what is nuclear energy?" This chapter explains the objectives of military and civilian nuclear power, the concept of nuclear reaction, the differences between types of reactors and the nature of the risks associated with this form of energy.

The second chapter of the book, entitled "Nuclear safety as a subject of the law", reviews the main legal instruments and institutional arrangements in the area of international nuclear power. It also examines the relevance of the model of nuclear disarmament for the promotion of the safety of nuclear power. The global and regional instruments and institutions are presented including the International Atomic Energy Agency (IAEA), the so-called "first generation agreements" on non-proliferation and nuclear disarmament, as well as the instruments for the supervision of civilian nuclear power, the Euratom Treaty and the Nuclear Energy Agency (NEA).

The third chapter of the book entitled "National regimes and global harmonisation of safety" discusses how regional and global communities endeavor, with mixed success, to progressively harmonise the standards and national realities that are extremely fragmented. Having summarised the main contemporary principles of the national regulation of civil nuclear activities and the various harmonisation processes that have been implemented, the book ends with a list of four recommendations: first, harmonising and codifying nuclear law with a focus on the international nuclear safety culture; second, harmonising the regimes of third-party nuclear liability and of insurance guarantees; third, strengthening of the role of the IAEA as an international organisation responsible for the management, auditing and control of nuclear safety in facilities planned and under construction,

1. *Sûreté nucléaire. Droit et gouvernance mondiale* was published in 2012 by Bruylant (Brussels, Belgium). It is available only in French.

in particular through a shift from an incentives to constraints; fourth and finally, increasing the capability of the international community in case of the occurrence of a nuclear incident, in view of the fact that the responses brought to the successive nuclear disasters have shown the inherent limitations of national crisis management, whether the crisis occurs in major nuclear powers such as the former USSR or Japan, or in States new to nuclear energy. Here, the authors suggest, the principle of "intervention for a population in danger" or "humanitarian intervention" recognised by the United Nations, with some variations, usually related to armed conflict, might lend itself hypothetically to responding to a significant nuclear disaster.

Prospects of a Civil Nuclear Liability Regime in the Framework of the European Union: Proceedings, sous la direction de Marc Beyens, Denis Philippe, Patrick Reyners[2]

This volume contains the proceedings of a workshop held in June 2010 on the possibilities and challenges in establishing a civil nuclear liability regime within the framework of the European Union. The workshop was co-organised by the European Commission and the Brussels Nuclear Law Association, a private association of persons in Belgium active in the nuclear field, and was hosted by the European Economic and Social Committee. The workshop was organised to address issues raised by, and reactions to, the legal study commissioned by the European Commission and published in December 2009 as a final report entitled "Legal Study for the Accession of Euratom to the Paris Convention on Third Party Liability in the Field of Nuclear Energy" (TREN/CC/01-2005).

Prior to the 2004 and 2008 expansions to include new members States, it could be said that the Paris Convention on Third Party Liability in the Field of Nuclear Energy (the Paris Convention) and the related Brussels Convention Supplementary to the Paris Convention (the Brussels Supplementary Convention) provided the basic framework for a nuclear liability regime within the European Union. The addition of new States from Central and Eastern Europe, many of which were members of the Vienna Convention on Civil Liability for Nuclear Damage (the Vienna Convention), highlighted potential disparities in the nuclear liability rules applied within the European Union. The study prepared for the European Commission pointed out the disparity of legal regimes addressing nuclear liability matters within the Member States. The prospect of uniform legislation across the European Union had implications for the ongoing process of ratification of the 2004 protocols to amend the Paris Convention and the Brussels Supplementary Convention.

Nearly 170 persons attended the workshop to hear reactions to the European Union study from representatives of the main international nuclear liability conventions and from representatives of specific European countries where different nuclear liability regimes apply. The workshop focused on the issues centering on several major themes: the question of harmonisation of the nuclear liability regime within the context of the European Union, challenges to the present liability regimes, and prospects for improved integration of the European nuclear liability regime. The papers and presentations contained in this volume reflect the thinking of a diverse set of representatives from the academic world, the insurance industry, international organisations, the nuclear industry and other stakeholders. Commentary on the international nuclear liability conventions – the Paris and Brussels Supplementary Convention, the Vienna Convention and the Convention on

2. *Prospects of a Civil Nuclear Liability Regime in the Framework of the European Union: Proceedings*, was published in 2012 by Bruylant (Brussels, Belgium). It contains contributions in French and English.

Supplementary Compensation (the CSC) – is reflected in the proceedings. The workshop also addressed the intersection of the nuclear liability regime and European Commission's competition rules, particularly the issue of state aid.

As the European Commission continues to deliberate on the possibilities of a new directive to achieve greater (if not global) harmonisation of the nuclear liability regimes within the European Union, the proceedings from this workshop will provide the readers with a useful refresher of the legal and policy implications of such action.

Being Nuclear: Africans and the Global Uranium Trade (2012) by Gabrielle Hecht[3]

Uranium from Africa has long been a major source of fuel for nuclear power and weapons, including the bomb dropped on Hiroshima. In 2002, George W. Bush claimed that Saddam Hussein had "sought significant quantities of uranium from Africa" (later specified as the infamous "yellowcake from Niger"). Africa suddenly became notorious as a source of uranium, a component of nuclear weapons. Yet that did not admit Niger, or any of Africa's other uranium-producing countries, to the select society of "nuclear states". Nor did it mean that uranium itself counted, in Hecht's view, as a "nuclear" thing.

In *Being Nuclear,* Hecht seeks to put Africa in the nuclear world, and investigates the nuclear world in Africa. Hecht argues that views from Africa matter not only on their own terms, but also because they transform the perspective on the power of nuclear things and of designating something as "nuclear". Hecht explores what it means for something – a state, an object, an industry, a workplace to be "nuclear". Hecht introduces the term "nuclearity" to signal how places, objects, or hazards get designated as "nuclear". For Hecht, designating something as nuclear – whether in techno scientific, political, or medical terms carries high stakes and has been often contentious.

Hecht begins by exploring uranium as an object of international trade. How was the uranium market created? How were international uranium markets related to weapons proliferation? And how did the exclusion of black African leaders from international markets matter over time? Uranium, Hecht argues, was not "born nuclear"; it did not have a special or highly-regulated status from the moment it was extracted from the ground in Africa. In 1957, uranium ore gave apartheid South Africa, a major supplier of the US and the UK weapons programmes in the early Cold War, a central role in the creation of the International Atomic Energy Agency. A decade later, the nuclear industry in the West found that creating markets for reactors and for uranium itself would be better served if uranium ore lost its status as "nuclear material" so that yellowcake (the processed form of uranium ore) could be bought and sold without undergoing the international inspections and safeguards that governed the transfer of other nuclear-related technologies and materials. In the 1970s, one consequence of this "denuclearisation" was that France could counter Niger's attempt to price its yellowcake as an exceptional nuclear material by arguing that on the contrary, uranium had to be treated and priced like any other market commodity. This framework enabled France to obtain Nigerian uranium at low prices. But it also enabled Niger to sell uranium to Libya, Pakistan and Iraq in the 1970s. Yellowcake from Niger may not have gone to Iraq in 2002, but chances are overwhelming that it did end up in the first Pakistani bomb, and that it would have ended up in a Libyan bomb had Qaddafi managed to have one built. Divesting uranium of its "nuclear" status was thus risky business.

3. *Being Nuclear: Africans and the Global Uranium Trade* was published in 2012 by MIT Press. It is available only in English.

The second part of *Being Nuclear* examines uranium production in Africa, focusing on labour and occupational health in the mines. Drawing on extensive archival and ethnographic field work in Gabon, Madagascar, South Africa, and Namibia, Hecht explores how supposedly universal prescriptions for dealing with radiation hazards played out in different places. Treating mines as nuclear workplaces required instruments and data, national agencies and international organisations, experts and conferences and journals, technological systems and infrastructures and media. When (and where) "nuclearity" was densely distributed among these elements, it helped to make occupational hazards visible and offered a means of claiming expertise, or compensation, or citizenship. But, absent these elements, uranium mining in Madagascar, for example, never became a part of the heavily-regulated nuclear industry, and, Hecht argues, the lasting consequences of radiation exposure and contamination there have remained invisible. The types of regulations common to the nuclear industry came late to uranium mines in Gabon and Namibia; today, former mine workers in these countries seek to salvage their future by trying to establishing links between present illnesses and past exposures in order to obtain treatment and compensation. Recovering the history of their workplaces is crucial to this epidemiological and political task.

The stakes of Africa's presence and absences from the nuclear world continue to rise. With a uranium boom in progress all over the continent, Hecht sees the interests of mine operators and state officials in the urgency of development pitted against questions of the uncertainties of the safety of occupational exposure. For Hecht, the outcomes of these struggles are by no means pre-determined, as people discover over and over again the price of harnessing the power of things "nuclear".

Japan's Compensation System for Nuclear Damage as Related to the TEPCO Fukushima Daiichi Nuclear Accident (OECD, 2012)[4]

This publication was prepared by the NEA in close co-operation with the Permanent Delegation of Japan to the OECD. The publication provides English translations of key Japanese legislative and administrative texts and other implementing guidance, as well as several commentaries by Japanese experts in the field of third party nuclear liability. The material presented in the publication should provide valuable insights for those wishing to better understand the regime applied to compensate the victims of the accident in Japan and for those working on potential improvements in national regimes and the international framework for third party nuclear liability. The publication is available online at http://www.oecd-nea.org/law/fukushima/7089-fukushima-compensation-system-pp.pdf.

4. *Japan's Compensation System for Nuclear Damage as Related to the TEPCO Fukushima Daiichi Nuclear Accident* was published in 2012 by the OECD/NEA. It is available only in English.

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