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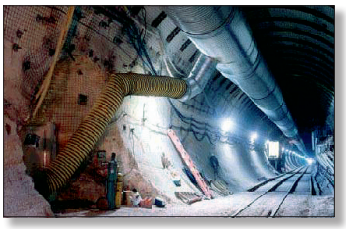

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Cover photos: Yucca Mountain site characterisation process, United States; Gorleben transport cask interim storage facility, Germany (GNS); Residents of Kawauchi village, Japan (AFP ImageForum).

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INTERGOVERNMENTAL ORGANISATION ACTIVITIES

The status of radioactive waste repository development in the United States – December 2011

*By David R. Hill**

The current state of affairs concerning development in the United States of a permanent repository for disposal of spent nuclear fuel (SNF) and high-level radioactive waste (HLW) is, in a word, uncertain. The President of the United States has asserted that he believes licensing and development of the Yucca Mountain repository should be abandoned, while other important parties believe licensing and development should continue. And not surprisingly, there is a disagreement as to what the law requires and whether the licensing process for the Yucca Mountain repository can be terminated at this point, even if the President would like for that to happen. The future of Yucca Mountain, and the future of radioactive waste disposal in the United States generally, currently are pending before the US Court of Appeals for the District of Columbia Circuit, and eventually the Supreme Court of the United States may decide some of the important legal issues concerning Yucca Mountain's future. The November 2012 US elections also likely will have a significant impact on future radioactive waste repository development.

In order to understand the current situation, particularly for those who are not intimately familiar with the structure of the US federal government or the governing US law, it is first necessary to have some grounding in that law and the roles and authorities of the relevant federal agencies.

1. Brief history of the Nuclear Waste Repository Act and its requirements

In the United States, the primary law governing the disposal of spent nuclear fuel and high level radioactive waste is the Nuclear Waste Policy Act of 1982, as amended (NWPA or Act).[1] This law, passed by Congress and signed into law by President Ronald Reagan, provided, among other things, that the US Department of Energy (DOE) was to study possible sites for a SNF and HLW repository, and then make a recommendation to the President of the United States for possible sites for that repository. DOE then was to recommend, "no later than 1 January 1985", three of those locations "for characterisation as candidate sites".[2]

The NWPA also provided that the US federal government, and not the generators of SNF and HLW, was responsible for the permanent disposal of SNF and HLW, and effectively required DOE and any entity that generated or possessed such material to enter into a contract for its disposal. The NWPA did so by prohibiting the US Nuclear Regulatory Commission (NRC) from issuing or renewing a commercial reactor

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1. Pub L. No. 97-425, codified at 42 U.S.C. 10101, *et seq*.
2. *Ibid*. at § 112(b).

license unless the licensee had entered into such a contract with DOE.[3] DOE subsequently promulgated regulations setting forth the terms and conditions for the "Standard Contract for Disposal of Spent Nuclear Fuel and/or High Level Radioactive Waste", which is generally known as the "Standard Contract".[4] In short, this contract obligated the US federal government to take possession of SNF and HLW from the entities that possessed it, including the operators of commercial nuclear power plants. Also pursuant to the NWPA, the operators were required to pay the federal government a fee per kilowatt-hour of electricity generated at the plants in order to fund DOE's licensing, development and construction of a repository for the SNF and HLW.[5] The NWPA required the contracts to provide that, "in return for the payment of the fees" required by the Act, DOE "beginning not later than January 31, 1998, will dispose of the high-level radioactive waste or spent fuel".[6] More on the effect of this legal requirement, and the date Congress specified, is provided later in this article.

As a result of the late 1970s United States policy decision to ban the reprocessing of SNF, commercial nuclear power plant operators in the United States mainly are concerned with the disposal of SNF, and not HLW such as byproducts from reprocessing. That being said, there is a significant volume of HLW in various locations around the United States, much of it resulting from defense or military related activities and therefore already owned and the responsibility of the US Government. Among other HLW in the United States, there is some that resulted from commercial reprocessing activities at a facility located in West Valley, New York, which was shut down in 1972.

The repository authorised in the NWPA was to be for the permanent disposal of SNF and HLW. The Act did authorise a small-scope interim storage programme as well as development of a monitored retrievable storage facility under certain specific circumstances, but the authority to enter into interim storage contracts and to site and construct a monitored retrievable storage facility for SNF and HLW expired more than 20 years ago.[7]

In any event, clearly the primary objective of the Act was to enable the development of a repository for the permanent disposal of SNF and HLW. This is made explicit by what Congress set forth as the first "purpose" of the Act: "to establish a schedule for the siting, construction, and operation of repositories that will provide a reasonable assurance that the public and the environment will be adequately protected from the hazards posed by high-level radioactive waste and such spent nuclear fuel as may be disposed of in a repository".[8] The term "repository" was defined by law to mean "any system licensed by the [Nuclear Regulatory] Commission that is intended to be used for, or may be used for, the permanent deep geologic disposal of high-level radioactive waste and spent nuclear fuel".[9] Furthermore, Congress stated that the Act was intended "to establish the Federal responsibility, and a definite Federal policy, for the disposal of such waste and spent fuel".[10]

3. *Id*. at § 302(b).
4. 10 C.F.R. Part 961.
5. NWPA at § 302. This fee was established by law at one-tenth of one cent per kilowatt-hour. The Secretary of Energy is authorised to change the fee if he determines that "either insufficient or excess revenues are being collected, in order to recover the costs incurred by the Federal Government" to pay for repository development and other eligible costs, see *id*. at § 302(a)(4), but to date that fee as originally set by Congress has never been changed.
6. *Id*. at § 302(a)(5)(B).
7. *Ibid*. at §§ 135, 136, 141.
8. *Ibid*. at § 111(b)(1).
9. *Ibid*. at § 2(18) (emphasis added).
10. *Ibid*. at § 111(b)(2).

As is commonly known, SNF and HLW can remain radioactive and hazardous for thousands of years. The NWPA embodied a choice by Congress and the President that the people responsible for producing the SNF and HLW – and who benefited from the electric energy produced or the national security obtained through the generation of that material – should be responsible for permanently dealing with it. They decided that operational and fiscal responsibility for the treatment and disposal of today's SNF and HLW should not be placed on hundreds or thousands of future generations of people who did not benefit directly from the production of the material.

Of course, Congress could have decided otherwise. It could have decided that it would be good enough for the time being to provide for interim storage – say, for a hundred years or so – of the SNF and HLW generated today, after which time it would be the responsibility of the people then living to figure out what to do with that material. Congress could have decided to do that, but it did not. Instead, as set forth above, Congress provided by law for a process to establish and build a permanent repository for SNF and HLW. Indeed, even in connection with the limited authorisation for development of a monitored retrievable storage facility, Congress explicitly stated that "disposal of high-level radioactive waste and spent nuclear fuel in a repository developed under [the NWPA] should proceed regardless of any construction of a monitored retrievable storage facility".[11]

After enactment of the NWPA, DOE conducted various studies and, as required by the NWPA, identified several locations that at least based on its initial review might be appropriate sites for a permanent geologic repository for SNF and HLW. The Secretary of Energy subsequently nominated the following five sites as possible locations for the first SNF and HLW repository and as being suitable for site characterisation: Richton Dome, Mississippi; Yucca Mountain, Nevada; Deaf Smith County, Texas; Davis Canyon, Utah; and Hanford, Washington.[12] As noted above, the NWPA then required DOE to recommend to the President of the United States three of the nominated sites as candidate sites for characterisation. DOE did that, recommending sites at the following three locations: Yucca Mountain, Nevada; Deaf Smith County, Texas; and Hanford, Washington.[13]

In deciding to recommend three of the sites for characterisation, DOE had performed extensive analysis on the five nominated sites. This analysis ranked Yucca Mountain highest in terms of a "composite overall ranking under a wide range of assumptions".[14]

In late 1987, Congress decided to stop the costly process of studying multiple possible repository sites and instead directed DOE to study only one of the candidate sites DOE had identified – the Yucca Mountain site which, as noted above, DOE analysis had indicated to be the most desirable site under a range of possible scenarios and criteria.[15] Congress amended the NWPA so as to direct DOE to "provide for an orderly phase out of site specific activities at all candidate sites other than the Yucca Mountain site", and further directed DOE to "terminate all site

11. *Ibid*. at § 141(a)(5).
12. See Recommendation by the Secretary of Energy of Candidate Sites for Site Characterisation for the First Radioactive Waste Repository, DOE/S-0048, Office of Civilian Radioactive Waste Management, US Department of Energy, May 1986, at 1.
13. *Ibid*. at 2.
14. See A Multiattribute Utility Analysis of Sites Nominated for Characterisation for the First Radioactive Waste Repository – A Decision Aiding Methodology, DOE/RW-0074, US Department of Energy, Office of Civilian Radioactive Waste Management, May 1986, at 1-3, 5-16.
15. *Ibid*. at 5-4.

specific activities (other than reclamation activities) at all candidate sites, other than the Yucca Mountain site".[16]

Although the development of Yucca Mountain has become a politically charged issue, it is perhaps of note that neither the original 1982 NWPA nor the 1987 amendments thereto that focused the repository development process on Yucca Mountain were the result of unilateral action by only one US political party. In fact, both acts of Congress were decidedly bi-partisan. In 1982, there was a Republican president and Republicans also controlled the US Senate, but the Democratic party had a large majority – 244-191 – in the US House of Representatives. Indeed, at that point Democrats had been in continuous control of the US House of Representatives for almost three decades. The 1987 amendments that focused the licensing and repository development process on Yucca Mountain were even more bi-partisan. There still was a Republican president, but the Democrats held a comfortable majority of seats in the US Senate (55-45), and had a very sizable majority in the US House of Representatives (258-177). Therefore, enactment of both the 1982 NWPA and the 1987 amendments thereto occurred only because both laws enjoyed widespread bi-partisan support, including at the most senior levels of both major US political parties.

One final thought with respect to enactment of the NWPA and Congress' reasons for passing that law: when it enacted the 1982 NWPA, Congress found – and set forth explicitly in the Act – that "a national problem has been created by the accumulation" of SNF and HLW, and that "federal efforts during the past 30 years to devise a permanent solution to the problems of civilian radioactive waste disposal have not been adequate".[17] The NWPA was intended to address and resolve that situation. Despite 30 years of effort and the expenditure of billions of dollars since the NWPA was enacted, however, some might argue that the very same statements Congress made in the NWPA in 1982 could be made again today about there being a "national problem" and about federal efforts having been inadequate – except that today of course, the time period during which the material has been allowed to accumulate would be 60 years rather than the mere 30 years that had elapsed by 1982.

2. NWPA process leading up to DOE's licence application

Even though Congress in 1987 focused the repository site selection and development process on Yucca Mountain, Congress also set forth elaborate processes and steps that would need to be complied with before a repository could be licensed, built and operated. The NWPA first required DOE to conduct extensive site characterisation activities and to hold public hearings concerning the Yucca Mountain site. The Act provided that upon the completion of those activities, the Secretary of Energy could, but was not required to, recommend to the President approval of the Yucca Mountain site for development of a repository.[18] Then-Secretary of Energy Spencer Abraham did make an affirmative recommendation of Yucca Mountain on 14 February 2002 – more than 14 years after passage of the law in late 1987 that directed DOE to study only Yucca Mountain as a possible repository site.[19]

16. See NWPA § 160(a)(1), (2).
17. *Ibid*. at § 111(a)(2), (3).
18. *Ibid*. at § 114(a).
19. See Statement of the Honorable Spencer Abraham, Secretary of Energy, before the US Senate Committee on Energy and Natural Resources, May 16, 2002 ("On February 14, I forwarded a recommendation to the President, based on approximately 24 years of federal

Once recommended by the Secretary of Energy, the NWPA provided that the President of the United States could, if he "considers the Yucca Mountain site qualified for application for a construction authorization for a repository", submit the recommendation to Congress.[20] Nevada was then, by law, given the opportunity to object to the site selection before it could take effect.[21] Not surprisingly, the state of Nevada did lodge an objection to the site selection. Having anticipated that the selected state might well object, Congress in the NWPA provided a detailed procedure – even to the point of specifying the words of the relevant legislative provisions, and the procedures to be employed during congressional consideration – for Congress to consider and vote on a resolution potentially overruling Nevada's objections and making effective the President's recommendation of the Yucca Mountain site as the location for an SNF and HLW repository.[22]

Congress followed this process, which in mid-2002 culminated in Congress passing and the President signing into law in July 2002 Public Law 107-200, which stated, in its entirety, as follows: "Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, that there hereby is approved the site at Yucca Mountain, Nevada, for a repository, with respect to which a notice of disapproval was submitted by the Governor of the State of Nevada on April 8, 2002."

This law passed Congress by a wide bi-partisan vote of 306-117 in the House of Representatives, and passed the US Senate by a voice vote.

In sum, there was a decades-long scientific, analytical and political process leading up to Yucca Mountain's selection – by an act of Congress – as the site for a permanent repository. The site selection process concluded with the unambiguous statement in Public Law 107-200 that the Yucca Mountain site was approved by law as the location for the first SNF and HLW repository in the United States.

3. Process after site selection, leading up to submission of the licence application

The NWPA specified that if Congress approved Yucca Mountain as the site for the SNF and HLW repository, that still was not the end of the process. In fact, it was just the beginning of additional extensive analytical work and licensing processes.

Specifically, within 90 days after congressional approval of the Yucca Mountain site, DOE was required by the NWPA to submit an application to the US Nuclear Regulatory Commission (NRC) seeking a licence to construct the repository.[23] The Act does not merely authorise or allow, but rather it requires DOE to file a licence application with the NRC after congressional approval of the Yucca Mountain site. Section 114(b) of the NWPA sets forth DOE's obligation in mandatory and unconditional terms: "If the President recommends to the Congress the Yucca Mountain site under subsection (a) and the site designation is permitted to take effect under section 115, the Secretary [of Energy] shall submit to the [NRC] an application for a construction authorisation for a repository at such site".[24]

The 90-day period of time allotted by the NWPA for DOE to prepare and submit a licence application to the NRC was unrealistically short, and DOE took considerably

research, that Yucca Mountain, Nevada, is suitable for development as the nation's geologic repository for spent nuclear fuel and high-level radioactive wastes.")

20. NWPA at § 114(a)(2)(A).
21. *Ibid*. at § 116(b).
22. See e.g. *ibid*. at § 115.
23. *Ibid*. at § 114(b).
24. *Ibid*. (emphasis added).

longer to prepare its application. In fact, it took DOE almost 6 years to prepare and submit the Yucca Mountain licence application to the NRC. The application consisted of 17 volumes and approximately 8 600 pages of text, technical material, and other information.[25]

The licence application was submitted on 3 June 2008, and the NRC then undertook the process of reviewing the application to determine its completeness and evaluate whether the NRC should commence with its technical review and analysis of the application. In September 2008, the NRC "docketed" the application after determining it was substantially complete and ready for NRC review.[26]

The law places a deadline on the amount of time the NRC may take to review and analyse DOE's application for the Yucca Mountain repository that specifically the NRC "shall issue a final decision approving or disapproving the issuance of a construction authorisation not later than" three years after DOE submits its application.[27] Therefore, whether the three-year NRC licensing period commenced on 3 June 2008 when DOE submitted its licence application, or on 8 September 2008 when the NRC "docketed" the application for review, at this point the three-year deadline for a final decision on the DOE application has now expired.

4. Action on Yucca Mountain by the Obama Presidential Administration

In November 2008, Barack Obama was elected President of the United States, and during his campaign, then-candidate Obama had promised that, if elected, he would take action to stop further development of the Yucca Mountain repository. Among other statements, candidate Obama's campaign put out the following position on the issue: "In terms of waste storage, Barack Obama and Joe Biden do not believe that Yucca Mountain is a suitable site. They will lead federal efforts to look for safe, long-term disposal solutions based on objective, scientific analysis. In the meantime, they will develop requirements to ensure that the waste stored at current reactor sites is contained using the most advanced dry-cask storage technology available."[28]

Once President Obama and his political appointees assumed office in January 2009, they moved forward with steps to implement this campaign promise. The Obama Presidential Administration publicly stated that it believed the Yucca Mountain site was "unsuitable" or "unworkable" for a repository, and therefore sought to withdraw from the NRC the licence application DOE had submitted in 2008.

Interestingly, the Obama Presidential Administration generally did not assert that the Yucca Mountain site was technically, geologically or scientifically unsound as a site for the nation's repository for SNF and HLW. Rather, the Obama Presidential Administration has spoken in more subjective and vague terms. For example, in his testimony before the US Senate concerning DOE's fiscal year 2011 budget request, Secretary of Energy Steven Chu stated, "The Administration has determined that the

25. US Department of Energy's Yucca Mountain Repository License Application for Construction Authorisation (3 June 2008), available at: www.nrc.gov/waste/hlw-disposal/yucca-lic-app.html.
26. Letter from Michael F. Weber, Director, Office of Nuclear Material Safety and Safeguards, US Nuclear Regulatory Commission, to Edward F. Sproat, Director, Office of Civilian Radioactive Waste Management, US Department of Energy (8 September 2008).
27. NWPA § 114(d).
28. Obama for America, "Barack Obama and Joe Biden: New Energy for America", issue statement by the campaign, 2008.

Yucca Mountain repository is not a workable option".[29] In this same testimony, Secretary Chu said that the United States needed a "different solution" for SNF and HLW – without specifying what exactly that different solution might be. Instead, Secretary Chu said that because Yucca Mountain was "unworkable", DOE would shutter the office responsible for developing the repository and would stop any further effort to obtain a licence for the facility. And in place of moving forward with the licensing and development of Yucca Mountain, DOE would "establish a Blue Ribbon Commission to inform the Administration as it develops a new strategy for nuclear waste management and disposal". So in other words, DOE would commence a new effort to study the problem and potentially propose solutions at a later date for alternatives to a repository at Yucca Mountain.

The "Blue Ribbon Commission" (BRC) promised by Secretary Chu was established in early 2010. The BRC, which was established as an advisory committee pursuant to the US Federal Advisory Committee Act,[30] has no authority to implement any of its recommendations or ideas. Rather, its sole purpose is to provide information and advice to the Secretary of Energy. The members of the BRC include a number of former high-level government officials who have, during their careers, been involved with various facets of nuclear power.

The BRC and its staff currently are engaged in preparing a report for the Secretary of Energy. In July 2011, the BRC issued a draft report[31] and invited public comments (the deadline for submission of public comments expired 31 October 2011). The BRC has stated that it plans to deliver a final report to Secretary of Energy Chu by 29 January 2012.

The BRC's draft report is more than 100 pages long and discusses a variety of different topics concerning nuclear waste and nuclear power generally. But according to the BRC itself as presented in its draft report, the following seven elements are what it views as the best path forward:

1. A new, consent-based approach to siting future nuclear waste management facilities.
2. A new organisation dedicated solely to implementing the waste management programme and empowered with the authority and resources to succeed.
3. Access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management.
4. Prompt efforts to develop one or more geologic disposal facilities.
5. Prompt efforts to develop one or more consolidated interim storage facilities.
6. Support for continued US innovation in nuclear energy technology and for workforce development.
7. Active US leadership in international efforts to address safety, waste management, non-proliferation and security concerns.

As this brief summary of the BRC's draft recommendations suggests, the BRC appears to be proposing, in essence, that the US Government start over in terms of its effort to provide a disposal pathway for the nation's SNF and HLW. The draft

29. Statement of the Honorable Secretary of Energy Steven Chu before the US Senate Committee on Energy and Natural Resources, "FY 2011 Budget Hearing", 4 February 2010, at 15.
30 Pub.L. 92-463, codified at 5 U.S.C. App.
31. Blue Ribbon Commission on America's Nuclear Future, Draft Report to the Secretary of Energy 29 July 2011, available at http://brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf.

report recognises that, in order to implement its proposals, Congress would need to enact legislation to make wholesale revisions to the NWPA, and it seems there could be serious political viability issues with some of its draft suggestions. (For example, it seems unlikely that efforts to develop "interim" storage facilities would be very successful until there is an established site and significant progress towards development of a permanent geologic disposal facility – simply because the "interim" sites will be "permanent" sites unless and until a real permanent site is selected and developed – and the record to date on such efforts gives cause for concern about that, to say the least.)

Regardless, at present it appears that the BRC will proceed to move forward with its work and to prepare a final report by early 2012. It is unclear – and may be unclear for months or even years into the future – what, if any, action the Secretary of Energy, Congress, or others may take with respect to any recommendations that the BRC includes in its final report in early 2012.

5. NRC licensing proceeding

In furtherance of the Obama Presidential Administration's promise to abandon the development of the Yucca Mountain repository, DOE in 2010 filed papers with the NRC seeking to withdraw the licence application that had been submitted in 2008.[32] Not only did DOE seek to withdraw the application, it sought to make the withdrawal "with prejudice" – in other words, in a manner that would foreclose DOE from ever changing its mind and re-filing the application at a later date.

In order to understand why it was necessary for the President and his administration to attempt to carry out a campaign promise in precisely this way – that is, by having one agency of the federal government seek the permission of another agency to withdraw the application, rather than the President simply ordering that all licensing and development processes were to be halted and having his order carried out – it is necessary to understand a few things about the structure of the US Government.

Under the Constitution of the United States, the federal government has three branches – a legislative branch, an executive branch and a judicial branch. These branches do not exist entirely apart from each other. For example, federal judges are appointed by the President of the United States (who is the head of the executive branch), with the advice and consent of the US Senate (which is a body in the legislative branch). Federal statutes can only be enacted into law if they are passed by both the US Senate and the US House of Representatives and signed into law by the President. The funds to operate all three branches of government must be appropriated by Congress through a law signed by the President. The judicial branch has the final say over the interpretation of the Constitution and laws of the United States, and has the authority to invalidate even duly enacted laws of the United States if the courts determine that the laws violate the US Constitution.

Article II of the Constitution provides that the "executive power shall be vested in a President of the United States of America". This appears to mean that all of the executive power of the US Government is vested in the President himself, and that the various agencies and departments that administer and execute federal laws are subject to the power of the President himself.

In 1935, however, the Supreme Court of the United States decided a case that complicated this apparently simple constitutional proposition. In the case of

32. US Department of Energy's Motion to Withdraw, US Department of Energy (High-Level Waste Repository), No. 63-001 (NRC March 3, 2010).

Humphrey's Executor *v.* United States,[33] the court considered the constitutionality of the law that created the Federal Trade Commission (FTC) – an agency very clearly charged with responsibility for executing certain federal laws. The law creating the FTC purported to restrict the ability of the President to remove FTC commissioners. In the end, the Supreme Court rejected then President Roosevelt's argument that it violated the US Constitution for a law to restrict the President's ability to remove executive branch officers – and moreover, the court said that mere policy disagreements were not sufficient grounds to remove an officer which the law dictated could only be removed for cause.

This case had the practical effect of creating two kinds of agencies within the executive branch of the US federal government – those headed by officers who serve at the pleasure of the President of the United States, and those headed by officers who can only be removed for cause, and therefore are not directly subject to the President's direction and control. The latter type of agency is generally referred to as an "independent agency". It seems somewhat paradoxical that such an agency can exist in a government where the Constitution itself provides that the "executive power shall be vested in a President of the United States of America" – but nonetheless, since 1935 that has been the law in the United States.

In the context of the NWPA and the establishment of a permanent repository for SNF and HLW, the law places certain functions within the purview of DOE – an agency headed by the Secretary of Energy who is fully subject to the direction and control of the President – and certain functions within the purview of the NRC – which is an "independent agency" because its five commissioners are appointed for a term of five years and can only be removed for cause. Therefore – and as if siting and developing a repository for SNF and HLW was not already difficult enough – the NWPA splits up responsibility between different types of executive branch agencies which do not need necessarily to accede to the directions or requests of the other.[34]

As explained above, the NWPA vests the NRC – an independent agency – with the authority and responsibility to review the repository licence application submitted by DOE and charges NRC with ultimately deciding whether a licence for the construction and operation of the Yucca Mountain repository should be granted. The NRC was in the midst of conducting this review when, in 2010, DOE sought to withdraw the application from the NRC's consideration.

DOE's request thus presented the interesting question of whether DOE – acting at the direction of the President of the United States – had the authority to withdraw that licence application, and whether the NRC, as an independent agency but still subject to the requirements of applicable law in the NWPA, had the legal authority to grant DOE's request and whether as a policy matter it would do so even if it did in fact have the necessary legal authority.

The NRC's Atomic Safety and Licensing Board (ASLB) considered DOE's request, and rejected it. In an order issued on 29 June 2010, the ASLB concluded that the NWPA "does not permit the Secretary [of Energy] to withdraw the Application that the NWPA mandates the Secretary file. Specifically, the NWPA does not give the Secretary the discretion to substitute his policy for the one established by Congress in the NWPA that, at this point, mandates progress towards a merits decision by the Nuclear Regulatory Commission on the construction permit."[35] The ASLB's order is subject to

33. 295 U.S. 602 (1935).
34. This legal situation and the problems created by Humphrey's Executor and the provisions of the NWPA are discussed by US Court of Appeals Judge Kavanaugh in his concurring opinion in In re: Aiken County, infra note 35 (Kavanaugh, J., concurring).
35. US Department of Energy (High-Level Waste Repository), LBP-10-11, 71 NRC ___, ___ (slip op. at 3) (29 June 2010).

review by the five NRC commissioners, and so, not surprisingly, DOE and others opposed to the licensing and development of the Yucca Mountain repository sought review by the NRC of the ASLB's decision that the licence application could not be withdrawn. And there, before the NRC, is where the matter sat for a very long time.

In light of later events, the reasons for the NRC's long delay in issuing a decision in the matter became clear enough – the NRC commissioners were evenly split on whether DOE should be permitted to withdraw the licence application, and as a result could not come to an agreement among themselves on how to dispose of the case in light of that tie vote. The NRC has five commissioners, which of course as a general matter should preclude tie votes. But in the case of Yucca Mountain, one of the five currently sitting NRC commissioners – George Apostolakis – is recused from voting because of his work on Yucca Mountain matters prior to his appointment to the NRC. As a result, only four of the currently sitting commissioners are able to vote on the disposition of DOE's request to withdraw the Yucca Mountain licence application.

Eventually, on 9 September 2011, more than a year after the ASLB's decision, the NRC issued a two-page order noting the recusal of Commissioner Apostolakis, and stating that the remaining four commissioners were evenly divided as to whether to take action to uphold or reverse the ASLB's June 2010 ruling.[36] As a result, the NRC directed the board to "complete all necessary and appropriate case management activities, including disposal of all matters currently pending before it and comprehensively documenting the full history of the adjudicatory proceeding" no later than 30 September 2011 – the final day of the 2011 fiscal year.

In short, the NRC refused to decide on the question of whether DOE should be permitted to withdraw its Yucca Mountain licence application. Instead, the NRC pled lack of available funds and a tie vote among commissioners as its reason for doing nothing with either DOE's withdrawal request or with the licence application itself, and directed the NRC staff simply to cease further work on the licence application. In an apparent attempt to assure that resurrecting the Yucca Mountain project would be administratively difficult even if Congress or the courts disagree with the course of action the NRC has taken, the NRC also proceeded to terminate its lease for the Las Vegas Hearing Facility which was intended to house the adjudicatory hearings on the Yucca Mountain licence application, and terminated the operation of other facilities and services to support the licence review process.

As a result, it appears that the NRC will not be taking any further action concerning the Yucca Mountain repository unless and until Congress or the federal courts order it to do so. In effect, therefore, while DOE has not been permitted to withdraw its licence application, no further action is being taken on that application, and both DOE and the NRC seem to have taken all steps available to them to remove the government's capability to proceed with the 2008 Yucca Mountain licence application.

6. Judicial proceedings

In the meantime, certain parties that would like to see the Yucca Mountain repository licensed and built have pursued orders from the federal courts that would direct continued progress on the licence application. Certain state and local governments – particularly those where a significant amount of SNF or HLW is stored (and likely will continue to be stored unless and until a permanent repository

36. Memorandum and Order, In the Matter of US Department of Energy (High-Level Waste Repository), Docket No. 63-001-HLW (9 September 2011).

is built) – filed petitions in the US Court of Appeals for the District of Columbia seeking an order that DOE acted illegally when it sought to withdraw the Yucca Mountain licence application from the NRC.

Ultimately the court decided in that case that it did not have jurisdiction to consider the petitioners' arguments.[37] In legal terms, the court determined that, at the time it decided the case in July 2011, the petitioners' claims were either not ripe for adjudication or were not justiciable. The court's primary reasons for its decision were that the NRC had not yet made any final decision whether DOE would be permitted to withdraw the licence application, and that certain of the challenged DOE actions were outside the scope of what could be reviewed by the court.[38]

In the course of deciding that it could not at that time provide any relief to the petitioners, however, the court also gave some strong hints as to actions it might take in the future should the NRC fail to proceed with its consideration of the Yucca Mountain licence application. The court stated as follows (references to the "Commission" are to the NRC):

> *As we noted above, the NWPA requires the Commission to "issue a final decision approving or disapproving the issuance of a construction authorization not later than the expiration of 3 years after the date of the submission of such application, except that the Commission may extend such deadline by not more than 12 months" subject to specified reporting requirements. Without an extension, the three-year statutory deadline for the Commission to issue its final decision on the DOE's Yucca Mountain application – submitted on June 17, 2008 – has potentially already come and gone. Very soon, the contingencies discussed above should be resolved and Petitioners – and importantly this court – will know whether the Commission will permit the DOE to withdraw the Yucca Mountain license application, and if not, whether the Commission approves or disapproves the application. Should the Commission fail to act within the deadline specified in the NWPA, Petitioners would have a new cause of action under this court's ruling in Telecommunications Research and Action Center v. FCC, 750 F.2d 70 (D.C. Cir. 1984) (hereinafter "TRAC"). In TRAC, we held that the Courts of Appeals have exclusive jurisdiction to issue writs of mandamus to compel agency actions that have been unreasonably delayed. 750 F.2d at 75. Although mandamus is an extraordinary remedy reserved for extraordinary circumstances, "we will interfere with the normal progression of agency proceedings to correct transparent violations of a clear duty to act". We do so both to protect our own future jurisdiction over the merits of the dispute and because "[i]t is obvious that the benefits of agency expertise and creation of a record will not be realized if the agency never takes action". We will not permit an agency to insulate itself from judicial review by refusing to act.*[39]

In mid-2011, after the court decision discussed above but before the NRC had issued its September 2011 tie-vote order concerning DOE's request to withdraw the Yucca Mountain licence application, parties interested in seeing the repository licensed and developed filed another suit with the US Court of Appeals. In the new lawsuit, they sought an order compelling the NRC to issue a final ruling on DOE's attempt to withdraw its licence application. Specifically, certain parties filed a "Petition for Writ of Mandamus (Agency Action Unreasonably Withheld)", in which they alleged that the NRC had unreasonably withheld consideration of DOE's Yucca Mountain licence application. In essence, the parties argued that the statutory deadline for the NRC to issue a final decision on the licence application already had passed, and the NRC should not be allowed to avoid its statutory responsibility to

37. In re: Aiken County, No. 10-1050, slip op. at 2 (D.C. Cir., July 1, 2011).
38. *Ibid*. at 10-15.
39. *Ibid*. at 12-13 (emphasis in original) (certain citations omitted).

issue a decision on the licence application while at the same time refusing to issue any final order on DOE's withdrawal motion. The petitioners also sought an expedited schedule for the briefing and argument of their case.

The NRC opposed the petitioners' request for expedited treatment. And about a month after the new lawsuit was filed, the NRC issued its tie-vote order passing on the opportunity to take on further action with respect to DOE's withdrawal motion, as well as with respect to any further action on the Yucca Mountain licence application itself.

The petitioners, in a subsequently filed pleading with the court, stated the current legal situation and their argument for judicial action thus:

> *On the merits of whether DOE can withdraw its application, the [September 2011 NRC Order] states that "the Commission finds itself evenly divided on whether to take the affirmative action of overturning or upholding the [ASLB's] decision". Under the [NRC's] Internal Commission Procedures, the effect of a deadlocked vote is "no action". The [NRC Order] thus leaves the ASLB decision intact and undisturbed as the final decision of the NRC. Under the ASLB's decision, DOE's motion to withdraw its application with prejudice is denied.*
>
> *However, rather than now moving forward to consider DOE's application and issue a decision on its merits, the NRC is doing the opposite. The NRC is finalizing the close out of both its internal staff review of DOE's application and the ASLB adjudication of that application. [. . .] NRC['s] press release documents that the agency "is nearing the successful completion of its orderly closure of the licensing review process", including transferring or donating project infrastructure to other federal agencies or outside the federal government.*[40]

On 4 November 2011, the US Court of Appeals granted the petitioners' request for an expedited briefing and hearing schedule. Under that schedule, final briefs must be submitted to the court by 13 February 2012, and the case is to be set for oral argument "on the first appropriate date following the completion of briefing". As a result, it appears likely that oral argument in this case could occur in the spring of 2012. Furthermore, although it is impossible to predict how long it will take the court to consider the case and issue a decision after oral argument has occurred, given the briefing timeline and the approximate period of time the court may take to decide a case, it is entirely possible the court will issue an opinion concerning the legality of DOE's and NRC's actions prior to – and maybe immediately prior to – the November 2012 presidential and congressional elections in the United States.

7. Current US taxpayer cost

No discussion of the current status of radioactive waste repository development in the United States is complete without a discussion of the current and continuing costs to the US taxpayers of maintaining the *status quo*. As noted earlier in this article, the "standard contract" between DOE and each operator of a nuclear power plant in the United States requires that the US Government begin to accept certain SNF for disposal no later than 31 January 1998.

Of course no repository had been developed by that point, and DOE did not start picking up SNF by that date. As a result, the utilities in possession of SNF they have generated over the last several decades – and which have paid billions of dollars to

40. Response to "Notice of Underlying Decision" and Motion for Expedited Consideration, No. 11-1271, US Court of Appeals for the District of Columbia Circuit, September 16, 2011, at 2-3 (citations omitted).

the US Government in required fees under their standards contracts entered into with DOE pursuant to the requirements of the NWPA – have sued DOE for damages to compensate the utilities for the cost of continuing to store the SNF and in many cases to build new storage facilities capable of storing larger volumes of SNF and for longer periods of time. The federal government already has billions of dollars in recorded liabilities for partial breach of these contracts, and will continue to accrue and pay damages until it takes possession of the SNF.[41]

In short, while it is widely recognised that cancelling the Yucca Mountain project would cost billions of dollars in terms of wasted effort on that facility and in terms of new work required to study, characterise, license and develop a repository at a new site, it also should be recognised that the continuing delay in opening a repository also is costing the US taxpayers billions of dollars in damages that must be paid to the utilities for continuing to store the SNF that was generated in the past and that continues to be generated at the nuclear power plants around the country.

8. Conclusion

Unfortunately the situation with respect to the development of a permanent repository in the United States for disposal of mounting inventories of SNF and HLW is, at best, uncertain. After decades of study and delay, a licence application finally was submitted in 2008 for authorisation to construct a permanent repository at Yucca Mountain, the site approved by Congress in 2002.

But this progress was short-lived, as federal government agencies in 2010 and 2011 changed course. Now the immediate future of the Yucca Mountain repository development programme rests with the federal courts, which likely will decide at least some of the key legal issues in 2012.

In the meantime, the BRC also will likely produce a report in 2012 detailing possible alternatives to Yucca Mountain for dealing with the nation's SNF and HLW inventories. But regardless what alternatives the BRC proposes, it has no authority to take any action on its own recommendations, and it will be up to the President and Congress to decide whether to act on those recommendations. Given the history of past debates on SNF and HLW issues, we should not expect quick action. And all the while, inventories of SNF continue to grow, as does the US Government's liability for breach of contract damages due to its failure to start taking SNF from nuclear power plants in the United States as required by law and by the contracts entered into by the US Government.

41. See e.g. Audit Report, US Department of Energy, Office of Inspector General, Office of Audits & Inspections, "Audit Report: The Department of Energy's Nuclear Waste Fund's Fiscal Year 2011 Financial Statements", OAS-FS-12-03, November 2011, at 2 (DOE "is involved as a defendant in several matters of litigation relating to its inability to accept waste by the January 31, 1998 date specified in the Nuclear Waste Policy Act of 1982, as amended. The Fund has recorded liabilities for likely damages of USD 19.1 billion, and USD 15.4 billion as of September 30, 2011 and 2010, respectively."). Of course, this estimated liability assumes an opening date for a repository, and assumes that the US Government eventually takes possession of the SNF by certain estimated dates. The government's liability will continue to grow if repository development, and the dates by which the US Government takes possession of SNF, are further delayed.

The Radioactive Waste Directive: a necessary step in the management of spent fuel and radioactive waste in the European Union

*by Ute Blohm-Hieber**

Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste[1] (Waste Directive) was adopted with the support of all member states of the European Union. Following the adoption of the Council Directive establishing a Community framework for the nuclear safety of nuclear installations in 2009 (Safety Directive),[2] the Waste Directive represents another important step towards building and strengthening the most advanced possible legal framework for nuclear energy in Europe. The Waste Directive incorporates into European Union (EU) law the international standards developed by the International Atomic Energy Agency (IAEA) for the management of spent fuel and radioactive waste, rendering these international norms legally binding and enforceable at EU level, as well as providing for the intervention of the European Court of Justice.[3] In addition, the Waste Directive introduces new export control requirements for radioactive waste and the obligation for all EU member states to establish, maintain and implement comprehensive national programmes covering the management of all spent fuel and radioactive waste from generation to disposal. The Waste Directive also requires EU member states to involve the public effectively in decision-making processes in accordance with national and international obligations.

1. International law on radioactive waste management and its adoption in the Waste Directive

Relevant international law on radioactive waste management is anchored in the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management[4] (Joint Convention) and in the IAEA Safety Standards Series developed by the IAEA in collaboration with other sponsoring organisations.

The Joint Convention is an international agreement signed in Vienna in 1997, which currently brings together 63 states as well as the Euratom Community as

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1. OJ L 199 of 2.8.2011, p. 48.
2. Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations, OJ L 172, 2.7.2009, pp. 18–22.
3. Articles 258 to 260 Treaty on the functioning of the European Union, OJ C 83/49, 30.3.2010.
4. Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997), available at: www-ns.iaea.org/conventions/waste-joint convention.asp.

contracting parties.[5] These contracting parties are bound by this international agreement by what is regarded as two types of obligations:[6] first, to take appropriate measures to ensure the safety of spent fuel and radioactive waste management; and secondly, to participate in the reporting and peer review mechanism. Whereas the second type of provisions is directly binding on the contracting parties, the first type are obligations *de moyens*, which means that the Joint Convention has an incentive character, as recognised in its own preamble.[7] The contracting parties commit themselves to progress, to adopt internationally recognised best practices and to take advantage of the experience of others in the peer review process. If a contracting party engages in questionable or controversial practices in waste management, the Joint Convention lacks a mechanism to urge that state to change its practices beyond the pressure that other states or the international community may exert during the national reports review process. Furthermore, the Joint Convention does not provide for sanctions for contracting parties that fail to comply with its provisions.

Besides the Joint Convention, the Safety Standards Series developed by the IAEA in co-operation with other international organisations are structured in a hierarchical manner: safety fundamentals, safety requirements and safety guides. The safety fundamentals establish the fundamental safety objectives and fundamental safety principles to be applied throughout the lifetime of facilities and activities involving exposure to ionising radiation, including radioactive waste management. They provide the basis for a series of safety requirement documents and related safety guides that develop in more detail how the safety requirements could be met. None of these rules is directly binding for states that are party to the IAEA, but rather these rules constitute recommendations for states, national authorities and other international organisations. They, however, are binding on the IAEA when applied to their own operations, such as the provision of technical assistance to countries that have requested it.

In 2006, the IAEA updated its set of safety standards and compiled them in a new publication of Fundamental Safety Principles,[8] defining the main safety objective (to protect people and the environment from harmful effects of ionising radiation) and ten associated safety principles covering the lifecycle of facilities and activities involving exposure to ionising radiation, including radioactive waste management. The IAEA safety requirements are being updated as well, part of which concern the management of radioactive waste and spent fuel.[9]

The Waste Directive aims at strengthening the internationally accepted principles and standards as established in the IAEA Safety Standards and the Joint Convention by rendering them both legally binding and enforceable at EU level,

5. The Euratom Community acceded in October 2005. To date, all the EU member states except Malta are a party to the Joint Convention.
6. Tonhauser, W., Jankowitsch-Prevor, O.: "The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management", *Nuclear Law Bulletin* No. 60 (1997), OECD/NEA.
7. Waste Directive, Recital ix): "Affirming the importance of international co-operation in enhancing the safety of spent fuel and radioactive waste management through bilateral and multilateral mechanisms, and through this incentive Convention". On the "incentive character" of the Convention: De Wright, T.: "The 'incentive' concept as developed in the Nuclear Safety Conventions and its possible extension to other sectors", *Nuclear Law Bulletin* No. 80 (2007), OECD/NEA.
8. Fundamental Safety Principles, SF-1, 2006, IAEA.
9. The full text of this document is available at: www.iaea.org/standards/documents/general.asp.

while going beyond their requirements in some respects.[10] In fact, the principles and requirements developed by the IAEA and other international organisations, or the articles of the Joint Convention, have not necessarily been reproduced verbatim in the Waste Directive. Nevertheless, a correlation between the requirements of the Joint Convention and relevant IAEA Safety Standards can be detected easily and was clearly intended by the European Commission.

2. Content of the Waste Directive

The Waste Directive's structure is based on the Nuclear Safety Directive[11] and the Joint Convention, by which it is inspired.

A. Scope, definitions and general principles

The subject matter of the Waste Directive as outlined in Article 1 thereof is to establish a Community framework for requesting appropriate national arrangements for the responsible and safe management of spent nuclear fuel and radioactive waste as well as to ensure the provision of necessary public information and participation in relation to spent fuel and radioactive waste management. The key requirement of avoiding the imposition of undue burdens on future generations is an overarching principle of the Waste Directive and is clearly stated in the preamble as an ethical obligation of each EU member state.[12]

Article 1 also contains an important clarification, namely that the Waste Directive, without prejudice to 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 (BSS Directive),[13] supplements the basic standards referred to in Article 30 of the Euratom Treaty as regards the safety of spent fuel and radioactive waste.

The Waste Directive has a wide scope. As defined in Article 2, it applies to all stages of spent fuel and radioactive waste management as long as the materials result from civilian activities.

The Waste Directive excludes:

- Radioactive waste resulting from defence activities. As the European Court of Justice has established in its jurisprudence,[14] the Euratom Community is not competent to regulate the use of nuclear energy for military purposes, and thus Chapter 3 of the Euratom Treaty is not an appropriate basis for regulating the safety of radioactive waste resulting from such activities.

- Waste arising from uranium mining and milling activities. These wastes are already regulated by the Directive on the management of waste from extractive industries[15] which may be radioactive, but excluding such aspects

10. Commission Staff Working Document – Accompanying document to the revised proposal for a Council Directive (Euratom) on the Management of Spent Fuel and Radioactive Waste, COM(2010) 618 – Impact Assessment, SEC(2010) 1290. In particular, 4.2. and 4.3. (Policy Options).
11. Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations; OJ L 172 of 2.7.2009, p. 18.
12. Waste Directive, Recital 24.
13. OJ L 159 of 29.6.1996, p. 1.
14. Commission vs. United Kingdom, C-61/03 and C-65/04.
15. Directive 2006/21/CE of the European Parliament and of the Council, on the management of waste from extractive industries; OJ L 102 of 11.4.2006, p. 15.

as are specific to radioactivity. These aspects are dealt with under the Euratom Treaty, in particular the BSS Directive. Recently, the European Commission has published a communication on the situation of this type of waste in the EU.[16]

- Authorised releases as covered already by legislation under the Euratom Treaty, in particular the BSS Directive.

Article 2 of the Waste Directive also lists a number of exemptions from the export control stipulations established in Article 4(4). One of these exceptions allows for the repatriation of disused sealed sources to a supplier or manufacturer. Sealed sources are basically sources comprising radioactive material permanently sealed in a capsule or closely bonded and in a solid form, widely used in industry, medicine and research. The necessary registration and control of high activity sealed sources is regulated by Directive 2003/122/Euratom on the control of high-activity sealed radioactive sources and orphan sources[17] and the BSS Directive. When these sealed sources are no longer in use nor intended to be used, such disused sealed sources can be reused, recycled or disposed of in accordance with the Joint Convention, the IAEA Code of Conduct on the Safety and Security of Radioactive Sources, and current industrial practices. In many cases, the return of the disused sealed source or the return of equipment including such source to a supplier or manufacturer for requalification or processing is required. Additional exceptions are outlined below.

Major emphasis was placed on ensuring the consistency of the definitions provided in Article 3 of the Waste Directive with other secondary Euratom law and particularly with definitions as provided by the Nuclear Safety Directive and the Shipments Directive[18] as well as those in the 2007 IAEA Safety Glossary.[19]

Article 4 of the Waste Directive sets out the general principles for the management of spent fuel and radioactive waste inspired by those promoted in the IAEA context and introduces some important restrictions on the export of radioactive waste. The general principles to be used as the basis for establishing national policies are the following:

- Each member state shall establish and maintain national policies on spent fuel and radioactive waste management and shall have ultimate responsibility for management of the spent fuel and radioactive waste generated in it.

- Where radioactive waste or spent fuel is shipped for processing or reprocessing to a member state or a third country, the ultimate responsibility for the safe and responsible disposal of those materials, including any waste as a by-product, shall remain with the member state or third country from which the radioactive material was shipped.

- The generation of radioactive waste shall be kept to the minimum which is reasonably practicable, both in terms of activity and volume, by means of appropriate design measures and of operating and decommissioning practices, including the recycling and reuse of materials. These principles should not be interpreted however as an obligation for states to reprocess

16. Commission Staff Working Paper, "Situation concerning uranium mine and mill tailings in the European Union", SEC(2011) 340 final.
17. OJ L 346 of 31/12/2003, p. 57.
18. Directive 2006/117/Euratom on the supervision and control of shipments of radioactive waste and spent fuel, OJ L 337 of 5.12.2006, p. 21.
19. The 2007 IAEA Safety Glossary is available at: www-pub.iaea.org/MTCD/publications/PDF/Pub1290_web.pdf.

spent fuel as the Waste Directive respects the freedom of each state to choose its own fuel cycle policy.[20] Spent fuel can be regarded either as a valuable resource that may be reprocessed or as radioactive waste that is destined for direct disposal. Whatever option is chosen, the disposal of high-level waste separated at reprocessing, or of spent fuel regarded as waste should be considered.

- Due consideration shall be given to the interdependencies between the different stages in the management of spent fuel and radioactive waste, including handling, pre-treatment, treatment, conditioning, transport, storage and disposal of radioactive waste, as decisions taken for one of them may affect the subsequent stages.

- Spent fuel and radioactive waste shall be managed safely in the long term, by the means of passive safety features. In practice, long-term storage options and in particular disposal facilities (from which there is by definition no intention to retrieve the waste) should be designed in a way that confines and isolates the waste from humans and the environment using safety systems that in principle do not require human action and control. Such passive management can be achieved *via* a combination of geological and human-engineered barriers, depending on the characteristics of the selected storage site. Recital 23 of the Waste Directive states clearly that the typical disposal concept for low- and intermediate-level waste is near-surface disposal. For high-level waste, Recital 23 underlines that at the technical level it is broadly accepted that deep geological disposal represents the safest and most sustainable option as the end point of the management of high-level waste and spent fuel considered as waste. Consequently, Recital 21 emphasises that the storage of radioactive waste, including long-term storage, is an interim solution, but not an alternative to disposal.

- The implementation of measures shall follow a "graded approach", which means that the stringency of measures should be commensurate with the level of risk of the particular activity or facility. In the Waste Directive some concrete applications of this graded approach can be found as a rule of proportionality, such as in Recitals 34 or Article 7.3.

- Those who generate spent fuel and radioactive waste shall bear the cost of its management. In a later section of this article this requirement is explained in more detail.

- Application of a decision-making process based on evidence and documented at all stages of spent fuel and radioactive waste management. This principle is reflected again in Recital 34 and Article 7.3.

B. The export control regime as an element of the general principles

The export control system establishes a general principle that radioactive waste shall be disposed of in the member state in which it was generated. However, the Waste Directive provides for exceptions to this particular rule. First of all, export for disposal in another EU member state is permitted, in light of the possibility of several member states developing and using shared repositories. However, exporting waste to third countries for disposal outside the EU is permitted only under strict conditions. Initially, the Commission's proposal for the Waste Directive foresaw a complete ban on exports of radioactive waste for disposal outside the EU. However,

20. Waste Directive, Recital 20.

when discussing the proposal in the Council of Ministers it became clear at an early point in time that member states would request certain exemptions, such as the return of spent fuel from research reactors under agreements concluded in the context of the Global Threat Reduction Initiative.[21] Beyond that, the views of member states on the issue of export of waste to third countries were split, ranging from full support to complete opposition, which made it ultimately impossible to establish a general ban on the export of radioactive waste. For this reason, the Waste Directive establishes a system of export control with strict rules.

Article 16 of the Shipments Directive prohibits member states from performing a number of exports such as to destinations south of latitude 60° south, to the countries party to the Cotonou Agreement[22] and to those destinations which, in the opinion of the competent authorities of the member state of origin, do not have the administrative and technical capacity and regulatory structure to manage the radioactive waste or spent fuel safely. The appreciation of this third category can be to a certain degree subjective, and therefore the Shipments Directive adds: "In coming to an opinion on this issue, member states shall take duly into account any relevant information from other member states", in addition to criteria established by the Commission to facilitate the evaluation by the member states.[23] This provision has since been developed by a Commission Recommendation[24] which provides guidance for the evaluation criteria, such as whether the receiving state is a party to the Joint Convention and other IAEA-sponsored conventions (including in the fields of physical protection and safeguards) and the existence of an international regime of third party liability in case of accident.

The Waste Directive narrows the export control regime on the issue of disposal as established by the Shipments Directive. Member states may export radioactive waste for disposal to third countries only when at the time of shipment an agreement, taking into account the criteria established by the Commission in accordance with Article 16(2) of the Shipments Directive, has entered into force between the member state concerned and another member state or a third country to use a disposal facility in one of them. In this respect, the Waste Directive adds the requirement that prior to a shipment to a third country, the exporting member state shall inform the Commission of the content of any such agreement and take reasonable measures to be assured that:[25]

- the country of destination has concluded an agreement with the Euratom Community covering spent fuel and radioactive waste management or is a party to the Joint Convention;

21. The mission of the Global Threat Reduction Initiative (GTRI) is to reduce and protect vulnerable nuclear and radiological materials located at civilian sites worldwide. The Nuclear and Radiological Material Removal subprogramme supports the removal or disposal of excess WMD-usable nuclear and radiological materials from civilian sites worldwide. The scope of GTRI work encompasses, in part, removal and repatriation of Russian-origin nuclear material and US-origin nuclear material. EU member states participating in this programme have signed agreements with the Russian Federation and the United States for the return of such fuel. As a result of certain member states' insistence, the Waste Directive clarifies the exceptional character of these shipments with respect to the EU export control regime.
22. Partnership Agreement between the Members of the African, Caribbean and Pacific Group of States of the One Part, and the European Community and its Member States, of the Other Part, signed in Cotonou, Benin, on 23 June 2000.
23. Shipments Directive, Article 16.
24. Commission Recommendation of 4 December 2008 on criteria for the export of radioactive waste and spent fuel to third countries, 2008/956/Euratom, OJ L338 of 17.12.2008.
25. Waste Directive, Article 4.4.

- the country of destination has radioactive waste management and disposal programmes with objectives representing a high level of safety equivalent to those established by this Directive; and
- the disposal facility in the country of destination is authorised for the radioactive waste to be shipped, is operating prior to the shipment, and is managed in accordance with the requirements set down in the radioactive waste management and disposal programme of that country of destination.

These additional restrictions imposed by the Waste Directive partially satisfy the original expectations of the Commission. Given that today there is worldwide no facility licensed for the disposal of spent fuel or high-level radioactive waste, at least in this respect these requirements could be understood as a *de facto* ban on this type of shipment.

These provisions do not affect the following types of transactions:

- Shipments of spent fuel for reprocessing or radioactive waste for processing as long as radioactive waste recovered from the treatment or reprocessing operation, or an agreed equivalent, are returned to the EU.[26]
- The return of disused sealed sources.[27] As discussed above, a common practice is the return of such sources to their supplier, particularly in states which have a limited infrastructure for their management.
- Shipments of spent fuel from research reactors to a country where research reactor fuels are supplied or manufactured, taking into account applicable international agreements.[28] This provision applies in particular to the agreements concluded under the Global Threat Reduction Initiative as stated in Recital 15 of the preamble.
- Possible shipments of spent fuel and radioactive waste from the Krško nuclear power plant to Croatia.[29] This nuclear power plant is jointly owned by the state electricity companies of Slovenia and Croatia; it is operated by a dedicated public company and located in south-eastern Slovenia near the Croatian border. Radioactive waste resulting from the operation of the plant, as well as spent fuel, is stored on site. A bilateral treaty between Slovenia and Croatia regulates the financing, operation and decommissioning of Krško, committing the two states to co-finance the decommissioning as well as the spent fuel and radioactive waste management of the plant. The waste management organisations of the two countries have presented a corresponding programme in 2004.[30] Upon Croatia's accession to the EU, currently expected for mid-2013, this exception will become redundant.

C. Obligations

Article 5 of the Waste Directive stipulates that the states must establish and maintain a national legislative, regulatory and organisational framework (National Framework) for spent fuel and radioactive waste management that allocates

26. Waste Directive, Article 2.4.
27. Waste Directive, Article 2.3a.
28. Waste Directive, Article 2.3b.
29. Waste Directive, Article 2.3c.
30. Decommissioning programme of the Krško nuclear power plant. Further information about the contents of this programme and the referred international treaty can be found in the national reports of Croatia and Slovenia to the Joint Convention Third Review Meeting, available at: www-ns.iaea.org/conventions/results-meetings.asp?s=6&l=40.

responsibility and provides for co-ordination between relevant competent bodies. Member states shall in addition ensure that the National Framework is improved where appropriate, taking into account operating experience, insights gained from the decision-making process and the development of relevant technology and research.

Specifically, the elements of the National Framework shall provide for:

- a national programme for the implementation of the spent fuel and radioactive waste policy;
- national arrangements for the safety of spent fuel and radioactive waste management;
- a system of licensing of spent fuel and radioactive waste management activities;
- a system of appropriate control that includes the post-closure period of disposal facilities;
- enforcement actions;
- allocation of responsibility to the bodies involved in the different stages of spent fuel and radioactive waste management;
- national requirements for public information and participation; and
- the financing scheme(s) for spent fuel and radioactive waste management.

Article 5 of the Waste Directive is inspired by Article 19 of the Joint Convention, however, the Joint Convention does not include as a part of the National Framework requirements for public information and participation. In addition, the Joint Convention does not require the development of comprehensive national programmes for the implementation of spent fuel and radioactive waste management policies. These programmes are a key part of the Waste Directive.

It is quite obvious that the long-term management of spent fuel and radioactive waste often represents a difficult issue for policy makers to face for various reasons including public acceptance, financing or a lack of the required infrastructure. The search for a site for the storage or disposal of radioactive waste and spent fuel, if so decided upon, is a particular challenge. Therefore, the obligation to define national policies and to transpose them into national programmes covering all types of spent fuel and radioactive waste under its jurisdiction and all stages of spent fuel and radioactive waste management from generation to disposal is key to address the ethical obligation not to impose undue burdens on future generations.[31] No matter how developed the legal and organisational framework of a state might be, the safe and responsible management of spent fuel and radioactive waste can only be achieved once the government is committed to develop policies and ensure their transposition into practical long-term solutions.

As outlined in Article 12 of the Waste Directive, national programmes for the management of spent fuel and radioactive waste can consist of one or more documents, should be reviewed periodically and include the following elements:

- the overall objectives of the state's national policy on the management of spent fuel and radioactive waste;

31. Waste Directive, Article 1.

- significant milestones and clear timeframes for compliance therewith;
- a spent fuel and radioactive waste inventory, including future estimates;
- concepts or plans and technical solutions for the management of spent fuel and radioactive waste, from its generation until its disposal;
- concepts or plans for the post-closure period of a disposal facility, including the period during which appropriate controls are retained and the means to be employed to preserve knowledge of that facility in the longer term;
- necessary research, development and demonstration activities;
- responsibility for the implementation of the national programme and the key performance indicators to monitor progress towards implementation;
- assessment of the national programme costs as well as the underlying basis and hypotheses for that assessment, which must include a profile over time;
- indication of the financing scheme in force;
- description of the transparency policy or process for information sharing and public participation; and
- declaration of the international agreements for the management of spent fuel and radioactive waste, if any.

Article 13 of the Waste Directive provides that member states are required to notify the Commission about their national programmes and any subsequent significant changes. The obligation to ensure the establishment, updating and implementation of national programmes serves three functions. One, it triggers governments to overcome wait and see policies and to arrange for their implementation into practical solutions. It also helps to ensure transparency and credibility, thus enabling the European Commission to monitor the programmes against the requirements of the Waste Directive. When required, the European Commission has the right to request clarifications and/or express its opinion on whether the content of the national programme is in accordance with Article 12. Lastly, Article 13 provides that clarifications and progress in implementing programmes can be taken into account by the European Commission when deciding on the provision of Community financial or technical assistance.

In analogy to the Safety Directive, another state obligation imposed by the Waste Directive is to have a competent regulatory authority in the field of safety of spent fuel and radioactive waste management. This authority shall be functionally separate from any other body or organisation concerned with the promotion or utilisation of nuclear energy or radioactive material in order to ensure effective independence from undue influence on its regulatory function. This obligation, established in Article 6 of the Waste Directive, must be understood in proportion to the capacity of each member state and the volume and activity of the radioactive waste that it generates. Cases in which the regulatory authority and the waste manager are part of the same body could violate this article and should be carefully analysed. Recital 26 of the Waste Directive clarifies, however, that the use of radioactive sources by the regulatory authority does not compromise its independence.

Article 7 of the Waste Directive imposes quite a number of requirements on licence holders. First of all, member states shall ensure that the prime responsibility for the safety of spent fuel and radioactive waste management facilities and/or activities rests with the licence holder under the control of the competent regulatory authority. The license holder may not delegate the responsibility to regularly assess,

verify and continuously improve, as far as it is reasonably achievable, the safety of facilities or activities dealing with radioactive waste and spent fuel management, in a systematic and verifiable manner through an appropriate safety assessment, other arguments and evidence. A central requirement in this context is that the safety demonstration, as part of the licensing of a facility or activity, shall cover the development and operation of an activity and the development, operation and decommissioning of a facility or closure of a disposal facility as well as the post-closure phase of a disposal facility. The extent of this safety demonstration shall be commensurate with the complexity of the operation and the magnitude of the hazards associated with the radioactive waste and spent fuel, and the facility or activity (a "graded approach"). The licensing process shall provide the required assurance of safety in the facility or activity. Measures shall be in place to prevent and mitigate the consequences of accidents, including verification of physical barriers and the licence holder's administrative protection procedures that would have to fail before workers and the general public would be significantly affected by ionising radiation.

Recital 34 of the Waste Directive describes in detail the purpose of the safety demonstration:

> *The documentation of the decision-making process as it relates to safety … should provide a basis for decisions related to the management of spent fuel and radioactive waste. This should enable the identification of areas of uncertainty on which attention needs to be focused in an assessment of safety. Safety decisions should be based on the findings of an assessment of safety and information on the robustness and reliability of that assessment and the assumptions made therein. The decision-making process should therefore be based on a collection of arguments and evidence that seek to demonstrate that the required standard of safety is achieved for a facility or activity related to the management of spent fuel and radioactive waste. In the particular case of a disposal facility, the documentation should improve understanding of those aspects influencing the safety of the disposal system, including natural (geological) and engineered barriers, and the expected development of the disposal system over time.*

This safety demonstration is equivalent to the development of a "safety case" as described in dedicated IAEA Safety Standards.[32]

In accordance with Article 7 of the Waste Directive, licence holders also have to establish and implement an integrated management system, including quality assurance, giving due priority to safety. Furthermore, licence holders must maintain adequate financial and human resources to meet these obligations.

Article 8 of the Waste Directive deals with another key issue, namely the expertise and skills required for the responsible and safe management of spent fuel. Here, member states have to ensure that the National Framework requires all parties to make arrangements for education and training for their staff and to carry out research and development activities to cover the needs of the national programme for spent fuel and radioactive waste management.

32. A "safety case" (*IAEA Safety Glossary*, 2007), is the "collection of arguments and evidence in support of the safety of a facility or activity". It consists of a detailed safety assessment of each of the aspects of the practice, followed by other considerations, such as on the social impact of the activity or installation, how the local communities can participate in the site selection, etc. On the application of the safety case to waste disposal, see IAEA draft "The Safety Case and Safety Assessment for Radioactive Waste Disposal", DS 355, or the referred Specific Safety Requirements "Disposal of Radioactive Waste", SSR-5 .

Policies and programmes for the management of spent fuel and radioactive waste lack the necessary foundation when financing is not ensured. For this reason, Article 9 of the Waste Directive requires member states to ensure that adequate financial resources are available when needed, taking due account of the responsibility of spent fuel and radioactive waste generators.

Achieving public trust in spent fuel and radioactive waste management solutions has become a pre-condition for the successful implementation of national programmes. In this context, the provisions of Article 10 of the Waste Directive on transparency are of particular interest. It goes well beyond the requirements of the Nuclear Safety Directive and the Joint Convention by not only demanding adequate information to the public on the management of spent fuel and radioactive waste, but also effective public participation in the decision-making process, a provision covered by the Aarhus Convention[33] and transposed into European Union law under the Treaty on the Functioning of the European Union. With the adoption of the Waste Directive, important principles of the Aarhus Convention are now also applicable under the Euratom Treaty. This change responds to the expectations of EU citizens. The Eurobarometer surveys published by the European Commission[34] show that the safety of long-term waste management is one of the highest concerns of EU citizens in the field of nuclear energy. Should a repository be planned in the vicinity of their homes, an overwhelming majority of European citizens desires to be involved in the decision-making process.

D. Control of the transposition process

In the EU legal system, the provisions of an EC directive are not immediately applicable but have to be transposed into national legislation. Article 15 of the Waste Directive requires member states to perform this task within the next two years and in any case before 22 August 2013. The text of the main provisions of the respective national law and subsequent amendments to those provisions must be communicated to the European Commission.

Member states shall for the first time notify the Commission of the content of their national programme covering all the items provided for in Article 12 of the Waste Directive as soon as possible, but not later than 23 August 2015.[35] It has already been described how the European Commission is to be notified and can request clarification of the national programmes.

Additionally, in accordance with Article 14 of the Waste Directive, member states must submit periodic reports on the implementation of the Waste Directive for the first time in August 2015, and thereafter every three years, following the review cycles of the Joint Convention and making use thereof.

Lastly, in accordance with Article 14 of the Waste Directive, the member states must arrange for self-assessments of their national framework, competent regulatory authority, national programme and its implementation, and invite an international peer review to examine these aspects at least every ten years. The results of these peer reviews shall be communicated to the other EU member states and to the European Commission, and may be made available to the public.

33. The 1998 Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.
34. Special Eurobarometer 271 “Europeans and Nuclear Safety”, EC, February 2007; Special Eurobarometer 324 “Europeans and Nuclear Safety”, EC, March 2010; Special Eurobarometer 297 “Attitudes towards Radioactive Waste", EC, June 2008.
35. Waste Directive, Article 14.

3. The participation of stakeholders and dedicated fora in the drafting of the Waste Directive

The Waste Directive proposal was preceded by broad consultations. The consultation process involved governments, national regulators, radioactive waste management organisations, radioactive waste producers and others in the member states, together with various European institutions, non-governmental organisations and other interested parties. The European Commission gave special attention to the societal dimension through a variety of public consultations, including dedicated Eurobarometer polls[36] and an open public consultation.[37] As said before, radioactive waste is a major concern of EU citizens in the context of continued use of nuclear energy. Furthermore, a large majority is in favour of legislation at the European level.

As part of the consultation process, a detailed contribution from the European Nuclear Safety Regulators Group (ENSREG) was received and taken into account. This contribution was of key importance, as ENSREG is an independent group composed of senior officials from the national nuclear safety, radioactive waste safety or radiation protection regulatory authorities from all 27 member states and representatives of the European Commission. Their contribution to the proposed Waste Directive was prepared by a dedicated working group for discussion at the Plenary Meeting of ENSREG on 4 June 2010.[38]

Another important contribution was received from the European Nuclear Energy Forum (ENEF) which prepared a position paper "Contribution to the Stakeholder Consultation Process for a Possible EU Instrument in the Field of Safe and Sustainable spent Fuel and Radioactive Waste Management". ENEF is a unique forum for the exchange of knowledge and views in nuclear energy. This platform was created in 2007 and gathers all relevant stakeholders in the nuclear field: policy makers, European institutions, nuclear industry, electricity consumers and civil society. Its goal is to promote a broad discussion on transparency issues as well as the opportunities and risks of nuclear energy.[39]

A collective opinion on the possible contents of the Waste Directive was also received from the Club of Agencies.[40] This is a group of European radioactive waste management organisations, set up to exchange in an informal and open manner information on all aspects of radioactive waste management.

Further input to the consultation process was received *inter alia* from the Technology Platforms for Sustainable Nuclear Energy (SNE-TP) and for Implementing Geological Disposal (IGD-TP).[41.]

A more detailed description of the consultation and expertise taken into account in the elaboration of the proposal can be found in the impact assessment to the proposed directive.[42]

36. Special Eurobarometer 297 (2008) and Special Eurobarometer 324 (2010).
37. http://ec.europa.eu/energy/nuclear/consultations/2010_05_31_fuel_waste_en.htm.
38. http://circa.europa.eu/Public/irc/tren/nuclear_safety_and_waste/library?l=/general_archive consultation/c2010-12_directivedoc/_EN_1.0_&a=i.
39. http://ec.europa.eu/energy/nuclear/forum/forum_en.htm.
40. http://www.endseurope.com/docs/101027b.pdf, p. 54.
41. "Approaches for a Possible EU Legislative Proposal on the Management of Spent Fuel and Radioactive Waste", http://ec.europa.eu/energy/nuclear/consultations/2010_05_31_fuel_waste_en.htm.
42. Commission staff working document – Summary of the impact assessment: accompanying document to the revised proposal for a Council Directive (Euratom) on the management of spent fuel and radioactive waste, SEC(2010)1290.

4. The Waste Directive as part of a comprehensive system of nuclear safety in the EU: its relation to the Nuclear Safety Directive

The Nuclear Safety Directive and the Waste Directive form a coherent framework for the responsible and safe use of nuclear energy in the EU.

The Nuclear Safety Directive concerns the safety of nuclear installations, defined as:

- an enrichment plant, nuclear fuel fabrication plant, nuclear power plant, reprocessing plant, research reactor facility, spent fuel storage facility; and
- storage facilities for radioactive waste that are on the same site and are directly related to nuclear installations listed under point (a).[43]

The facilities and activities for the management and storage or disposal of radioactive waste at autonomous sites, i.e. almost all disposal facilities, fall outside of this definition of a nuclear installation under the Nuclear Safety Directive, whether they are designed as deep or near-surface repositories. Therefore, such disposal facilities are not covered by the Nuclear Safety Directive. This ruling resulted in an important gap and already justified the need to issue a Council Directive on the safe management of spent fuel and radioactive waste in order to complete the scope of the safety regime. For this reason, one of the objectives of the European Commission's proposal with respect to such activities and facilities was to ensure at least the same level of protection as required for installations covered by the Nuclear Safety Directive. In this way, the EU constitutes now the first region with harmonised rules in the field of nuclear safety covering all types of facilities without gaps in its scope. In addition, the Waste Directive contains important provisions as to the long-term management of spent fuel and radioactive waste.

5. The implementation of the Waste Directive in EU member states

When the Nuclear Safety Directive was adopted in June 2009, it consisted mainly of a "communitarisation" of international law (in this case, the IAEA Convention on Nuclear Safety), but, with a wider scope of application, not limited to nuclear power plants alone. The Nuclear Safety Directive also included an article on the dissemination of information to the public.

Because all member states generate radioactive waste, whether as a result of the use of nuclear energy or in the course of industrial, medical or other activities, all member states are concerned, to a greater or lesser extent, in the transposition of this Waste Directive, although a graded approach will be adopted towards its compliance, in the sense that some provisions will be implemented in proportion to the particular situation of each member state.[44]

The Waste Directive includes the clear mention of disposal as endpoint for the management of radioactive waste and spent fuel, when considered as waste. The preference for disposal is derived from the principle that undue burdens on future generations shall be avoided.[45] Those who benefit today from the use of nuclear energy and other applications of radioisotopes should take care of the spent fuel and radioactive waste they generate, as well as the radioactive waste expected from the decommissioning of existing nuclear installations. Whatever the future of nuclear power and other nuclear non-power applications, the implementation of disposal as

43. Safety Directive, Article 3(1).
44. Waste Directive, Articles 4.3.d, 7.3 and 15.2., and Recitals 34 and 35.
45. Waste Directive, Article 1.

the end goal of managing radioactive waste is needed for assuring both safety and sustainability. Only disposal provides workers, the general public and the environment with adequate protection from the hazards that the radioactive waste could pose over time due to the Waste Directive's requirement for inherent passive safety features.

While leaving some flexibility as to the dates a disposal facility is put into operation, the Waste Directive requires member states to initialise without undue delays the process towards the planning and realisation of disposal. In addition to Article 1.1, this requirement is reflected in several provisions of the Waste Directive:

- Article 2: The scope of the Waste Directive encompasses the management of spent fuel and radioactive waste from its generation to its disposal.
- Article 4.3c: National policies must ensure that "spent fuel and radioactive waste shall be safely managed, including in the long term with passive safety features".
- Article 11: National programmes must provide for final disposal.
- Article 12: National policies should include:
  - "...concepts or plans and technical solutions for spent fuel and radioactive waste management from generation to disposal" (Article 12d);
  - "the concepts or plans for the post-closure period of a disposal facility's lifetime, including the period during which appropriate controls are retained and the means to be employed to preserve knowledge of that facility in the longer term" (Article 12e).

While interim storage is required in any case for technical reasons, the concepts of "interim storage" and "disposal" should not be considered as mutually exclusive, but as consecutive in a chain of management steps towards the final stage, i.e. disposal. Interim storage of spent fuel and high-level waste is an important stage in their overall management for technological reasons (i.e. heat removal and radiation protection). Storage is also needed until such time as disposal facilities become available. However, storage cannot replace disposal as the end point of the management of radioactive waste and spent fuel considered as waste. Recital 21 of the Waste Directive makes it absolutely clear: "Radioactive waste, including spent fuel considered as waste, requires containment and isolation from humans and the living environment over the long term. Its specific nature, namely that it contains radionuclides, requires arrangements to protect human health and the environment against dangers arising from ionising radiation, including disposal in appropriate facilities as the end location point. The storage of radioactive waste, including long-term storage, is an interim solution, but not an alternative to disposal." Recital 23 of the Waste Directive mentions the existing Technical Platform on Implementing Geological Disposal of Radioactive Waste as a possibility to facilitate access to expertise and technology.

Disposal solutions are typically specific landfill facilities for very low-level waste, near-surface disposal facilities for short-lived low- and intermediate-level radioactive waste, and deep geological disposal for long-lived and high-level waste.[46] The disposal of short-lived low- and intermediate-level radioactive waste is at an advanced stage, and by 2020 it is expected that almost all member states with nuclear power generation programmes and some "non-nuclear" states will be

46. IAEA, referred draft DS354 "Disposal of Radioactive Waste" – Draft Specific Safety Requirements. See 1.15.

implementing disposal solutions.[47] With regard to long-lived low- and intermediate-level waste as well as high-level waste, the plans appear to be less mature, and only three countries, namely Finland, France and Sweden, expect to start operation of their disposal facilities before 2030.

Thus, member states have not equally progressed as to the development of safe long-term solutions for their radioactive waste. The Waste Directive requirement for member states to develop and implement comprehensive national programmes for the management of spent fuel and radioactive waste is expected to have a significant impact by promoting the development of plans for the disposal of radioactive waste in member states that have not begun to develop such plans.

6. Conclusion

In conclusion, the Waste Directive on the responsible and safe management of spent fuel and radioactive waste is an important step forward to fulfil the expectations of European citizens to be well protected against the dangers of ionising radiation. It is the logical next step following the adoption of the Nuclear Safety Directive. It has been elaborated by the European Commission in permanent and excellent contacts with member states and national regulators. It is anchored in the internationally endorsed principles and requirements of the IAEA Safety Standards and the Joint Convention, and in this context it makes them legally binding and enforceable in the EU. The EU is therefore the first major regional actor to provide a binding legal framework on nuclear safety and on responsible and safe management of spent fuel and radioactive waste, and thus could serve as a model for the rest of the world.

47. Commission Staff Working Paper, Seventh Situation Report on Radioactive Waste and Spent Fuel Management in the EU, SEC (2011) 1007 final. See in particular Tables L1 and L2 – Bodies with responsibilities in the management of radioactive waste and spent fuel, member states with/without nuclear power programmes.

The continuing role of item-specific agreements in the IAEA safeguards system

*by Cristian DeFrancia**

The International Atomic Energy Agency's (IAEA) "safeguards system" serves as the foundation of the global nuclear non-proliferation regime, under which the IAEA acts as an auditor, monitor and inspector of state-administered nuclear energy programmes. The system consists of agreements and practices that enable the IAEA to gain a clear picture of a state's nuclear activities in order to provide credible assurances that nuclear energy is used for exclusively peaceful purposes.[1] States that are considered to be non-nuclear-weapon states under the Nuclear Non-Proliferation Treaty[2] are required by that treaty to enter into safeguards agreements with the IAEA, which apply comprehensively to all nuclear materials in all peaceful nuclear activities within a state.[3] Safeguards requirements are a core feature of the NPT, insofar as they provide a mechanism for verifying that non-nuclear-weapon state parties do not use their nuclear energy programmes – to which they are entitled under the treaty – for military purposes. The five states that are considered nuclear-weapon states under the NPT may enter into "voluntary offer agreements" under which they voluntarily offer nuclear material and/or facilities from which the IAEA may select to apply safeguards.[4] The principal gap in the international safeguards system concerns states that are not parties to the NPT, and therefore not subject to its safeguards requirements.

The few states that have not yet signed up to the NPT – India, Israel and Pakistan[5] – may voluntarily enter into more limited safeguards agreements with the

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1. See generally IAEA, "The Safeguards System of the International Atomic Energy Agency", available at: www.iaea.org/OurWork/SV/Safeguards/documents/safeg_system.pdf; IAEA, "IAEA Safeguards Implementation at Nuclear Fuel Cycle Facilities", p. 4, IAEA document SG/INF/6 (1985).
2. Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature on 1 July 1968, Article III, 21 U.S.T. 483, 729 U.N.T.S. 161 (entered into force on 5 March 1970). The NPT defines nuclear-weapon states as those having manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967. *Id*. at Article IX.3.
3. Although the NPT requires non-nuclear-weapon states to enter into safeguards agreements with the IAEA, as of 31 October 2011, 14 non-nuclear-weapon states parties to the NPT did not yet have safeguards agreements in force. See Status List: Conclusion of Safeguards Agreements, Additional Protocols and Small Quantities Protocols, as of 31 October 2011, available at: www.iaea.org/OurWork/SV/Safeguards/documents/sir_table.pdf.
4. All five nuclear-weapon states parties to the NPT – China, France, the Russian Federation, the United Kingdom and the United States of America – have concluded voluntary offer agreements. See generally IAEA, "The Safeguards System of the International Atomic Energy Agency", at paragraph 10.
5. Although the Democratic People's Republic of Korea (DPRK) signaled its withdrawal from the NPT, the legality of that action remains in question. See generally IAEA, "Application of

IAEA on an "item-specific" basis under a safeguards regime that predates the NPT. These states have relatively few IAEA item-specific safeguards agreements in force,[6] although prospects for access to international markets for nuclear technology have resulted in a trend towards their increasing use. The NPT provides an important incentive in this respect. All states parties to the NPT may only export nuclear material and related equipment if it is subject to IAEA safeguards.[7] Item-specific safeguards agreements are thus a basic condition of nuclear trade between NPT and non-NPT states.

The pre-NPT safeguards system was the precursor to the modern safeguards system, providing a foundation of principles and practices that remain relevant to the implementation of safeguards concluded pursuant to the NPT. Just as the item-specific safeguards regime provided many of the basic ingredients for the development of a widely applicable comprehensive safeguards regime, item-specific safeguards may yet serve as a mechanism to facilitate increased monitoring and evaluation of nuclear energy programmes in the non-NPT states. In this regard, item-specific safeguards agreements provide a mechanism for verifying the commitments of non-NPT states to peaceful uses of nuclear technology and a transitional tool for expanded safeguards coverage in those states. The IAEA's item-specific safeguards regime therefore provides an important complement to international efforts to expand the non-proliferation commitments of the remaining non-NPT states.

Recent innovations in item-specific safeguards agreements, particularly in the IAEA safeguards agreement reached with India in 2009,[8] have paved the way for broader potential IAEA monitoring and evaluation of India's nuclear energy programme and the development of a more efficient model for applying safeguards in the non-NPT states. Under the 2009 India-IAEA safeguards agreement, the item-specific approach has been adapted to facilitate the separation of civilian and military nuclear programmes as well as full safeguards coverage of India's civilian programme.[9] While the United States-India Civil Nuclear Trade Agreement that motivated the extension of safeguards to the entirety of India's civilian nuclear programme does not contain disarmament obligations[10] – for which that agreement has been rightly criticised[11] – the use of item-specific safeguards with respect to the monitoring of that programme provides a technical basis for the further integration of India into the global non-proliferation regime.

Safeguards in the Democratic People's Republic of Korea: Report by the Director General", note 18, IAEA document GOV/2011/53-GC(55)/24 (2 September 2011). This article does not treat the DPRK as a non-NPT state.

6. There are currently 16 IAEA item-specific safeguards agreements in force with non-NPT states, including six in India, one in Israel and nine in Pakistan. See Status List: Conclusion of Safeguards Agreements, Additional Protocols and Small Quantities Protocols, as of 31 October 2011.
7. NPT, Article III.2.
8. "Agreement between the Government of India and the IAEA for the Application of Safeguards to Civilian Nuclear Facilities", 11 May 2009, IAEA document INFCIRC/754 (29 May 2009).
9. *Id.*, Preamble.
10. See "Agreement for Co-operation between the Government of the United States of America and the Government of India Concerning Peaceful Uses of Nuclear Energy", 10 October 2008, available at: www.state.gov/documents/organization/122068.pdf.
11. See e.g. Goldschmidt, P., "NSG Membership: A Criteria-based Approach for Non-NPT States", 24 May 2011, available at: http://carnegieendowment.org/2011/05/24/nsg-membership-criteria-based-approach-for-non-npt-states/2rr.

Proposals have also been made for the application of item-specific safeguards as a form of fallback agreement in the event that a state withdraws from the NPT.[12] When a non-nuclear-weapon state withdraws from the NPT, it is no longer subject to safeguards agreements concluded pursuant to that treaty.[13] One such proposal would require the execution of item-specific safeguards agreements that would continue to operate in the event that a comprehensive safeguards agreement lapses. In the event that such proposals were possible on a practical level,[14] the item-specific safeguards agreement/s in question would need to undergo substantial adaptation to suffice as a substitute for comprehensive agreements.

The aggregate use of item-specific safeguards agreements – applying to an entire nuclear energy programme as opposed to isolated facilities and materials – may provide an intermediate model for the broader application of safeguards in the non-NPT states. Possibilities for progress towards a globally applicable safeguards system may indeed merit the negotiation of a new standardised non-NPT-based model safeguards agreement or set of agreements that would accommodate expanded safeguards in non-NPT states in a phased manner. The task of reconciling the limited scope item-specific regime with an evolving comprehensive safeguards system will remain a challenge until the NPT model becomes universal. Continuing innovation in item-specific safeguards nonetheless presents an opportunity for further progress towards the implementation of worldwide comprehensive safeguards coverage.

In an ideal scenario, the non-NPT states would be persuaded to give up their nuclear weapons programmes, become parties to the NPT and be subject to comprehensive safeguards agreements as a result. An alternative interim scenario, to which item-specific safeguards agreements may be adapted, would proceed on the Indian model – to implement safeguards in a manner that applies to the entirety of a state's civilian nuclear programme. The fact that the item-specific safeguards regime currently applies on a limited basis in non-NPT states should not lead to an underestimation of its importance as a tool for improving the IAEA safeguards system and accomplishing the IAEA's mission of enlarging the contribution of atomic energy to peace.

1. The item-specific foundation of the safeguards system

In the immediate aftermath of World War II, the concept of an enforceable "system of safeguards" was first advanced by states and at the United Nations as a potentially comprehensive means of facilitating the control of atomic energy in

12. See Goldschmidt, P., "The Urgent Need to Strengthen the Nuclear Non-Proliferation Regime, Carnegie Endowment for International Peace Policy Outlook" (January 2006) (proposing a Security Council resolution with a generic requirement that states found not to be in compliance with IAEA safeguards agreements enter into item-specific safeguards agreements as a means to prevent withdrawal from the NPT).
13. Under comprehensive safeguards agreements concluded pursuant to the NPT, the safeguards agreement will generally lapse in the event that the state is no longer a party to the NPT. IAEA, "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.), paragraph 26 (June 1972).
14. See Carlson, J., "Withdrawal from the NPT: Consequences for IAEA Safeguards", ICCND Research Paper No. 8 (5 June 2009) (criticising Goldschmidt's proposal due to (i) the difficulty of getting non-compliant states to enter into such agreements, (ii) the bureaucratic challenges of keeping item-specific safeguards agreements up to date, and (iii) its superfluity in light of continuing requirements of safeguards coverage under other international and bilateral supply agreements).

order to ensure it is used for exclusively peaceful purposes.[15] The first international system of safeguards was not a comprehensive system, however, in that it did not enable the IAEA to monitor and evaluate all nuclear facilities in a particular country.[16] This system, promulgated by the IAEA in 1961 under INFCIRC/26, "The Agency's Safeguards System",[17] applied to small reactors and was extended in 1964 to apply to larger reactors.[18] The INFCIRC/26 safeguards system allowed for safeguards coverage of equipment, reactor facilities and/or nuclear material and to activities involving these materials. At the time the early IAEA safeguards system was being developed, nuclear co-operation agreements generally provided for the administration of safeguards by supplier state parties to those agreements as a means of verifying that exported materials would not be used for military purposes.[19]

During this early period, other multinational institutions – such as the OECD and Euratom – had also developed their own safeguards systems in parallel with the IAEA.[20] Though limited in scope, the 1961 safeguards system allowed the IAEA to begin the process of developing a globally applicable safeguards system that would eventually allow the IAEA to assume responsibility for state and regional administration of safeguards.[21]

15. Agreed declaration by the President of the United States of America, the Prime Minister of the United Kingdom of Great Britain and Northern Ireland, and the Prime Minister of Canada relating to atomic energy, 15 November 1945, US Department of State, No. 2702, App. 6 (1946); UN, "Establishment of a Commission to Deal with the Problems Raised by the Discovery of Atomic Energy", UN document GA Res. 49/1 (24 January 1964).
16. The first IAEA safeguards to be applied in 1958 (to a JRR-3 reactor in Japan) were not part of a safeguards "system" but were developed and applied on an *ad hoc* basis. See generally Fischer, D., *The History of the International Atomic Energy Agency: The First Forty Years*, 246 (VIC Library 1997) available at: www-pub.iaea.org/mtcd/publications/pdf/pub1032_web.pdf.
17. IAEA, "The Agency's Safeguards", IAEA document INFCIRC/26 (30 March 1961).
18. IAEA, "The Agency's Safeguards: Extension of the System to Large Reactor Facilities", INFCIRC/26/Add.1 (9 April 1964).
19. See e.g. *id*. at 248 (discussing early transfers of safeguards authorities); Amendment to the Agreement for Co-operation between the Imperial Government of Iran and the Government of the United States of America concerning Civil Uses of Atomic Energy, Article III, 18 U.S.T. 205 (26 January 1967) (amending Article VIII of 1957 co-operation agreement to specify design approval and inspection for safeguards administered by the United States); United States Office of Technology Assessment, Nuclear Proliferation and Safeguards 194-205 (Praeger: New York 1977) (describing the United States safeguards programme).
20. See generally Fischer, D., *The History of the International Atomic Energy Agency: The First Forty Years*, p. 42, notes 46-47. The 1957 Convention of the Organisation for European Economic Co-operation (later to become the OECD) provided for the application of safeguards to joint enterprises of the European Nuclear Energy Agency (later to become the NEA). Joint projects of the NEA included the multinational reprocessing center Eurochemic in Belgium, a boiling heavy water research reactor in Norway, and a gas-cooled reactor in the United Kingdom. *Id*. at p. 42, notes 46-47, and p. 62. See also Wolff, J.M., "History of the Eurochemic 1956–1990" (OECD, 1996).
21. After early controversies relating to which entity would maintain control over safeguards implementation in Euratom countries, the relevant parties came to an agreement for Euratom safeguards to apply concurrently with IAEA safeguards. See generally Fischer, G., *The Non-Proliferation of Nuclear Weapons 96-99* (Europa 1971); "Agreement Between the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the European Atomic Energy Community and the International Atomic Energy Agency in Implementation of Article III, (1) and (4) of the Treaty on the Non-Proliferation of Nuclear Weapons", 5 April 1973, IAEA document INFCIRC/193 (14 September 1973). See also IAEA document GOV/INF/654 (13 May 1992).

The revised item-specific IAEA safeguards system, developed between 1965 and 1968 and implemented under INFCIRC/66/Rev.2, "The Agency's Safeguards System (1965, as Provisionally Extended in 1966 and 1968)"[22] was a major advancement for the IAEA safeguards in so far as it extended to the most sensitive aspects of the nuclear fuel cycle, including enrichment and reprocessing facilities (which were the subject of the 1966 and 1968 annexes). It was not comprehensive, however, in that its application remained item specific. As the NPT was being negotiated, INFCIRC/66/Rev.2 nonetheless served as a primary reference for the drafters, who incorporated a role for the IAEA's "safeguards system" into the treaty.[23] The NPT envisioned a comprehensive approach to safeguards for non-nuclear-weapon state parties. A model agreement for the comprehensive safeguards regime was concluded in 1972 under INFCIRC/153 (Corr.), "The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons".[24] Despite the introduction of comprehensive safeguards agreements – also known as full-scope safeguards – the item-specific regime continues to serve as the basis of IAEA monitoring and evaluation in states that have not ratified either the NPT or any other agreement[25] requiring comprehensive safeguards.

Principles and practices established under the early IAEA item-specific safeguards regime remain relevant in the modern safeguards system, providing a conceptual foundation that informs the interpretation of both NPT and non-NPT safeguards requirements. The NPT, for example, requires non-nuclear-weapon states to accept safeguards in accordance with "the Statute of the International Atomic Energy Agency and the Agency's safeguards system".[26] Because the term "safeguards system" is nowhere defined in the NPT, the system that was in place at the time of its negotiation provides important context for an appreciation of the concepts and approaches encompassed in this term as it was incorporated into the treaty. General characteristics of the safeguards system may include (i) the overall purposes and objectives of safeguards, (ii) the legal character of the obligations contained in the agreements and (iii) the adaptability of the system in light of those obligations. The early IAEA safeguards system documents – INFCIRC/26 and INFCIRC/66/Rev.2 – depict a system rooted in a set of core binding obligations that allows some flexibility for the evolution of practices required for effective implementation.

From its inception, the item-specific safeguards regime established plainly that safeguards agreements may apply to the activities of a state in the field of atomic energy in addition to materials used in those activities. Under INFCIRC/66/Rev.2, safeguards are defined as a "system of controls to enable the Agency to comply with its [Article II] statutory obligation with respect to activities of member states in the field of peaceful uses of nuclear energy, as provided in the Statute".[27] The application of safeguards under INFCIRC/66/Rev.2 reflects a full expression of the

22. IAEA, "The Agency's Safeguards System (1965, As Provisionally Extended in 1966 and 1968)", IAEA document INFCIRC/66/Rev.2 (16 September 1968).
23. See generally Bunn, G., "How Far Can Inspectors Go?", *IAEA Bulletin* 48/2 (March 2007), p. 50.
24. IAEA, "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.) (June 1972).
25. See e.g. Treaty for the Prohibition of Nuclear Weapons in Latin America, Article 13, 14 February, 1967, 634 U.N.T.S. 326.
26. NPT, Article III.1.
27. INFCIRC/66/Rev.2, paragraph 2, IAEA Statute, Article II ("[The IAEA] 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".)

approach contained in Article III.A.5 of the Statute, which furnishes the IAEA with authority to establish and administer safeguards on "special fissionable and other materials, services, equipment, facilities and information" and "to apply safeguards [pursuant to a safeguards agreement] to any of [a state's] activities in the field of atomic energy".[28] The comprehensive safeguards regime of INFCIRC/153 (Corr.) did not ultimately incorporate an express reference to safeguards coverage for "services, equipment, facilities and information", but did broadly define the scope of comprehensive safeguards agreements to apply "*on* all nuclear materials *in* all peaceful nuclear activities".[29] In this context, INFCIRC/66/Rev.2 provided a foundation for the application of safeguards to activities related to the use of nuclear materials and related items as well as to nuclear materials themselves.[30]

Questions have arisen under the INFIRC/153 (Corr.) comprehensive safeguards regime as to the IAEA's legal authority over activities that do not involve nuclear material.[31] To the extent that this authority is subject to interpretation under the provisions of INFCIRC/153 (Corr.), item-specific and statutory antecedents may be relevant to clarifying whether the IAEA has authority to pursue verification of such activities. Such questions may arise specifically in the context of nuclear weapon development activities in non-nuclear-weapon states – such as the engineering of nuclear weapons delivery systems that do not yet involve the use of nuclear material. Reporting requirements under comprehensive safeguards agreements permit the IAEA to seek amplifications or clarifications for the purpose of verifying that nuclear material is not diverted to nuclear weapons or nuclear explosive devices.[32] If the IAEA considers that information made available by the state is inadequate for the IAEA to fulfill its verification responsibilities, it may order special inspections extending to locations outside of those designated for routine inspections.[33] Moreover, INFCIRC/153 (Corr.) provides that the objective of safeguards is the timely detection of the diversion of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or other nuclear explosive devices.[34] These provisions of INFCIRC/153 (Corr.) provide the necessary legal support for the IAEA to request and verify information regarding activities involving the manufacture of nuclear weapons prior to the point at which nuclear material has been introduced.

The item-specific and statutory background to the comprehensive safeguards regime provide additional context to support the extension of IAEA verification authority to activities not involving the use of nuclear material. The statutory formulation of safeguards coverage, incorporated into INFCIRC/66/Rev.2, was that it could be applied to nuclear materials and a state's activities in the field of atomic energy. As has been argued by George Bunn, the item-specific safeguards regime did

28. IAEA Statute, Article III.5.
29. INFCIRC/153 (Corr.), paragraph 2 [emphasis added].
30. INFCIRC/66/Rev.2, paragraphs 15(c), 31(b) and 82(c). "Nuclear material" is defined under both item-specific and comprehensive safeguards agreements as any source or special fissionable material as defined in Article XX of the IAEA Statute. See *id*. at paragraph 77; INFCIRC/153 (Corr.) at paragraph 112. For definitions of source and special fissionable materials, see infra at notes 73 and 74.
31. See e.g. "Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran: Report by the Director General", IAEA document GOV/2004/83, paragraph 113 (15 November 2004) (stating that the focus of Agency Safeguards Agreements and Additional Protocols is nuclear material, and that, absent some nexus to nuclear material, the agency's legal authority to pursue the verification of possible nuclear weapons related activity is limited).
32. *Id*. at paragraphs 2, 69.
33. *Id*. at paragraph 73.
34. *Id*. at paragraph 28.

not require nuclear material to be present in order for the IAEA to conduct its verification activities.[35] This fact, according to Bunn, combined with the fact that INFCIRC/66/Rev.2 served as the primary reference for the development of the safeguards requirements of the NPT,[36] supports an interpretation of general IAEA safeguards authorities as extending to activities related to the use of nuclear energy whether or not those materials are actually present. It should be added that the safeguards system articulated in INFCIRC/66/Rev.2 reflects an elaboration of the statutory approach, which is to say that "activities in the field of atomic energy" are not restricted to activities involving the contemporaneous use of nuclear material. The IAEA Statute may also be relied upon as a tool to interpret safeguards agreements where questions arise as to the meaning of particular provisions.[37]

Prompted by concerns relating to the inadequacy of the comprehensive safeguards regime to detect undeclared nuclear activities after the discovery of Iraq's clandestine weapons development programme, in the 1990s the IAEA undertook to strengthen its safeguards system. The resulting "Model Protocol Additional to the Agreement(s) between State(s) and the International Atomic Energy Agency for the Application of Safeguards", promulgated as a supplement to the comprehensive safeguards regime under INFCIRC/540 (Corr.),[38] can be applied to comprehensive safeguards agreements, item-specific safeguards agreements and voluntary offer agreements.[39] Additional protocols are meant to operate in tandem with existing safeguards agreements, but are not considered legally mandatory.[40] Additional protocols under INFCIRC/540 (Corr.) are designed to strengthen the IAEA's ability to provide assurances relating to both declared and possible undeclared activities. The protocol extends safeguards coverage to all aspects of the fuel cycle, including uranium mining, as well as research and development activities not involving nuclear material[41] and provides for enhanced "complementary access" by the IAEA outside of the framework of routine inspections in the event that questions or inconsistencies arise.[42] The Model Additional Protocol continues the trajectory of the item-specific safeguards regime insofar as it expressly provides for the application of safeguards to activities related to the nuclear fuel cycle that do not involve the use of nuclear material.

35. See Bunn, *IAEA Bulletin* 48/2, pp. 49-53.
36. Bunn also takes note of the NPT's use of the expression "with a view to preventing the diversion of nuclear energy" in formulating its Article III.1 safeguards requirements. The use of the term "nuclear energy" instead of "nuclear material" under the NPT implies that safeguards were not meant to apply in a limited fashion to nuclear materials. See *Id*. at 49.
37. A general rule of interpretation of international agreements provides that agreements relating to a treaty being interpreted may be relied upon as context for the purpose of interpreting that treaty. See e.g. Vienna Convention on the Law of Treaties between States and International Organisations and between International Organisations, 21 March 1986, Article 31.
38. See IAEA, "Model Protocol Additional to the Agreement(s) between State(s) and the International Atomic Energy Agency for the Application of Safeguards", INFCIRC/540 (Corr.), Article 2 (September 1997).
39. Additional protocols are in force with 113 states – including 108 states with comprehensive safeguards agreements and five states with voluntary offer agreements. Overall, 138 states have signed Additional Protocols, including India. See Status List: Conclusion of Safeguards Agreements, Additional Protocols and Small Quantities Protocols, as of 31 October 2011.
40. See analysis contained in the following two paragraphs.
41. *Id*. at Articles 2, 4 and 5.
42. *Id*. at Articles 4 and 5. See generally IAEA, *Verifying Compliance with Nuclear Non-Proliferation Undertakings*, at 10, available at: www.iaea.org/Publications/Booklets/Safeguards3/safeguards0408.pdf.

The item-specific safeguards regime furnished an important precedent by establishing that the principal source of binding legal rights and obligations in the IAEA to safeguards system is to be found in the safeguards agreements themselves. The provisions of INFCIRC/66/Rev.2 only become legally binding "upon the entry into force of a safeguards agreement and to the extent that they are incorporated therein".[43] The safeguards system did not therefore develop as a system that would be automatically applicable to IAEA member states[44] – either by means of the IAEA Statute or the model documents of the safeguards system – but was contingent upon agreements individually negotiated with each member state.[45] This also meant that the statutory rights and obligations of the IAEA relating to safeguards were not necessarily applicable to safeguards agreements, unless expressly incorporated. The case of Article XII.A of the IAEA Statute is instructive on this point. Although Article XII.A sets forth the IAEA's rights and obligations under safeguards agreements generally, it also contains limiting language indicating that those rights and obligations are applicable "to the extent relevant to the project or arrangement".[46] The requirement that legally binding obligations be contained in the agreements themselves reinforces this limiting language. Thus, the design approval provisions[47] of Article XII.A.1 and the anytime/anywhere inspection authority of Article XII.A.6 would not typically be legally required in the safeguards system unless specifically incorporated into an agreement.[48]

The IAEA continues to treat the safeguards agreements themselves as the principal source of binding legal obligations under the safeguards system.[49] This approach has applied similarly with regard to additional protocols, which have not been treated as mandatory even though the Model Additional Protocol is arguably part of the IAEA safeguards system.[50] In this context, the IAEA's prudence in treating additional protocols as discretionary may more likely be motivated by its deference to the states parties to the NPT, which are principally responsible for the interpretation of the treaty's requirements. The fact that the safeguards system is

43. INFCIRC/66/Rev.2, at paragraph 4. A similar provision is contained in INFCIRC/26, at paragraph 23.
44. This system may be contrasted with that of Euratom, which imposes safeguards related obligations on its members directly through the Euratom treaty and related implementing legislation. See Euratom Treaty, ch. 7; Commission Regulation (Euratom) No. 3227/76 of 19 October 1976 concerning the application of the provisions on Euratom safeguards, Official Journal L 363 (31 December 1976).
45. See INFCIRC/66/Rev.2, paragraph 2. See also Barnaby, F., *Safeguards against Nuclear Proliferation* 5 (MIT 1975) ("[The Statute] was never meant to be more than the framework of a safeguards system. The substance of such a system would have to be found in the agreements between states concerned and the Agency.").
46. IAEA Statute, Article XII.A.
47. It is noteworthy in this context that INFCIRC/26 incorporated the Article XII.A.1 design approval provision of the Statute, which was dropped from later incarnations of the safeguards system. See INCIRC/26, paragraph 42 ("The design of facilities existing at the time of the signing of the project agreement shall be approved by the Agency in order to determine, in so far as it is able, whether the facility will further any military purpose and that the facility will permit the effective application of Agency safeguards.").
48. IAEA Statute, Article XII.A.1 and 6. (Design approval authority under the IAEA Statute exists for the purpose of assuring that the facility and/or specialised equipment "will not further any military purpose, that it complies with applicable health and safety standards, and that it will permit effective application of the safeguards provided for in [Article XII].")
49. See IAEA, "The Safeguards System of the International Atomic Energy Agency", paragraph 1.
50. See generally Asada, M., "The Treaty on the Non-Proliferation of Nuclear Weapons and the Universalisation of the Additional Protocol", 16 *J. Conflict and Security L.* 3 (2011) (discussing the historical background and principal legal arguments for and against the obligatory character of the additional protocol).

based upon agreements does not mean that those agreements are carried out in a legal vacuum, however. Reference to the provisions of the statute, IAEA practice, rules of customary international law, related treaty obligations, and relevant Security Council resolutions may also provide context for the interpretation and application of safeguards agreements.

Notwithstanding the centrality of individual safeguards agreements in the IAEA safeguards system, the item-specific safeguards regime provided that the safeguards system would be dynamic in order to ensure its effective implementation. Under INFCIRC/66/Rev.2, the principles and procedures applicable to item-specific safeguards agreements are subject to periodic review "in the light of further experience gained by the Agency as well as of technological development".[51] INFCIRC/66/Rev.2 also underscores the evolutionary character of the system by noting that provisions relating to principal nuclear facilities other than reactors will be developed as necessary.[52] Item-specific safeguards agreements have in this context incorporated updating provisions for "additional procedures as a result of technological developments".[53] Provisions for technological adaptation have allowed for increasing sophistication in surveillance due to advances in camera technology and computer support systems, for example.[54]

Requirements of international law may also influence the implementation of safeguards. For example, after 1978 it became standard to include a section in item-specific safeguards agreements addressing measures for the physical protection of nuclear material, consistent with INFCIRC/225/Rev.4 and the Convention on the Physical Protection of Nuclear Material.[55] Important changes relating to the duration of item-specific safeguards agreements were also made based upon a recommendation of the Director General to the Board of Governors in 1973 under GOV/1621, after IAEA member states raised concerns relating to the potential for a lapse of safeguards coverage under those agreements (discussed *infra*).

The comprehensive safeguards regime similarly provides for some degree of flexibility in the evolution of technical approaches incident to the implementation of safeguards agreements. A prominent example of a substantial adaptation to the comprehensive safeguards regime – without involving a need for new agreements – was the modification of Code 3.1 of the "subsidiary arrangements" applicable to comprehensive safeguards agreements under INFCIRC/153 (Corr.).[56] The notification requirement for new facilities was changed from 180 days prior to the introduction

51. INFCIRC/66/Rev.2, paragraph 8.
52. *Id*. at paragraph 7. Annex I (Rev. 1, 1966) and Annex II (Rev. 2, 1968) of the 1965 safeguards system incorporated additional provisions relating to reprocessing and enrichment facilities.
53. See e.g. IAEA, "Agreement of 11 October 1989 Between the International Atomic Energy Agency and the Government of India for the Application of Safeguards in Connection with the Supply of Nuclear Material from France", Sec. 13, IAEA document INFCIRC/374 (January 1990).
54. See e.g. Sacchetti, D., "The Tools of Today and Tomorrow", *IAEA Bulletin* 50-2 (May 2009); Muller, R., Heinonen, O.J. and Schriefer, D., "IFSS: The IAEA's Inspection Field Support System", *IAEA Bulletin* 1/1990.
55. See generally IAEA, "Technical Study of Different Modalities of the Application of Agency Safeguards in the Middle East", p. 15, IAEA document GCXXXIII/887 (29 August 1989); IAEA, "The Physical Protection of Nuclear Material and Nuclear Facilities", IAEA document INFCIRC/225/Rev.4 (Corr.) (June 1999).
56. Subsidiary arrangements are confidential arrangements concluded pursuant to a safeguards agreement further specifying material accountancy requirements, access specifications, design reporting, and other technical matters relating to the implementation of the agreement. See e.g. INFCIRC/153 (Corr.), paragraphs 31, 42, 46, 51, 64(b), 65, 68, 75(d)(e), 76(a) and 90.

of nuclear material at that facility to as soon as the decision to construct or authorise construction of a new facility is taken.[57] INFCIRC/153 (Corr.) provides for modifications to be made to subsidiary arrangements without the need for amendment.[58] When Iran decided to unilaterally suspend the implementation of the modified Code 3.1 in 2007, the IAEA rejected its attempt, stating that subsidiary arrangements could not be unilaterally changed or suspended.[59] The safeguards system thus has dynamic characteristics in the context of both item-specific and comprehensive safeguards agreements.

The IAEA has developed certain technical objectives and methodologies over the course of the years relating to the conclusions that are drawn in the course of monitoring and evaluating nuclear facilities and programmes. Technical objectives and evaluation methodology are not expressly incorporated into INFCIRC/66/Rev.2. These elements of the safeguards system have evolved through IAEA practice in implementing safeguards. An early manifestation of technical objectives is found in the 1961 safeguards document, INFCIRC/26, insofar as it expressly included non-diversion as a principal objective, that is, "to prevent the loss or diversion of materials, specialised equipment, or principal nuclear facilities"[60] INFCIRC/66/Rev.2 does not contain explicit technical objectives. The IAEA supports the view that the modern safeguards objectives of the timely detection of diversion and the deterrence of such diversion by the risk of early detection[61] – objectives that are expressly stated under INFCIRC/153 (Corr.) agreements – are applicable to item-specific agreements as well as to comprehensive safeguards agreements.[62] The conclusions drawn by the IAEA under item-specific agreements are rudimentary and have no bearing on materials and activities that are not subject to safeguards, however.[63] After an inspection the IAEA simply sends a letter stating that there has been "no departure from the terms of the safeguards agreement",[64] a practice that accords with the IAEA's 1961 Inspectors Document, which outlined certain rights and responsibilities of the IAEA's inspectorate.[65] Where the IAEA finds there has

57. See Goldschmidt, P., "Present Status and Future of International Safeguards", 12 February 2003, Statement of the Deputy Director General, Head of the Department of Safeguards, available at www.iaea.org/newscenter/statements/ddgs/2003/goldschmidt12022003.html (discussing changes to Code 3.1). See also IAEA, "Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions 1737 (2006), 1747 (2007), 1803 (2008) and 1835 (2008) in the Islamic Republic of Iran: Report by the Director General", IAEA document GOV2010/10, paragraphs 28-30 (18 February 2010).
58. INFCIRC/153 (Corr.), paragraph 39.
59. GOV2010/10, at paragraph 30. This position was subsequently endorsed by the Security Council. See S.C. Res. 1803, UN document S/RES/1803 (March 3, 2008) ("emphasising that in accordance with Article 39 of Iran's Safeguards Agreement Code 3.1 cannot be modified nor suspended unilaterally and that the Agency's right to verify design information provided to it is a continuing right, which is not dependent on the stage of construction of, or the presence of nuclear material at, a facility").
60. INFCIRC/26, paragraph 18.
61. See INFCIRC/153 (Corr.), paragraph 28.
62. IAEA, "The Safeguards System of the International Atomic Energy Agency", paragraph 68, cross-referencing paragraphs 56-59, Safeguards Implementation at Nuclear Fuel Cycle Facilities, pp 4-5, IAEA document SG/INF/6 (1985).
63. See e.g. IAEA, "Israeli Nuclear Capabilities: Report by the Director General", paragraph 9, IAEA document GOV/2010/49-GC(54)/14 ("[i]n respect of Israel, unlike States with comprehensive safeguards agreements in force, the Agency's verification activities and State's declarations to the Agency are limited to material, equipment and facilities specified in its safeguards undertakings").
64. *Id*. at paragraph 72.
65. IAEA, "The Agency's Inspectorate", paragraph 12, IAEA document GC(V)/INF/39 (28 August 1961).

been a departure from an agreement, the non-compliance provisions of INFCIRC/66/Rev.2 may apply (discussed *infra*).

In order to achieve the technical objectives applicable to item-specific safeguards, the IAEA has over the years considered different methodological approaches relevant to the evaluation of safeguarded materials and activities. Item-specific safeguards agreements followed a "traditional approach" that focused on verifying that declared materials were not diverted from peaceful uses at individual facilities.[66] This approach uses diversion analysis, which involves the consideration of facility characteristics, the type and location of material and possible diversion paths.[67] Because item-specific safeguards provide for safeguards coverage of both nuclear material and the equipment contained in a covered facility, the IAEA traditionally considered the normal operation of the plant as an indication that the items had not been removed.[68] It would further examine hypotheses that the facility or its components were being misused in drawing conclusions relating to safeguards compliance.[69]

In the IAEA's modern safeguards system, a state-level approach has emerged as the standard method of evaluating comprehensive safeguards agreements, through which the IAEA "will seek to develop a comprehensive understanding of a State's nuclear activities and plans with a view to enabling it to draw safeguards conclusions about the completeness and correctness of States' declarations".[70] This approach evolved in tandem with IAEA efforts to focus on the problem of undeclared activities and materials under comprehensive safeguards agreements.[71] The state-level approach has traditionally had limited application in the context of item-specific safeguards agreements, although state-level analysis is not theoretically excluded from applying to those agreements.

While diversion path analysis may be equally applicable under both the comprehensive and the item-specific safeguards regimes, the limited scope of item-specific safeguards agreements has typically involved scenarios in which undeclared facilities and materials are presumed to exist. The presumed existence of undeclared materials and activities and facilities – not necessarily a violation of item-specific safeguards agreements – may in some instances be relevant to the evaluation of diversion analysis for an item-specific safeguards agreement. In this context, the IAEA has wisely chosen not to distinguish the evaluation methodology currently applicable to comprehensive safeguards agreements from that applicable to item-specific agreements.[72] Over time, the evaluation methodology for an item-specific approach that covers interrelated components of a state's civilian nuclear programme may require more extended analysis relating to possible non-compliance due to the existence of undeclared materials and activities.

66. IAEA, "The Safeguards System of the International Atomic Energy Agency", paragraph 23; "IAEA Safeguards Implementation at Nuclear Fuel Cycle Facilities", p. 25, IAEA document SG/INF/6 (1985).
67. *Id*. at p. 4.
68. *Id*. at p. 25.
69. *Id*.
70. Rockwood, L., "The IAEA's Strengthened Safeguards System", 7 *J. Conflict and Security L.* 123, 135 (2002). See also IAEA, "The Safeguards System of the International Atomic Energy Agency", paragraphs 23-25.
71. IAEA, "The Safeguards System of the International Atomic Energy Agency", paragraphs 20-25.
72. IAEA, "The Safeguards System of the International Atomic Energy Agency", paragraph 22 ("the Secretariat applies essentially the same technical objectives, goals and measures [to item-specific agreements] as it does for States with comprehensive safeguards agreements").

2. The contemporary role of item-specific safeguards agreements

The principal contemporary functions of an item-specific safeguards agreement are (i) to facilitate trade between a supplier state and a non-NPT state and (ii) to institute verification mechanisms to ensure that materials and activities subject to IAEA safeguards are not used for military purposes. Under Article III.2 of the NPT, state parties undertake not to supply source material[73] or special fissionable material[74] to any non-nuclear-weapon state (including non-NPT states) unless that material is subject to safeguards. Any trade between a supplier state party to the NPT and a non-NPT state must therefore be the subject of a safeguards agreement, which can either be a bilateral agreement between the recipient state and the IAEA or a multilateral agreement involving the supplier state as well. Nuclear supplier states generally participate in multilateral export control regimes as well, most notably the Nuclear Suppliers Group (NSG), a multilateral consortium of supplier states founded in 1974 that promulgates guidelines for nuclear-related exports.[75] Multilateral export control regimes play an important role in steering safeguards requirements for non-NPT states that wish to engage in nuclear trade on the open markets.

Under the NSG guidelines, the supplier states comprising NSG membership undertake not to permit the export of certain nuclear-related equipment, materials, and/or facilities to non-NPT states.[76] In order to pave the way for nuclear co-operation agreements with India, however, the NSG issued a waiver in 2008 exempting India from guidelines restricting the transfer of nuclear technology to non-NPT states (thus clearing the way for trade and investment in India's nuclear industry)[77] China has similarly succeeded in circumventing NSG guidelines *vis-à-vis* Pakistan by arguing that its supply of nuclear facilities to Pakistan after China joined the NSG in 2004 was grandfathered in under its previously executed co-operation agreement with Pakistan.[78] Israel is also barred from receiving nuclear-related materials from NSG members. Considering that all other states are NPT parties subject to the treaty's safeguards requirements,[79] the item-specific safeguards regime currently retains its practical relevance principally in the context of

73. Defined as "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." IAEA Statute, Article XX.3.
74. Defined as "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." *Id*. at Article XX.1.
75. See NSG, "History of the NSG", available at: www.nuclearsuppliersgroup.org/Leng/01-history.htm ("The NSG was created following the explosion in 1974 of a nuclear device by a non-nuclear-weapon State, which demonstrated that nuclear technology transferred for peaceful purposes could be misused.").
76. NSG, "Guidelines for Nuclear Transfers", paragraph 6(a)(i), IAEA document INFCIRC/254/Rev.10/ Part 1 (July 2011).
77. NSG, "Statement on Civil Nuclear Co-operation with India", 6 September 2008, available at: www.armscontrol.org/system/files/20080906_Final_NSG_Statement_0.pdf.
78. See Dalton, T., Hibbs M. and Perkovich, G., *A Criteria-based Approach to Nuclear Co-operation with Pakistan*, Policy Outlook, Carnegie Endowment (June 2011), available at: http://carnegieendowment.org/2011/06/22/criteria-based-approach-to-nuclear-cooperation-with-pakistan/24l.
79. This statement does not include consideration of the DPRK.

safeguards agreements with India, Israel and Pakistan. Item-specific agreements apply in differing degrees in each of these states (discussed *infra*).

The availability of item-specific safeguards to permit nuclear trade with non-NPT states may be criticised as an undeserved reward for states that have decided to remain outside of the framework of the global non-proliferation regime. Using the incentive of nuclear trade in tandem with creative efforts to expand IAEA monitoring and evaluation in non-NPT states may serve a range of interim non-proliferation goals, however. First, item-specific safeguards agreements will ensure that materials and facilities subject to IAEA safeguards will not be used for military purposes, thus establishing a clear demarcation between civilian and military programmes. Second, the reliance of supplier states on related agreements for the supply of nuclear technology provides enhanced supplier state leverage to encourage a non-NPT state's integration into the non-proliferation regime. Third, item-specific safeguards agreements facilitate contact between the IAEA and non-NPT states, allowing for the establishment of a relationship that can be readily expanded. Fourth, the aggregate use of item-specific safeguards agreements on related items within a non-NPT state's civilian nuclear programmes strengthens the IAEA's ability to evaluate items under safeguards in non-NPT states at a broader programme level. Programme-level implementation of safeguards in non-NPT states would provide for greater efficiency than the use of multiple agreements and would enable a degree of state-level analysis for a widening range of facilities.

While item-specific safeguards agreements will not drive the process of expanding the non-proliferation commitments of non-NPT states, they may serve as an important complement to international efforts to integrate non-NPT states into the global non-proliferation regime. Initiatives such as the advancement of criteria-based approaches to permitting nuclear trade with the non-NPT states may play a leading role in this regard.[80] Commentators have proposed criteria for membership in the NSG that include mandating that non-NPT states commit undertakings similar to those undertaken by nuclear-weapon state parties to the NPT.[81] To the extent that non-NPT states can be incentivised to undertake additional non-proliferation commitments, IAEA verification will play a critical role in providing assurances that those obligations are met. One commentator has suggested a safeguards-related criterion for NSG membership that would require a non-NPT state to enter into a voluntary offer agreement in which the state undertakes to place all new nuclear facilities on a list of facilities eligible to be safeguarded under INFCIRC/66/Rev.2 type agreements.[82] Whether or not a voluntary offer agreement would provide a suitable mechanism to facilitate full safeguards coverage of a non-NPT state nuclear programme, the item-specific safeguards regime could provide appropriate legal authorities for the expansion of the safeguards system in non-NPT states.

3. The content of item-specific safeguards agreements under INFCIRC/66/Rev.2

Item-specific safeguards agreements are distinguishable from comprehensive safeguards agreements principally by their limited scope. They may be distinguished from voluntary offer agreements, on the other hand, by their potentially more

80. Dalton, T., Hibbs M. and Perkovich, G., *A Criteria-based Approach to Nuclear Cooperation with Pakistan*, Policy Outlook, Carnegie Endowment (June 2011); Goldschmidt, *NSG Membership: A Criteria-based Approach for Non-NPT States*, 24 May 2011.

81 Id.

82. *Id*.

thorough application as well as their more rigorous procedures.[83] The three primary categories of item-specific safeguards agreements include (i) project agreements with the IAEA, (ii) bilateral agreements between a state and the IAEA based on voluntary submission, usually related to the terms of a nuclear co-operation agreement with a supplier state, and (iii) multilateral agreements between the IAEA and two or more states providing for the application of safeguards under a bilateral or multilateral arrangement.[84] INFCIRC/66/Rev.2 provides guidelines, fashioned as a set of principles and practices which may be flexibly applied to achieve different coverage scenarios. This guideline-approach contrasts with the standardised model of comprehensive safeguards agreements under INFCIRC/153 (Corr.) which has a fixed scope. Despite the apparent flexibility of item-specific safeguards agreements, however, the IAEA cannot assume responsibility for an item-specific agreement unless it is satisfied that the principles and procedures of the agreement are "essentially consistent" with those set forth in INFCIRC/66/Rev.2.[85] The IAEA Board of Governors has never rejected an item-specific safeguards agreement on this basis.

The item-specific safeguards regime contains important elements common to the comprehensive safeguards regime, including provisions relating to non-interference with economic or technical development,[86] prudent management requirements,[87] design review authorities (for safeguarded principal nuclear facilities),[88] obligations to protect commercial and industrial secrets,[89] and confidentiality provisions.[90] More recent item-specific agreements have incorporated provisions relating to physical protection and dispute settlement.[91] The item-specific safeguards regime differs from the comprehensive safeguards regime in terms of its coverage of non-nuclear materials and equipment, the absence of provisions for containment, surveillance and material balance accounting, the absence of a requirement for a state system of accounting and controls, and unique exemption, suspension and termination provisions. Item-specific safeguards agreements also rely heavily on subsidiary arrangements for the specification of the technical aspects

83. In order to avoid inordinately high costs of implementation, voluntary offer agreements are selectively applied in nuclear weapon states, operating at a significantly reduced level in comparison with comprehensive safeguards agreements. See generally Baeckmann, A. von, "IAEA Safeguards in Nuclear Weapon States", p. 22, *IAEA Bulletin* 1/1988 (discussing reduced levels of safeguards implementation under voluntary offer agreements); IAEA, *Annual Report 2010*, Table A5, IAEA document GC(55)/2 (listing 12 facilities under safeguards pursuant to voluntary offer agreements as opposed to 1 141 under comprehensive safeguards agreements and 17 under item-specific agreements).
84. INFCIRC/66/Rev.2, paragraph 15.
85. *Id*. at paragraph 5. Such a determination may be made in accordance with paragraph 17 of INFCIRC/66/Rev.2 ("The principal factors to be considered by the Board in determining the relevance of particular provisions of this document to various types of materials and facilities shall be the form, scope and amount of the assistance supplied, the character of each individual project and the degree to which such assistance could further any military purposes").
86. *Id*. at paragraph 9.
87. *Id*. at paragraph 10.
88. A principal nuclear facility is defined under INFCIRC/66/Rev.2 as "a reactor, a plant for processing nuclear material, irradiated in a reactor, a plant for separating the isotopes of a nuclear material, a plant for processing or fabricating nuclear material (excepting a mine or ore-processing plant) or a facility or plant of such other type as may be designated by the Board from time to time, including associated storage facilities."
89. *Id*. at paragraph 13.
90. *Id*. at paragraph 14.
91. See e.g. IAEA, "Agreement between the International Atomic Energy Agency and the Government of the Islamic Republic of Pakistan for the Application of Safeguards in Connection with the Supply of Two Nuclear Power Stations from the People's Republic of China", 15 April 2011, Sections 22 and 26-28, IAEA document INFCIRC/816 (17 May 2011).

of the inspection regime. Although subsidiary arrangements are not mentioned in the text of INFCIRC/66/Rev.2, a reference to them is typically contained in item-specific safeguards agreements.[92] Containment and surveillance measures, which are not provided for expressly in INFCIRC/66/Rev.2, are generally customised under subsidiary arrangements.[93]

The item-specific safeguards regime applies in a broader fashion than the comprehensive regime in terms of the types of items that can be specifically subjected to IAEA safeguards. Whereas the comprehensive regime specifically covers source and special fissionable materials,[94] the item-specific safeguards regime provides for coverage of a broader range of items that are identified as subject to safeguards under the IAEA Statute, including materials, services, equipment, facilities or information.[95] This distinction is important insofar as it provides for the attachment of safeguards obligations with respect to certain non-nuclear materials and facilities which are not considered as items subject to safeguards under the comprehensive safeguards regime. Coverage of a broader range of items has the additional effect of preventing/detecting the disassembly and/or reuse of equipment, facilities, or information in unsafeguarded facilities and/or activities.[96] In this respect, the item-specific safeguards may prevent the expansion of a state's programme by monitoring the recycling of sensitive material and equipment in unsafeguarded facilities.

The absence of a requirement for a national system of accounting and controls under the item-specific safeguards regime means that the IAEA and the state in question are tasked with developing *ad hoc* record-keeping and inventory approaches appropriate to the particular safeguards arrangement. The state in question may of course agree to give the IAEA supervisory responsibility over a national system of accounting and control, as was recently done in the case of India, but the legal requirements for accounting and control are *de minimus*. INFCIRC/66/Rev.2 does nonetheless contain basic record-keeping requirements. It provides that the state in question and the IAEA "shall develop a system of records" for materials and facilities subject to the agreement.[97] Basic requirements in this context extend to the maintenance of (i) accounting records relating to all safeguarded nuclear material and (ii) operating records for principal nuclear facilities.[98] It is also contemplated under the general principles section of INFCIRC/66/Rev.2 that the IAEA will maintain lists of items subject to safeguards under the agreement, which may be published upon decision of the Board of Governors.[99] Additional requirements relating to the preparation and maintenance of inventories apply to fuel conversion and fabrication plants under special provisions contained in the annexes added in 1966 and 1968.[100]

The scope of item-specific safeguards agreements is generally defined through the use of inventories required to be maintained pursuant to the undertakings of those agreements. A standardised inventory clause for item-specific agreements has

92. See e.g. IAEA, "Agreement Between the International Atomic Energy Agency, the Government of Canada and the Government of India Relating to Safeguards Provisions", 30 September 1971, Section 3, IAEA document INFCIRC/211 (6 November 1974).
93. See e.g. INFCIRC/816, Sections 18-19.
94. See e.g. INFCIRC/153 (Corrected), paragraph 2.
95. IAEA Statute, Article III.5; INFCIRC/66/Rev.2, paragraph 15(b).
96. See e.g. "IAEA Safeguards Implementation at Nuclear Fuel Cycle Facilities", p. 25, IAEA document SG/INF/6 (1985) (discussing the IAEA need to verify the non-removal of equipment from nuclear facilities under item-specific safeguards agreements).
97. INFCIRC/66/Rev.2, paragraph 33.
98. *Id*. at paragraph 35.
99. *Id*. at paragraph 14.b.
100. *Id*. at Annex 2, paragraph 7.

evolved over time, which requires that inventories address three basic categories of material. This three-category approach, while not contained in INFCIRC/66/Rev.2 has been continuously incorporated in all item-specific safeguards agreements since at least 1965.[101] The approach divides the inventory into a main part consisting of all safeguarded nuclear material, a subsidiary part including any facility while it stores, uses, or processes any nuclear material included in the main inventory, and an inactive part consisting of nuclear material that has been exempted or suspended from safeguards. Many item-specific safeguards agreements include provisions for the updating of national inventories based on continuing supply of materials, accompanied by notification provisions appropriate to the updating of those inventories.

The reporting provisions of INFCIRC/66/Rev.2 contain additional requirements relevant for accounting and control purposes. The core reporting requirements track the record-keeping requirements focusing similarly on (i) principal nuclear facilities and/or (ii) nuclear materials under safeguards. States are required to make routine reports, which under INFCIRC/66/Rev.2 must include accounting and operating reports.[102] Routine accounting reports must show receipt, transfer out, inventory and use of all safeguarded nuclear material.[103] Operating reports must show the use that has been made of each principal nuclear facility since the last report and, as far as possible, the programme of future work in the period until the next routine report is expected to reach the IAEA.[104] Initial reporting requirements are triggered upon the presence of safeguarded material and/or the operative state of a safeguarded principal nuclear facility.[105] Special reports may be required (i) where an unusual incident occurs involving safeguarded nuclear materials or facilities, (ii) where safeguarded nuclear material is unaccounted for, or (iii) where there are significant changes in the quantity of safeguarded nuclear material in a facility.[106] Under INFCIRC/66/Rev.2, the frequency of reports on facilities depends on the type of facility at issue.

Due to the limited scope of item-specific safeguards agreements, provisions of those agreements must account for the movement of safeguarded nuclear material in and out of safeguarded facilities and across borders. To address such situations, INFCIRC/66/Rev.2 provides for the suspension of safeguards on nuclear material and the transfer of safeguarded nuclear material under certain circumstances. Safeguards on nuclear material may be suspended in two principal scenarios under INFCIRC/66/Rev.2. First, suspension is permitted when nuclear material below certain quantitative limits[107] is transferred under an IAEA-approved arrangement for processing, reprocessing, testing, research, or development.[108] This provision allows for the improvement of nuclear material in an unsafeguarded facility and the return of that material to safeguards. Second, suspension may take place for nuclear material that has been removed and substituted with an equivalent amount of

101. See e.g. IAEA, "Agreement Between the International Atomic Energy Agency, the Government of Israel and the Government of the United States of America for the Application of Safeguards", 18 June 1965, Annex, IAEA document INFCIRC/84 (13 July 1966); IAEA document INFCIRC/816, at Section 6.
102. INFCIRC/66/Rev.2, paragraph 39.
103. *Id*.
104. *Id*.
105. *Id*. at paragraph 40.
106. *Id*. at paragraphs 42-43.
107. INFCIRC/66/Rev.2, paragraphs 24(a)-(d) (comprising one effective kilogram of special fissionable material, ten metric tons in total of natural uranium and depleted uranium with an enrichment above 0.005 (0.5%), twenty metric tons of depleted uranium with an enrichment of 0.005 (0.5%) or below; and twenty metric tons of thorium).
108. *Id*.

previously unsafeguarded material.[109] Modern item-specific safeguards agreements also contain suspension clauses for safeguarded components that are removed from facilities for repair,[110] a provision not contained in INFCIRC/66/Rev.2.

Nuclear material under safeguards may be transferred out of the jurisdiction of the state in which it is safeguarded in limited circumstances. These include (i) where the material is being returned to the supplier, (ii) where it is being transferred under the provisions for suspension discussed above, (iii) where arrangements have been made for safeguards in the transferee state, or (iv) under certain conditions related to a project agreement.[111] In effect, these provisions make the transfer of nuclear material out of the jurisdiction contingent upon the continued application of safeguards.[112] Item-specific safeguards agreements currently contain stricter transfer provisions than those found in INFCIRC/66/Rev.2, requiring notification to and approval from the IAEA before transfers take place.[113]

INFCIRC/66/Rev.2 describes several scenarios under which the termination of safeguards on nuclear material is possible. Such scenarios include situations where nuclear material has been returned unimproved while under safeguards, where it was only subject to safeguards by reason of its use in a safeguarded nuclear facility and was removed from that facility in an unimproved state, where it is no longer usable or has become practically irrecoverable, where states have agreed to supply equivalent substitute material, where it has been transferred out of the jurisdiction where the terms of the safeguards agreement no longer apply due to expiration or otherwise, and in certain situations where source material can be used for non-nuclear purposes, such as the production of alloys or ceramics.

The termination provisions of INFCIRC/66/Rev.2 do not require the continuation of safeguards on nuclear material after the lapse of an item-specific safeguards agreement, but express that such continuation is "desirable".[114] In 1973, the Director General issued recommendations, contained in GOV/1621, "The Formulation of Certain Provisions in Agreements under the Agency's Safeguards System (1965, as Provisionally Extended in 1966 and 1968)", providing for the continuing application of safeguards on nuclear materials and related equipment in the event that an item-specific agreement is terminated.[115] Under the recommendations implemented pursuant to GOV/1621, the duration of the application of safeguards under item-specific agreements is tied to the actual use of the nuclear material or supplied items in the recipient state, as opposed to fixed periods of time.[116] IAEA safeguards may thus continue to apply in perpetuity on the inventory of item-specific agreements even if the agreements themselves are terminated, at least until those items are no longer usable in activities relevant from the point of view of safeguards.

The duration of safeguards under item-specific safeguards agreements is in part a function of how inventories are maintained under those agreements. A component of the GOV/1621 recommendations thus included a proposal that nuclear materials that had been "produced, processed or used in connection with supplied material"

109. *Id*. at paragraph 25.
110. See e.g. INFCIRC/705, section 15(b).
111. *Id*. at paragraph 28.
112. Rockwood, L., "Legal Instruments Related to the Application of Safeguards", Presentation to IAEA/OPANAL Seminar (25-26 April 1996), p. 10, available at: www.opanal.org/Articles/Jamaica/jam-Rockwood.htm.
113. See e.g. INFCIRC/816, at sections 13-14.
114. INFCIRC/66/Rev.2, paragraph 16.
115. See IAEA, "The Formulation of Certain Provisions in Agreements under the Agency's Safeguards System (1965, as Provisionally Extended in 1966 and 1968): Memorandum by the Director General" IAEA document GOV/1621 (20 August 1973).
116. See Rockwood, L., "Legal Instruments Related to the Application of Safeguards", pp. 25-26.

would remain in the inventory and would be subject to safeguards until the IAEA had terminated safeguards on that nuclear material in accordance with the termination provisions of INFCIRC/66/Rev.2 (which allow for the termination of safeguards when nuclear material has been consumed, is no longer usable, or is practicably irrecoverable).[117] With respect to equipment, facilities and non-nuclear material, GOV/1621 provided – in an adaptation of the termination provisions of INFCIRC/66/Rev.2 applicable to nuclear material[118] – that such items "could be removed from the purview of the agreement if they had been consumed, were no longer usable for any nuclear activity relevant from the point of view of safeguards or had become practicably irrecoverable."[119] Item-specific safeguards agreements generally provide that items on which safeguards have terminated would then be deleted from the inventory, a further link between the continuing application of safeguards to the maintenance of inventories.[120] A related development in the treatment of inventories was the introduction of language in item-specific safeguards agreements – also not contained in the text of INFCIRC/66/Rev.2 – requiring that "subsequent generations of nuclear material" remain in the "main part" of the three-category inventories discussed above.[121] This inventory requirement complements provisions relating to the continuing application of safeguards on nuclear material by ensuring that subsequent generations of nuclear material remain in the inventories of items subject to safeguards.

Inspection authorities under INFCIRC/66/Rev.2 extend to safeguarded nuclear materials and principal nuclear facilities. The item-specific safeguards regime relies for certain inspections procedures on the IAEA's 1961 Inspectors Document, which is incorporated into item-specific agreements. These provisions relate to the designation of inspectors, notification of inspections, conduct of inspections, rights of access, and privileges and immunities.[122] Inspectors may have access to any safeguarded materials, equipment and facilities to the extent relevant to the arrangement.[123] INFCIRC/66/Rev.2 specifies that the role of inspections is to verify compliance with the agreements and to resolve any questions arising out of the implementation of the safeguards agreement.[124]

Under routine inspections, inspectors audit records and reports, verify nuclear material amounts through measurement and sampling, examine facilities, and conduct checks of principal nuclear facilities and research and development facilities containing safeguarded nuclear material.[125] Unlike routine inspections under comprehensive safeguards agreements, the item-specific regime does not limit access for inspections to strategic points in a nuclear facility.[126] There are no

117. *Id*. at paragraph 1(b). See also INFCIRC/66/Rev.2, paragraph 26(c).
118. See *id*.
119. GOV/1621, Annex, paragraph 3.
120. See e.g. IAEA, "Agreement between the International Atomic Energy Agency and the Government of the Islamic Republic of Pakistan for the Application of Safeguards in Connection with the Supply of Two Nuclear Power Stations from the People's Republic of China", 22 February 2007, Section 6(a)(3), IAEA document INFCIRC/705 (17 May 2007).
121. See e.g. IAEA, "Agreement between the International Atomic Energy Agency, the Government of Canada and the Government of India Relating to Safeguards Provisions", 16 December 1966, Section 11(c)(i), INFCIRC/211 (6 November 1974). This language constitutes an elaboration of the provisions of sub-paragraphs 19(d) and (e) of INFCIRC/66/Rev.2.
122. See Inspectors Document, paragraphs 1-13.
123. *Id*. at paragraph 9.
124. INFCIRC/66/Rev.2, paragraph 46.
125. *Id*. at paragraph 49.
126. INFCIRC/153 (Corr.), paragraph 76(a). The concept of the use of strategic points is contained in the NPT. See NPT, Preamble (expressing support for "the principle of

limits on the duration of an inspection meaning that continuous inspection would be theoretically possible through back-to-back inspections of extended duration. The frequency of inspections under INFCIRC/66/Rev.2 depends on the maximum throughput or maximum potential annual production of special fissionable material, whichever is larger. Where the throughput, inventory, or maximum production in a principal nuclear facility is more than 60 effective kilograms of nuclear material, continuous inspection is permitted.[127]

Item-specific safeguards agreements generally incorporate Article XII.C of the IAEA Statute into the agreement, permitting remedial action for non-compliance and the possibility of reporting such non-compliance to the Security Council.[128] If a state fails to take corrective action within a reasonable time, Article XII.C provides that the IAEA may curtail assistance, call for the return of materials provided, and/or suspend the non-complying member state, in accordance with Article XIX of the statute, from exercising the privileges or rights of membership.[129]

Provisions of the Model Additional Protocol – including those relating to complementary access and the applicability of safeguards earlier in the fuel cycle – could apply to item-specific agreements in the event that such agreements enter into force in non-NPT states. The application of the Model Additional Protocol in this context will be limited by the scope of the related item-specific safeguards agrrement. [130]

4. The status of item-specific safeguards agreements involving non-NPT states

There were as of 1 December 2011 16 item-specific agreements in force between the IAEA and the non-NPT states – India, Israel and Pakistan.[131] Israel has one in force, which is a multilateral agreement signed on 4 April 1975 (superseding an earlier agreement signed on 18 June 1965)[132] between the IAEA, Israel and the United States, allowing for updatable inventories relating to the provision of a research

safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points").

127. INFCIRC/66/Rev.2, Annex 1, paragraph 3.
128. Paragraph 18 of INFCIRC/66/Rev.2 provides for the incorporation of Articles XII.A.7 and Article XII.C of the Statute into safeguards agreements, although Article XII.A.7 is not incorporated into safeguards agreements with India, Pakistan, or Israel.
129. Article XIX provides that the General Conference may suspend a non-complying member state from exercising the privileges and rights of membership, based on a recommendation from the Board of Governors, upon the vote of a two-thirds majority of members present and voting. IAEA Statute, Article XIX.
130. India signed an Additional Protocol on 15 May 2009. See IAEA, Status List, Conclusion of safeguards agreements, additional protocols and small quantities protocols as of 31 October 2011, available at: www.iaea.org/OurWork/SV/Safeguards/documents/sir_table.pdf.
131. See "Agreement between the International Atomic Energy Agency and the Government of the United Kingdom of Great Britain and Northern Ireland for the Application of Safeguards", 14 December 1972, IAEA document INFCIRC/175 (6 February 1973). A voluntary offer agreement will have the effect of suspending an item-specific safeguards agreement, although equivalent safeguards coverage must be maintained in such instances. See e.g. IAEA, "Agreement between the United Kingdom of Great Britain and Northern Ireland, the European Atomic Energy Community and the International Atomic Energy Agency for the Application of Safeguards in the United Kingdom of Great Britain and Northern Ireland in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons", Article 23(a), 14 August 1978, IAEA document INFCIRC/263 (October 1978).
132. See "Agreement between the International Atomic Energy Agency, the Government of Israel and the Government of the United States of America for the Application of Safeguards", 18 June 1965, IAEA document INFCIRC/84 (13 July 1966).

reactor.[133] Pakistan has nine item-specific safeguards agreements in force covering eight nuclear facilities, three of which are still in planning or under construction.[134] These agreements relate principally to the supply of equipment, materials and facilities following a standard facility-specific approach. India has six item-specific agreements in force,[135] although five of these are currently in a state of suspension pursuant to the terms of its 11 May 2009 item-specific safeguards agreement contained in INFCIRC/754, "Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities". This agreement institutes a phased process that endeavors to facilitate a separation of India's civilian and military nuclear programmes while extending safeguards coverage to the full range of its civilian nuclear activities.[136]

The 2009 India-IAEA safeguards agreement contained in INFCIRC/754 represents a significant technical advance in the development of the IAEA item-specific safeguards regime. It is the first such agreement to streamline item-specific arrangements to cover an aggregate of facilities in a programme-specific manner.[137] By using one agreement to cover a range of facilities, it adapts the item-specific approach in its broadest application to date. It does so with the objective of linking the development of India's civilian nuclear energy programme to the achievement of full safeguards coverage of that programme.[138] The inventory updating provisions of this safeguards agreement are expansive by item-specific standards.[139] As of 1 December 2011, India had submitted updated inventories allowing for the application of safeguards to 18 nuclear facilities.[140] The incorporation of a range of facilities under one agreement reduces inefficiencies in implementation that generally result from the simultaneous (and sometimes overlapping) application of several separate agreements within one state.[141]

Perhaps the most novel provision of the 2009 India-IAEA safeguards agreement is the inclusion of a requirement for a state system of accounting and control for all items subject to safeguards.[142] This stands in contrast to the standard provisions of INFCIRC/66/Rev.2, which, as discussed above, does not contain a requirement for

133. "Agreement between the International Atomic Energy Agency, the Government of Israel and the Government of the United States of America for the Application of Safeguards", IAEA document INFCIRC/249/Add.1 (28 September 1977).
134. INFCIRC/816 (in force on 15 April 2011); INFCIRC/705 (in force on 22 February 2007); INFCIRC/418 (in force on 24 February 1993); INFCIRC/393 (in force on 10 September 1991); INFCIRC/248 (in force on 2 March 1977); INFCIRC/239 (in force on 18 March 1976); INFCIRC/135 (in force on 17 October 1969); INFCIRC/116 (in force on 17 June 1968); INFCIRC/34 (in force on 5 March 1962).
135. INFCIRC/754 (in force on 11 May 2009); INFCIRC/433 (in force on 1 March 1994); INFCIRC/374 (in force 11 on October 1989); INFCIRC/360 (in force on 27 September 1988); INFCIRC/260 (in force on 17 November 1977); INFCIRC/211 (in force on 30 September 1971).
136. See INFCIRC/754, Preamble.
137. The inefficiency of the multiple and overlapping safeguards agreements under the item-specific regime has historically been a basis for criticism of the regime. Proposals for either consolidated item-specific safeguards agreements or consolidated subsidiary arrangements for multiple agreements have been put forward as a potential remedy for this problem. See e.g. Buechler, C., "The Future of Safeguards under INFCIRC/66/Rev.2", *IAEA Bulletin* 1/1988, pp. 27-28.
138. *Id*.
139. *Id*. at paragraph 11.
140. See INFCIRC/754/Ann.3 (16 December 2010).
141. Nuclear material or equipment moved between facilities under an item-specific safeguards scenario may become subject to more than one safeguards agreement. On the problem of overlapping implementation of item-specific safeguards agreements, see Buechler, C., *IAEA Bulletin* 1/1988, pp. 25-27.
142. *Id*. at paragraph 100.

state systems of accounting and control. The introduction of a state-level material accountancy system to the item-specific regime lays the groundwork for moving beyond facility-level analysis of India's nuclear energy programme. By adapting the item-specific regime to apply to the entirety of India's civilian nuclear energy programme, this agreement permits the development of a programme-level evaluation that may complement state-level and facility-level evaluation methods.

The 2009 India-IAEA arrangement is not without its faults. The delicate nature of the arrangement is emphasised in a hedging mechanism that links the safeguards agreement to the effectiveness of the related nuclear co-operation agreements.[143] The safeguards agreement permits India to take "corrective measures" to ensure the uninterrupted operation of its civilian nuclear reactors in the event of a disruption of foreign fuel supplies.[144] The safeguards agreement indicates, moreover, that the relevant bilateral and multilateral co-operation and supply agreements are "essential to the accomplishment of the objective of the Agreement".[145] Were this "essential" basis of the treaty to fail, for example by the wrongful termination of fuel supply under a related nuclear supply agreement, India might claim a legal ground to terminate or withdraw from the safeguards agreement on the basis of the customary and treaty law doctrine of changed circumstances.[146] Indeed, these provisions appear designed to facilitate such a withdrawal. The 2009 India-IAEA agreement built in an important backstop that facilitates the continued application of safeguards in the event of a termination of the safeguards agreement. However, the agreement contains a clause noting that the termination of safeguards on items subject to the agreement "shall be implemented taking into account the provisions of GOV/1621".[147] This in effect provides for the continuing application of safeguards on items covered under the safeguards agreement in the event of India's withdrawal from the safeguards agreement.[148]

Under the reporting provisions of the 2009 safeguards agreement, India is required to make a special report in cases involving the disruption of operations of the annexed nuclear facilities on account of a material violation or breach of related supply agreements.[149] Making such a report would send an important procedural signal to the IAEA that its work in implementing the safeguards agreement might be affected. As discussed above, however, safeguards would continue to apply on safeguarded items, although new materials and facilities may not be covered depending on circumstances. Such an event would likely trigger a political crisis, although the IAEA safeguards would remain in effect on inventories that were included under the agreement.

5. Innovating the item-specific safeguards regime

The continuing challenge of integrating the non-NPT states into the global non-proliferation regime merits renewed attention to the potential tools available under item-specific safeguards. On the policy level, supplier state initiatives to link trade

143. *Id*. in Preamble.
144. *Id*.
145. *Id*. at paragraph 4.
146. See e.g. Vienna Convention on the Law of Treaties between States and International Organisations and between International Organisations, March 21, 1986, Article 62 (permitting withdrawal from or termination of a treaty if "the existence of those circumstances [that have changed] constituted an essential basis of the consent of the parties to be bound by the treaty").
147. INFCIRC/754, at paragraph 29.
148. See GOV/1621 at 1(b).
149. *Id*. at 52(c).

opportunities with the objective of broader safeguards coverage may play an important role in strengthening the safeguards system. Innovation in the item-specific safeguards regime may support such endeavours, providing the tools necessary to facilitate expanded safeguards coverage in a flexible and phased manner. Negotiation of a new standardised non-NPT safeguards model might be an optimal means of facilitating non-NPT safeguards implementation. At its most ambitious, such a model could be considered as a long-term transitional tool to nuclear weapons disarmament to the extent that non-NPT states can be encouraged to undertake long-term disarmament obligations and/or join the NPT as non-nuclear-weapon states. In the near term, however, the perfect should not be the enemy of the good. A graduated approach to the integration of the non-NPT states into the IAEA safeguards system would support important non-proliferation objectives in preventing the further spread of nuclear weapons.

Approaches that focus on adapting the item-specific framework to programme-level implementation may include, for example, the use of expanded, updatable inventories, consolidation of facility-level coverage in a streamlined agreement, and the introduction of limited scope, state-level accounting and control systems that apply to multiple facilities.[150] If the negotiation of a consolidated agreement is not possible, parties to item-specific safeguards agreements may consider consolidated subsidiary arrangements that cut across multiple item-specific agreements, as has been suggested in the past.[151] This approach could be an important step towards programme-specific coverage in Pakistan, for example. Approaches to enhanced safeguards coverage in Israel and Pakistan may be linked to trade opportunities in non-nuclear areas as well as to co-operation in the supply of nuclear technology.

A transitional safeguards regime designed to implement full coverage of civilian nuclear programmes in non-NPT states might begin with a new civilian programme-specific model agreement. Programme-level safeguards coverage could build on the item-specific regime while incorporating elements of the comprehensive safeguards system required for non-nuclear-weapon states under the NPT. Agreements concluded under a programme-specific approach could, for example, incorporate strategic points into inspections protocol, standardise material balance and accounting procedures, and adopt state (or programme-specific) systems of accounting and control. Such innovations may provide the basis for a safeguards regime that represents a transitional blend of the item-specific and comprehensive safeguards approaches in the IAEA safeguards system. Innovation in item-specific safeguards agreements may also provide support to proposals for the use of IAEA item-specific safeguards agreements as a fallback option for NPT withdrawal/non-compliance scenarios, were such proposals considered to be practicable.[152]

150. In 1988, Carlos Buechler outlined three categories of options for improving the safeguards regime under INFCIRC/66/Rev.2, including (i) options aimed at moving towards more comprehensive coverage, (ii) options aimed at updating safeguards agreements to improve technical implementation, and (iii) options aimed at integrating overlapping agreements either through the operation of a single agreement or through consolidated subsidiary arrangements. See Buechler, C., "The Future of Safeguards under INFCIRC/66/Rev.2", *IAEA Bulletin* 1/1988, pp. 27-28.

151. *Id*.

152. A more practical option might be to develop and implement a recommendation – similar to the approach taken in the issuance of GOV/1621 – providing for the continuation of comprehensive safeguards on materials and facilities subject to comprehensive safeguards agreements at the time of withdrawal. Such a recommendation could become operative in special circumstances where withdrawal from the NPT is made under conditions of non-compliance with a safeguards agreement. See generally Perez, A.F., "Survival of Rights under the Nuclear Non-Proliferation Treaty: Withdrawal and the Continuing Right of International Atomic Energy Agency Safeguards", 34 *Va. J. Int'l L.* 749,

6. Conclusion: towards global comprehensive safeguards coverage

The maintenance of an effective global safeguards system has been a principal ambition of the international community dating to the first meeting of the United Nations.[153] The item-specific safeguards regime provided an early foundation for the development of a safeguards system in which comprehensive safeguards now dominate. This regime remains relevant to the continuation of this development. Integrating the non-NPT states into the safeguards system will require innovative approaches, both at the political and at the technical level. The item-specific safeguards regime currently represents the sole legal basis for the application of IAEA safeguards in non-NPT states, providing an important foundation for the enhancement of IAEA monitoring and evaluation capabilities in those states. A graduated approach that broadens the scope of item-specific agreements in successive steps may provide a more palatable mechanism for expanding safeguards coverage in non-NPT states. The prospect of enhanced safeguards coverage in non-NPT states merits continued attention to the item-specific regime.

While safeguards approaches that do not apply to the whole of a state's nuclear programme leave dangerous gaps in the non-proliferation regime, incremental approaches to enhanced safeguards coverage are better than no approaches at all. Achieving a safeguards system that applies globally and comprehensively requires addressing the proliferation risks presented by the non-NPT states. The ultimate effectiveness of the global non-proliferation regime will depend in part on the success of efforts to integrate those states that, as of today, remain outside the global non-proliferation community. In this context, renewed attention to the item-specific regime may play a role in the evolution of a safeguards system in which item-specific agreements are no longer necessary.

823-826 (1994) (discussing post-NPT withdrawal rights in terms of the survivability of safeguards).

153. See UN, "Establishment of a Commission to Deal with the Problems Raised by the Discovery of Atomic Energy", UN document GA Res. 49/1 (24 January 1964) (calling for the establishment of a commission to ensure the use of atomic energy for exclusively peaceful purposes and for effective safeguards to further this end).

Fukushima: liability and compensation

*by Ximena Vásquez-Maignan**

On 11 March 2011, Japan endured one of the worst natural disasters in its history when a massive earthquake struck the Pacific coast of the country and was followed by a tsunami which led to considerable loss of lives. It also led to a major accident at the Fukushima Daiichi nuclear power plant. Soon afterwards, the operator of the plant, Tokyo Electric Power Company (TEPCO), assumed responsibility and liability for the nuclear accident.[1] On 28 April 2011, TEPCO established a dedicated contact line to provide consulting services for financial compensation related to the damage caused.[2]

1. Third party nuclear liability principles

The compensation procedure set up by TEPCO complies with the Japanese legislation governing third party liability for nuclear activities. Even though Japan is not party to any of the international nuclear liability conventions, it has solid national third party liability legislation whose main principles are as follows:

- The operator of the nuclear power plant where the nuclear accident occurred is strictly liable (which means that the operator is held liable regardless of fault, negligence or intention to harm).
- The operator is exclusively liable for the damages (i.e., no other person may be held liable for the damages caused by the nuclear accident).
- The operator's liability is not limited in amount.
- The operator is obliged to financially secure its liability up to a certain amount (JPY 120 billion for nuclear power plants, or approximately EUR 1.16 billion or USD 1.57 billion as of 27 September 2011).
- Where nuclear damage exceeds the financial security amount, the government may help a nuclear operator to compensate the damage to the extent authorised by the National Diet.
- All rights of action are fully extinguished 20 years following the date of the tort and the actions must be brought within three years from the date at which the person suffering damage had knowledge both of the damage and of the person liable.
- The victims may refer their claims directly to the operator concerned, to a local court or to the Dispute Reconciliation Committee for Nuclear Damage

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1. For the technical description of the event, see *NEA News* No. 29.1.
2. www.tepco.co.jp/en/index-e.html.

Compensation (the Reconciliation Committee), which the Japanese Ministry for Education, Culture, Sport, Science and Technology (MEXT) may establish following an accident and whose function is, on the one hand, to draft instructions to establish the scale of the nuclear damage as well as to actually assess them and, on the other hand, to mediate disputes concerning compensation claims.

In the case of the Fukushima accident, MEXT established the Reconciliation Committee in early April 2011.

2. Nuclear damage

According to the Act on Compensation for Nuclear Damage (the Compensation Act), nuclear damage means "any damage caused by the effects of the fission process of nuclear fuel, or of the radiation from nuclear fuel… however, any damage suffered by the nuclear operator who is liable for such damage… is excluded."

Damages to the operator concerned are explicitly excluded, with the operator having to assume the loss or damage to his own property (such as the nuclear installation itself). The purpose is to avoid the financial security being used to compensate the operator to the detriment of the victims.

As the law does not clearly define the nature of the damages to be compensated by the operator, the Reconciliation Committee has adopted guidelines that are not legally binding to determine the type of damages which give rise to compensation. The "preliminary guidelines for determination of the scope of nuclear damage due to TEPCO's Fukushima Daiichi and Daini nuclear power stations" adopted on 28 April 2011 defined the damages resulting from instructions issued by the central and local governments which may be compensated (e.g. evacuation instructions; restrictions of marine areas; restrictions of shipments of agricultural products and marine products). The "second guidelines" adopted on 31 May 2011 provide the method of calculating the damages listed in the first guidelines and define additional types of damages, such as damage suffered by workers, bankruptcies, costs of decontamination measures and damage caused by unfounded rumors. On 5 August 2011, the Reconciliation Committee adopted the "interim guidelines governing nuclear disaster compensation due to the accident at Fukushima Daiichi and Daini power plants" pursuant to which TEPCO has drawn up the procedure to pay "permanent compensation" amounts (as opposed to "provisional compensation" amounts which were paid out until recently as a measure of urgency).

Despite the official mandate of this committee, it is the Japanese courts that will have the final decision on what qualifies as nuclear damage. However, in the past, out-of-court settlements have been successful in Japan thanks to the guidelines of the committees and the help of local governments. On 30 September 1999, a criticality accident took place in a uranium processing facility of JCO Co. Ltd. at Tokai-mura. As a result, approximately 8 000 claims were raised, most of which were compensated in out-of-court settlements according to the compensation guidelines.

As regards the Fukushima accident, it will be a challenge to distinguish damages directly linked to radiation exposure risks from those that were caused by the earthquake and the tsunami. Evacuations were ordered, at first, to protect the population from the inundation, and one major difficulty will be to draw a clear line between victims of the natural disaster and those who have suffered nuclear damage in a stricter sense.

3. Exoneration of liability

The Compensation Act provides that the operator may be exempted from liability when "…the damage is caused by a grave natural disaster of an exceptional character…". Where this exoneration applies, the government shall take, pursuant to the Compensation Act, "the necessary measures to relieve victims and to prevent the damage from spreading".

In light of the massive earthquake and the ensuing tsunami which led to the Fukushima accident, the question arises of a potential exoneration of TEPCO's liability. However, the government's current position does not suggest that TEPCO will be exonerated from liability due to the "exceptional" character of this natural disaster. When the Compensation Act was enacted, the conditions for the exemption due to natural disasters were described in the Congress as a "huge natural disaster beyond all expectations of humankind". As an earthquake-prone archipelago, Japan has a rather unique perception of what qualifies as a "grave natural disaster of an exceptional nature". For example, the earthquake in Kobe on 17 January 1995, which registered at 6.9 on the Richter scale and resulted in over 5 000 deaths, did not qualify as a grave natural disaster of an exceptional character.

Courts in civil proceedings will decide if the earthquake of 11 March 2011 qualifies as a natural disaster beyond all expectations of humankind, but only if TEPCO decides to invoke this exemption against claimants. TEPCO's latest statements do not suggest that it will invoke the application of this provision in its favour.

4. Liability amount

Pursuant to the Compensation Act, the operator has an unlimited liability and must maintain financial security either through (i) a private nuclear liability insurance contract (the most common means of financial security) combined with an indemnity agreement to be entered into with the government for non-insurable risks (for which the operator shall pay a fee to the government), (ii) a deposit (in cash or in security) or (iii) any other arrangement approved by MEXT.

The six units at Fukushima Daiichi are treated as one site; the same applies to the four units at Fukushima Daini. As a result, the financial security amounts to JPY 120 billion for each site.

Should damages exceed the JPY 120 billion of financial security, the operator still remains liable (unlimited liability). However, in that event and if approved by the National Diet, the government shall give the nuclear operator concerned such aid as required to compensate the (excess) damage when the government deems it necessary in order to attain the purpose of the Compensation Act.

5. Compensation of the Fukushima victims

As the Fukushima accident will have consequences which will exceed JPY 120 billion, on 13 May 2011 the Japanese government issued a framework for government financial support to TEPCO in which it recognises its social responsibility and essentially aims to minimise the burden to be placed on the public. This plan was then submitted to and approved by the National Diet on 3 August 2011 under the bill for the "Establishment of a Nuclear Damage Compensation Facilitation Corporation" (the Facilitation Corporation). This corporation, established in September 2011, will manage a fund which shall receive contributions from the government and the Japanese nuclear installation operators,

and will support operators in providing compensation to victims of nuclear accidents. The operator requesting such support will be required to implement cost-cutting measures as a prerequisite to benefit from this fund and will be expected to pay back over the years the amounts received.

On 28 October 2011, TEPCO applied in order to benefit from the Facilitation Corporation financial support and submitted to that effect a business plan with cost-cutting measures which was approved on 4 November 2011. According to TEPCO, on 15 November 2011 it received JPY 558.7 billion (EUR 5.39 billion or USD 7.2 billion) from the Facilitation Corporation pursuant to the approval of its business plan. Furthermore, on 22 November 2011 it received JPY 120 billion from the government under the indemnity agreement for non-insurable risks.

TEPCO has been paying "provisional compensation" amounts to the victims, but as from October 2011, "permanent compensation" shall be paid pursuant to new procedures that were established by TEPCO on 30 August 2011[3] (for the procedure applicable to damages suffered by individuals) and on 21 September 2011[4] (for the procedure applicable to damages suffered by sole proprietors and corporations).

According to the press, TEPCO has so far paid about JPY 52 billion (EUR 0.5 billion or USD 0.7 billion) in "provisional compensation" to 56 400 households, and an additional JPY 43 billion (EUR 0.4 billion or USD 0.56 billion) to individuals for fees they had paid to be evacuated. It has also paid about JPY 63 billion (EUR 0.6 billion or USD 0.8 billion) to farmers, fishermen and small- and medium-sized companies as "provisional compensation".[5]

3. www.tepco.co.jp/en/press/corp-com/release/11083007-e.html.
4. www.tepco.co.jp/en/press/corp-com/release/11092109-e.html.
5. Reuters, 26 September 2011.

Case law

Canada

Judicial review of Darlington new nuclear power plant project

The Darlington new nuclear power plant project (Project), a proposal by Ontario Power Generation (OPG) for the site preparation, construction, operation, decommissioning and abandonment of up to four new nuclear reactors at its existing Darlington nuclear site in the Municipality of Clarington, Ontario, Canada, went through the environmental assessment process earlier this year. The Project is expected to generate up to 4 800 megawatts of electricity for delivery to the Ontario grid with an initial need of 2 000 megawatts. The Project includes the preparation of the site; construction of up to four new reactors and associated facilities; the operation and maintenance of the reactors and related facilities for approximately 60 years, including the management of conventional and radioactive waste; and the decommissioning and eventual dismantling of the nuclear reactors and associated facilities. The public hearing took place over 17 days between 21 March and 8 April 2011, concurrent to the commencement of the nuclear accident at Fukushima Daichii in Japan.

The Joint Review Panel (Panel), appointed by the federal Minister of the Environment and the President of the Canadian Nuclear Safety Commission, was to assess the environmental effects of the Project and to determine whether it is likely to cause significant adverse environmental effects, taking into account the implementation of mitigation measures that are technically and economically feasible. The review of the Project was framed by the Canadian Environmental Assessment Act and the Nuclear Safety and Control Act. The Panel incorporated other federal, provincial and municipal policies and requirements, industry standards and best practices in its analysis and recommendations.

The components of the review included a public review and comment period, two technical review sessions, requests to OPG for additional information deemed necessary by the Panel, three open house information sessions at public venues in the Project area, submissions from federal, provincial and municipal governments, Aboriginal groups and other interested parties, and a public hearing in the municipality of Clarington.

The Panel released its report on 25 August 2011.[1] The Panel concluded that the Project is not likely to cause significant adverse environmental effects, provided the mitigation measures proposed and commitments made by OPG during the review, and the Panel's 67 recommendations are implemented.

On 23 September 2011 Greenpeace, Lake Ontario WaterKeeper, the Canadian Environmental Law Association and Northwatch applied for a judicial review to stop the authorities from licensing the project and to obtain a declaration that the environmental assessment conducted did not meet the requirements of law. The

1. For the full report, see www.cnlo.ca under News Releases.

grounds for the application[2] include 1) that the adoption of a plant parameter envelope or bounding formula, absent a specific reactor design, is unacceptably incomplete, 2) that the Panel erred by relying on federal, provincial and municipal entities to conduct further analytical work, monitoring, mitigative and follow-up programmes "many of which are required prior to making an informed assessment of the Project's likely effects", and 3) that the procedures followed in the assessment hearing were unfair in that there were time constraints on the applicants and presenters were not allowed to be questioned on their qualifications or cross-examined. The matter is now before the Federal Court of Canada and is expected to be heard in the second quarter of 2012.

Appeal decision upholding criminal convictions related to attempt to export nuclear-related dual-use items to Iran: Her Majesty the Queen v. Yadegari (2011)[3]

This case concerns the appeal from the first conviction for a regulatory offence under Canada's Nuclear Safety and Control Act (NSCA),[4] and the first conviction of a Canadian under the United Nations Act (UN Act),[5] the legislation under which Canada has implemented UN Security Council resolutions respecting Iran. A case summary of the trial decision appeared in *Nuclear Law Bulletin* No. 86, volume 2010/2.

A review of the decision of the Appeal Court demonstrates that there is a general recognition by the court of the importance of interpreting the very technical specifications of controlled nuclear-related dual-use items in a manner that respects the purpose for that control, which is the avoidance of contributing to nuclear weapons proliferation. The decision reflects the Appeal Court's interpretation of the Nuclear Suppliers' Group NSG Guidelines (NSG Guidelines),[6] as they have been incorporated into Canadian law, and this is instructive from the perspective of how courts of law may apply and ascribe legal meaning to the entries in those guidelines.

Background

The proliferation of nuclear weapons and the threat of nuclear terrorism are persisting global concerns. The NSG Guidelines reflect the objective of averting the proliferation of nuclear weapons and preventing acts of nuclear terrorism, while at the same time contributing to economic development and commercial competition. The best wisdom of the 37 nuclear supplier countries that make up the NSG results in the "List of Nuclear-related Dual-use Equipment, Material, Software and Related Technology".

That list has been incorporated into Canadian law in two ways.

First, as the United Nations Security Council has imposed prohibitions on the supply, sale or transfer of nuclear-related goods to Iran, Canada has incorporated the NSG Guidelines in its prohibition of this activity through the Regulations Implementing the United Nations Resolutions on Iran, which provide that no person in Canada and no Canadian outside Canada shall knowingly sell, supply or transfer

2. Notice of application available at: www.cnlo.ca under News, September 23, 2011, "Judicial review filed in Federal Court of Canada on Darlington New Build Joint Review Panel Report".
3. Ontario Court of Appeal decision dated 12 April 2011 (2011 ONCA 287) which upheld the convictions imposed at trial and which modified the sentence.
4. S.C. 1997, c. 9.
5. R.S.C., 1985, c. U-2.
6. International Atomic Energy Agency (IAEA) – Information Circular INFCIRC/254/Rev.7/Part 2. "Communications Received from Certain Member States Regarding Guidelines for Transfers of Nuclear-related Dual-use Equipment, Materials, Software and Related Technology".

to any person in Iran or for the benefit of Iran, [A]ll products that appear in Information Circular INFCIRC/254/Rev.7/Part 2, entitled "Communications Received from Certain Member States Regarding Guidelines for Transfers of Nuclear-related Dual-use Equipment, Materials, Software and Related Technology" set out in the Security Council of the United Nations document S/2006/814.[7]

Secondly, the NSG Guidelines are incorporated into the general export control law in Canada, both under the Export and Import Permits Act[8] and the Nuclear Safety and Control Act.[9] Under these instruments, authorisation is required in order to export from Canada these nuclear-related dual-use items.

One such item, pressure transducers, are devices that convert a pressure measurement into an electrical signal that can be recorded or displayed on a computer. They have a wide variety of commercial applications. In addition, they can also be an essential component in the enrichment of uranium through the gas centrifugation method.

While the possession of this equipment in Canada does not itself require a licence or permit, because of their potential for use in enrichment processes, pressure transducers are considered nuclear-related dual-use items and are itemised in the NSG Guidelines. Given the incorporation into Canadian law of the NSG Guidelines as noted above, export of pressure transducers is generally subject to licensing, and it is prohibited to export them to Iran.

Mr. Mahmoud Yadegari is a Canadian born in Iran who resided in and ran his business from Toronto, Canada. Through his company, Mr. Yadegari purchased ten Setra pressure transducers from the Canadian distributor Alpha Controls and Instrumentation on 18 December 2008. On 23 February 2009, the order was sent to Mr. Yadegari. Each of the ten pressure transducers sold for CAD 1 109. Mr. Yadegari also tried to obtain a number of transducers from Pfeiffer, a manufacturer based in Germany. On 19 March 2009, the order was cancelled by Pfeiffer due to "in-house export restrictions", since Pfeiffer did not accept the end-use certificates filed by Mr. Yadegari.

Ontario Court of Justice decision

In July 2010, Mr. Yadegari was found guilty of nine of the ten charges laid against him relating to the attempted export of the pressure transducers to Iran.[10] He was acquitted of one count of forgery. He was sentenced to 20 months' imprisonment, which reflected a double credit for the pre-conviction time that he had been in custody.

As noted above, a case summary of the trial decision may be found in *Nuclear Law Bulletin* No. 86, Volume 2010/2. That summary noted that Mr. Yadegari had filed a Notice of Appeal seeking to challenge both the convictions as well as the sentence imposed.

7. SOR/2007-44, paragraph 3(e).
8. R.S.C. 1985, c E-19. See the Export Control List, SOR/89-202, Group 4, Nuclear-related Dual Use, which incorporate the NSG Guidelines directly.
9. *Supra*, note 2. See the Schedule to the Nuclear Non-proliferation Import and Export Control Regulations, SOR/2000-210, which incorporates "in rearranged form and with some modifications", the NSG Guidelines.
10. Her Majesty the Queen v. Yadegari, Ontario Court of Justice per Madam Justice Cathy Mocha, 6 July 2010, sentencing decision of 29 July 2010.

Ontario Court of Appeal decision

At trial, most of the pertinent facts had been uncontested. The issue for the trial judge was what inferences could reasonably be drawn from the undisputed facts. On appeal, the arguments before the court related to whether there had been reasonable conclusions of law drawn from those undisputed facts.

- NSG technical specifications

The process of uranium enrichment involves exposure to corrosive gases. In order for a pressure transducer to be used in this process, it must be made of a substance that is resistant to gas corrosion, like nickel or a nickel alloy. On appeal, Mr. Yadegari admitted that he attempted to export the pressure transducers from Canada; however, he renewed the argument he had advanced at trial that the nickel content and the accuracy requirements of the technical specifications as defined in the law did not apply to the transducers that he attempted to export, and therefore, that the transducers were not restricted goods within the meaning of the NSG Guidelines as implemented in Canadian law.

The Court of Appeal found that the definition of pressure transducers in Canadian law was concerned "only with the accuracy of pressure transducers within the range suitable for use in uranium enrichment processes, that is, between 0 and 13 kPa". Since Mr. Yadegari did not contest that the seized transducers were capable of measuring absolute pressure within this range, this fell easily within the accuracy requirement of the technical specifications of the pressure transducers, as set out in the NSG Guidelines and incorporated into Canadian law. The court interpreted the accuracy requirement as relating to the range that was "critical in the centrifugal uranium enrichment process".

- UN offence – reasonableness of conviction

Mr. Yadegari's second argument against conviction related to the conviction under the UN Act, for "attempting to knowingly sell, supply or transfer restricted goods to a person in Iran or for the benefit of Iran, without first obtaining a certificate of exemption". Mr. Yadegari argued that since the evidence at trial proved neither the location of the intended purchaser of the transducers nor his own knowledge of that location beyond a reasonable doubt, it was not reasonable to convict him of this charge.

The court disagreed, noting that while the case on this count was largely circumstantial, viewed cumulatively, there was "ample evidence" for the trial judge's conclusion. The test for determining the reasonableness of a verdict is well-settled in Canadian criminal law to be that, if a well-instructed jury, acting judicially could reasonably have rendered the verdict in question, then it cannot be found to be unreasonable. In explaining why the Crown had established beyond a reasonable doubt that Mr. Yadegari had sought to supply the transducers to "a person in Iran", the Court of Appeal listed the pieces of evidence that, considered together, satisfied the test.

The Court of Appeal was satisfied that the link to Iran had been well-established in the evidence before the trial judge, making the conviction under the UN Act reasonable.

- Appeal against sentence

The trial judge had sentenced Mr. Yadegari to 39 months' imprisonment on the UN offence, reducing this by the 31 months' credit for the time he had served.[11] Mr. Yadegari argued on appeal that this was unreasonable, that it had not been established that he knew the transducers were destined for a uranium enrichment programme, and that this level of knowledge had resulted in a too-harsh sentence.

In her sentencing decision, the trial judge had found:

> *Let me first clarify my findings about Mr. Yadegari's proven level of knowledge. Mr. Yadegari knew that Mr. Tabari did not want to be forthcoming about where the transducers were ultimately going and how they were to be used, hence the falsified end-use certificate. Mr. Yadegari knew that Mr. Tabari was in Iran. Mr. Yadegari knew or was wilfully blind about the properties of these pressure transducers. Mr. Yadegari made a false statement to Customs, forged a waybill and used a forged end-use certificate in his attempts to get these transducers to Iran. These are not the actions of a person who believes the product is for a legitimate purpose, and the only illegal purpose for these transducers is the enrichment of uranium. [emphasis added]*

The Court of Appeal found that the trial judge erred in making this determination as a basis for her sentencing, concluding that "the evidence provided no basis for the trial judge to infer that the 'only' illegal purpose for the transducers was the enrichment of uranium and, more importantly, that the appellant was aware of this presumed tie to uranium enrichment".

Nonetheless, the Court of Appeal was satisfied that the trial judge had adequately considered the applicable mitigating factors on sentencing, and had appropriately emphasised the importance of deterrence in her sentencing reasons. The Court of Appeal noted the following:

> *The appellant's conduct was serious, especially in relation to the UN and the EIPA and the NSCA offences. The trial judge correctly emphasized that general deterrence was of 'paramount importance', given the potential harm involved in the appellant's offences. She also noted that the appellant was persistent in obtaining the transducers, as well as quotes for many others, and deceptive in his attempt to export them. She held that the sentence imposed should promote a sense of responsibility in the offender, and acknowledge the potential harm to the global community. I agree.*

In the result, the Court of Appeal decided to slightly reduce the sentence for the UN offence, in recognition of the error by the trial judge in finding that the transducers were, in fact, to be used for a nuclear-related purpose. The Court of Appeal concluded:

> *In the particular circumstances of this case, including the appellant's position as a first offender, his subordinate position and role compared to that of Mr. Tabari, the consequences already suffered by the appellant as a result of his criminal conduct and the Crown's admitted failure to prove that the transducers were in fact intended for use in the process of uranium enrichment in Iran, it is my opinion that a fit sentence on the UN offence is three years imprisonment. After credit of 31 months for pre-sentence detention, this results in a sentence of five months' imprisonment for this offence.*

This represented a reduction of 3 months' imprisonment from the original.

11. The sentences for some of the other convictions were to be served concurrently, including 6 months' imprisonment for the offence under the Nuclear Safety and Control Act, whereas some were to be served consecutively, namely, offences under the Customs Act and the Criminal Code.

Conclusion

The Ontario Court of Appeal was tasked in this case with interpreting, in the context of Canadian law, highly technical specifications that were crafted not by Canadian legislative drafters but by the member countries of the NSG. Inasmuch as Canadian law has incorporated the text of the NSG Guidelines without substantive change, it is instructive to see that the court has interpreted the pressure transducer provision in a purposive manner. That is, the court noted that the intention of the specifications is to establish categories of restricted goods in order to reduce the threat of nuclear weapon proliferation. The court thereby found that "it is precisely this type of pressure transducer that the export restrictions are intended to capture" and thereby ensured that its interpretation furthered this purpose.

Over time, as the NSG may amend and alter the language used in the entries it has created, it is doubtless of use to review how national courts in member countries interpret the provisions as they have been incorporated into domestic law.

One may see from this decision that the Ontario Court of Appeal was very mindful of the overriding purpose of the items that list the controlled goods – non-proliferation. This, along with an appreciation of the consequences of preferring one interpretation over another, appears to have been decisive in the court's giving meaning to the specifications that were at issue in this case. The context and explanatory parts of the specifications appear to have been very important to guide the court in its function of giving meaning to the technical language, in a real-life fact situation.

European Commission

Greenland cases

By order of the Court of Justice of the European Union (5th Chamber) of 12 January 2011, the court dismissed three appeals in joined cases (C-205/10 P, C-217-10 P and C-222/10 P) against orders of the General Court (T-516/08, T-5/09 and T-6/09), in which three claims for damages against the European Commission for the Commission's failure to adopt measures against a member state were dismissed for "manifestly lacking any foundation in law".[12]

The cases were brought against the European Commission by Danish workers (or their successors) who were involved in clean-up activities after a US military plane crashed near Thule, Greenland in 1968. The plane was carrying nuclear materials that caused widespread pollution. The plantiffs argued that their subsequent illnesses (or death) were a result of their involvement in this incident, which entitled them to damages.

The court argued that there was no unlawful conduct on the side of the European Commission by not adopting measures against the Kingdom of Denmark in order to comply with Council Directive 96/29/Euratom of 13 May 1996 that established basic safety standards for the protection of the health of workers and the general public against dangers from ionising radiation.

The court pointed out that the European Commission's only possibility to act was to bring an infringement procedure against the member state. As this was a discretionary power, not a legal obligation, there was no unlawful act that could have entitled the appellants to damages.

12. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62010CO0205:EN:NOT.

It should also be noted that the Euratom Treaty does not apply to military events and that in 1968 Denmark (of which Greenland was a part) was neither a member of the European Atomic Energy Community (Euratom) or the European Economic Community (now European Union).

France

Chernobyl accident – decision of dismissal of the Court of Appeal of Paris

Following the explosion of reactor number 4 at the Chernobyl nuclear power station on 26 April 1986, a complaint for "involuntary grievous bodily harm" was lodged against X in March 2001 by the French Association of Thyroid Disease Sufferers (AFMT), the French Commission for Independent Research and Information on Radioactivity (CRIIRAD) and individuals with thyroid-related illnesses. All of the complainants thought that these authorities had minimised the significance of radioactive pollution in France and that they were therefore responsible for an increase of thyroid-related illnesses since 1986.

The elements of "involuntary grievous bodily harm" were not satisfied according to the judge, who argued that the increase of thyroid-related illnesses in France since 1986 was not significant. She however decided to arraign Pr. Pierre Pellerin, the former manager of the Central Department for Protection against Ionising Radiation (SCPRI), for "aggravated deceit".

SCPRI was responsible for organising, centralising and interpreting the measurements of radioactivity and for communicating its conclusions to the authorities and to the media. The trial judge ruled that, as part of his functions, Pierre Pellerin had minimised the risks linked to the explosion at Chernobyl, notably through repeated lies and deliberate omissions. Moreover, he would have used debatable methods to measure levels of radioactivity, not taking into account the highest measures (notably those relating to both Corsican departments) or excluding pluviometry from its field of study.

The Paris Court of Appeal, however, dismissed the case against Pierre Pellerin in a decision taken on 7 September 2011. The judge notably ruled that it was not demonstrated that Pierre Pellerin had in bad faith given wrong, inexact or substantially inaccurate information, failed to provide appropriate controls of foodstuffs tainted by radioactivity or failed to take precautions after the explosion at the Chernobyl nuclear power station, and that, as a result, the disputed facts cannot satisfy the elements of deceit or other crimes.

The plaintiffs may appeal to the Court of Cassation; this decision is not final.

Slovak Republic

Aarhus Convention compliance update

On 1 July 2009, the Austrian non-governmental organisation (NGO) Global 2000 (Friends of the Earth Austria), Friends of the Mother Earth, and VIA IURIS, and with the legal support of Ökobüro, submitted a communication to the Compliance Committee of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) alleging failure by the Slovak Republic to comply with its obligations under the Aarhus Convention.

The Compliance Committee found that the Slovak Republic failed to provide for early and effective public participation in the decision-making process with respect to a 2008 decision taken by the Slovak Nuclear Regulatory Authority (*Úrad Jadrového Dozoru* – UJD) to grant a construction permit additional to one granted in 1986 regarding units 3 and 4 of the Mochovce nuclear power plant. The final decisions of the Compliance Committee were adopted on 17 December 2010.

The Compliance Committee recommended in its final report that the state parties to the Aarhus Convention:

- …[R]ecommend to [the Slovak Republic] to review its legal framework so as to ensure that early and effective public participation is provided for in its decision-making when old permits are reconsidered or updated or the activities are changed or extended compared to previous conditions, in accordance with the Convention;
- Invite the Slovak Republic to submit to the committee a progress report on 1 December 2011 and an implementation report on 1 December 2012 on achieving the recommendation above.[13]

The report of the Compliance Committee and additional background information on this matter may be found on the United Nations Economic Commission for Europe and Aarhus Convention Compliance Committee website: http://live.unece.org/env/pp/compliance/Compliancecommittee/41TableSlovakia.html.

United States

Judgement of a US court of appeals upholding the NRC's dismissal of challenges to the renewal of the operating licence for Oyster Creek Nuclear Generating Station

This case concerns challenges brought by several organisations to the relicensing of the Oyster Creek Nuclear Generating Station.[14] In particular, the organisations petitioned for review of three Nuclear Regulatory Commission (NRC) decisions that dismissed challenges to: 1) the adequacy of the licensee-operator's (licensee) ultrasonic testing corrosion monitoring programme, 2) the adequacy of the minimum required thickness for the plant's drywell shell, 3) the scope of the ultrasonic testing monitoring programme, 4) the adequacy of the licensee's ultrasonic testing monitoring frequency, and 5) the NRC's refusal to reopen the administrative record to allow new metal fatigue evidence to be introduced. The Third Circuit Federal Court of Appeals (Third Circuit or court) upheld the NRC's dismissal of these challenges and its renewal of the licence.

Oyster Creek was originally licensed for a 40-year term in 1969. When the licensee applied to renew its licence for a 20-year period in 2005, the organisations challenging the action raised concerns regarding corrosion in the drywell shell — the steel containment structure that surrounds the reactor vessel — because some corrosion had occurred on the outer wall of this structure during the 1980s. After discovering this occurrence, the licensee took mitigative actions and concluded,

13. United Nations Economic and Social Council Meeting of the Parties to the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, Report of the Compliance Committee Addendum Findings and recommendations with regard to communication ACCC/C/2009/41 concerning compliance by the Slovak Republic (adopted by the Compliance Committee on 17 December 2010). ECE/MP.PP/2011/11/Add.3, 12 May 2011, p. 12.
14. New Jersey Environmental Federation v. US Nuclear Regulatory Commission, 645 F.3d 220 (3d Cir. 2011).

following ultrasonic testing, that the corrosion had stopped. As part of the ageing management commitments in its renewal application, the licensee committed to perform full sand bed region inspections, including ultrasonic testing and visual inspections of the drywell shell epoxy coating, before relicensing and periodically thereafter; trench monitoring in the drywell shell to ensure that no water is present; and 3-D structural analysis of the drywell shell. The licensee later supplemented these commitments by expanding the scope of the periodic ultrasonic testing to the portion of the drywell shell embedded in the sand bed region. The organisations filed new challenges to this supplemented plan in the relicensing proceeding, claiming that its implementation could not ensure adequate safety margins.

The Third Circuit ruled that the NRC properly rejected the challenges to the adequacy of the corrosion monitoring programme for the embedded region of the drywell shell, the minimum thickness criteria for the drywell shell, and the scope and frequency of the ultrasonic testing monitoring because they were filed after the initial deadline for contentions and were not based on new, previously unavailable information. Regarding the organisations' assertion that the NRC's refusal to reopen the administrative record to litigate a proposed contention on metal fatigue violated their hearing rights under the US Atomic Energy Act, the Third Circuit ruled that the NRC reasonably applied the elevated pleading standards in its regulation governing the reopening of a closed record. The organisations failed to meet the heightened standards for untimely filing or to demonstrate the safety significance of their challenge to the methodology used for calculating metal fatigue. Finally, the court declined to disturb the NRC's denial of the organisations' petition to find the NRC staff's (Staff) review inadequate, suspend the relicensing proceeding, and overhaul the Staff's review procedures. In so ruling, the court deferred to the NRC's conclusion that its regulations require disputes to be raised with an applicant's submissions, not with the Staff's review. The court concluded, based on the comprehensive record documenting its decision, that the NRC did not abuse its discretion in rejecting the challenges to the Oyster Creek licence renewal. Finally, it is worth noting that, prior to rendering its decision. The court *sua sponte* had sought comment from the parties on the propriety of granting licence renewal to the Oyster Creek plant in light of the accident at Fukushima Daiichi, but the court stated in its decision that the events in Japan did not provide a basis for granting the petition for review.[15]

Review of the proposed high-level waste repository at Yucca Mountain

On 1 July 2011, the District of Columbia Circuit Court of Appeals dismissed petitions challenging the Department of Energy's (DOE) attempt to withdraw its application for a licence to construct a repository for high level nuclear waste at Yucca Mountain.[16] The petitioners, several state and local governments and individual citizens, also challenged the DOE's apparent decision to abandon development of the repository. They pointed to the DOE's motion to withdraw that was filed before the Nuclear Regulatory Commission's (NRC) Atomic Safety and Licensing Board as a final agency action appropriate for the DC circuit's review.[17] The court disagreed with the petitioners and ruled that it lacked jurisdiction to rule on their claims because the NRC had not yet acted on the DOE's withdrawal motion

15. *Id.* at 222 n.1.
16. In re Aiken County, 645 F.3d 428 (DC Cir. 2011).
17. The Atomic Safety and Licensing Board denied the DOE's motion to withdraw with prejudice in US Department of Energy (High-Level Waste Repository), LBP-10-11, 71 NRC __ (29 June, 2010) (slip op.). On 30 June 2010, the NRC invited hearing participants to submit briefs on whether the Licensing Board's decision should be reviewed, and reversed or upheld.

or on its licence application. Petitioners' claims were not ripe, the court decided, because the Atomic Safety and Licensing Board's review of the application and the NRC's review of DOE's withdrawal motion were not yet complete. Indeed, the results of either of these reviews could moot petitioners' challenge to the DOE's motion to withdraw. Regarding petitioners' second claim that the DOE unlawfully ceased its pursuit of a licence to construct a repository at Yucca Mountain, the court determined that DOE had taken no legally consequential action that was subject to judicial review. In particular, the DOE policy announcement that petitioners pointed to in support of their claims was not a final agency action under the relevant provisions of the Nuclear Waste Policy Act and the Administrative Procedure Act.

On 9 September 2011, the NRC issued an order stating that it was evenly divided on whether to overturn or uphold the Atomic Safety and Licensing Board's decision to deny the DOE's motion to withdraw its application.[18] Due to budgetary limitations associated with the high-level waste programme, the NRC directed the Licensing Board to complete necessary case management activities, such as disposing of matters pending before it and documenting the history of the proceeding, before the fiscal year ended on 30 September 2011. As part of the NRC's orderly close-out of Yucca Mountain-related activities, the NRC staff issued three technical evaluation reports (TER) detailing the NRC staff's technical review of information in the DOE application on 21 July, 1 September, and 12 September 2011. The three volumes of the TER respectively address: repository safety after permanent closure, repository safety before permanent closure, and administrative and programmatic information. These volumes do not include licensing findings on whether NRC regulatory requirements have been satisfied.

18. US Department of Energy (High-Level Waste Repository), CLI-11-07, 73 NRC __ (29 June, 2010) (slip op.). Commissioner Apostolakis had recused himself from the adjudication and did not participate in the decision.

National legislative and regulatory activities

Bulgaria

General legislation

Amendments to the Act on the Safe Use of Nuclear Energy (2010)

Amendments made to the Act on the Safe Use of Nuclear Energy (ASUNE) entered into force on 15 October 2010. These amendments provide key updates to Bulgarian legislation in accordance with international standards, taking into account international conventions and treaties, new EU legislation, new or modified documents from the IAEA as well as practical experience in applying the ASUNE itself.

Most of these amendments relate to licensing with a number of provisions revised for better understanding or implementation. The provisions of a number of new documents were incorporated, such as Council Directive 2009/71 Euratom of 25 June 2009 establishing a Community framework for the safety of nuclear installations[1] and IAEA requirements for an integrated management system. Only a small number of changes were required to transpose this Euratom Directive into national legislation. With regard to the IAEA requirements, licensees are now obliged to establish and manage a system which will provide an integrated approach to ensuring safety and an appropriate safety culture. A new licensing regime has been established for the import and export of items involving sources of ionising radiation (i.e. other than "dual-use" items). Lastly, a decommissioning license is now required instead of a series of decommissioning permits to ensure licensee responsibility throughout the entire decommissioning process. The license shall be issued for up to ten years and shall be renewed on the basis of a satisfactory safety reassessment.

Physical protection provisions have been supplemented to require licensees to perform a threat assessment of nuclear material, including an assessment of the risk of theft, sabotage or other unauthorised diversion. In addition, physical protection information is now protected as sensitive information for official use only. Safeguards arrangements have also been amended to reflect the IAEA-Euratom–Bulgaria Agreement and additional protocol.

Radioactive waste management provisions have also been modified to take into account plans for the construction of a national radioactive waste repository, including the procedure for acquiring the land necessary for that purpose. The repository is designated as a site of national significance, thus invoking special protection measures such as limited access to the site, protection of relevant information and special attention to national security issues.

The amendments also clarify the allocation of enforcement measures, providing that regulatory inspectors shall enforce measures concerning technological operations while the Chairman of the Nuclear Regulatory Agency shall enforce measures such as testing of an installation, products, systems or components,

1. OJ L 172, 02/07/2009.

alteration of established operating limits and conditions and modifications of design and structures relevant to nuclear safety.

Lastly, the 2010 amendments provide for the succession of rights and responsibilities in case of the transfer of ownership of an installation or the bankruptcy of the licensee.

Czech Republic

General legislation

Amendments to the Act on Peaceful Use of Nuclear Energy of 1997 (introduction of administrative fees in the licensing process) (2011)[2]

The Czech Republic ranks among those member states of the European Union which plan to multiply its number of nuclear power plants in the future.[3] In July 2008, the company CEZ announced its plan to build two more reactors at the Temelin site, with a construction start in 2013 and commissioning of the first unit in 2020. The strategic document "Politics of Regional Development of 2008" envisages construction of a third nuclear power plant in Northern Moravia, at the site of Blahutovice (project "Allegro").

It has been acknowledged that the licensing processes necessary for these new installations will constitute a major financial burden for the State Nuclear Safety Authority, which was, until recently, financed exclusively from the state budget. This arrangement contrasts with the current situation in several nuclear countries, as can be seen from the table below.

Country	Nuclear regulatory authority	Annual budget	Financial contribution from operators
Canada	CNSC	CAD 90 million	70%
Finland	STUK	EUR 36 million	60%
France	ASN	EUR 59 million	100%
Hungary	HAEA	HUF 1.8 million	80%
Slovak Republic	ÚJD	EUR 5 million	80%
United Kingdom	HSE/NII	GBP 22 million	100%
USA	NRC	USD 1.1 billion	90%

Consequently, the Act on the Peaceful Use of Nuclear Energy of 1997 was amended to include a set of administrative fees to be paid by the investor/licensee (other than scientific or medical institutions and universities) when applying for a licence from the State Nuclear Safety Authority:

- up to CZK 30 million for a site licence;
- up to CZK 150 million for a construction licence;
- up to CZK 60 million for an operating licence; and
- up to CZK 60 million for a decommissioning licence.

The amendments entered into force on 30 August 2011.

2. Act No. 249/2011 Coll. of 20 July 2011.
3. A very recent draft of the new State Energy Policy, which is still under discussion, expects massive development of nuclear capacity in the Czech Republic. According to this draft, nuclear will produce 90 percent of electricity until the year 2060. The final version of the Policy will be submitted to the Government at the end of 2011.

Amendments to the Act on Peaceful Use of Nuclear Energy of 1997 (2011) (financial support of municipalities affected by the licensing of a deep geological radioactive waste repository)[4]

There are three operating radioactive waste repositories in the Czech Republic (Dukovany, Richard near Litoměřice and Bratrství in Jáchymov)[5] all of which are owned by the state and managed by the Radioactive Waste Repository Authority,[6] which is responsible for the safe disposal of all radioactive waste in the Czech Republic.

The Act on the Peaceful Use of Nuclear Energy of 1997 provides that the Radioactive Waste Repository Authority may grant financial support to those municipalities affected by an existing repository. However, under the amendment, financial support will now also be available to municipalities affected by the licensing processes laid down in the Act No. 62/1988 Coll. on Geological Works. For example, if an exploration permit is granted by a competent mining authority, an affected municipality which did not make a claim against this permit may seek financial support from the Authority. The sum is to be paid from the "nuclear fund", created by contributions from radioactive waste generators to cover the costs of the final phase of the nuclear fuel cycle. The amount shall not exceed CZK 3 million and the final sum is to be set according to the size of the exploration area. Details are to be specified in a special decree of the government. The amendment entered into force on 15 September 2011.

Currently, it is expected that exploratory geological works will begin at 4 sites and that about 24 municipalities will be concerned. The total amount of financial support granted to concerned municipalities shall not, according to existing calculations, exceed 30 million CZK. It is expected that concerned municipalities will use this financial support for development and infrastructure projects.

France

General legislation

Changes to the Code of Energy regarding International Organisations

Decree 2011-607 of 30 May 2011 relating to the Euratom Technical Committee allows for a strengthening of the legal basis of the Euratom Technical Committee (CTE) which until now has been based on decree 2005-1283 of 17 October 2005 concerning the General Secretariat of European Affairs (SGAE) and on the SGAE circular dated 24 October 2005.

The mission of the CTE, under the authority of the Prime Minister, is the following:

- to ensure the proper monitoring of the implementation of the international controls over nuclear material exercised in France by the European Commission and the International Atomic Energy Agency (IAEA);

4. Act No. 250/2011 Coll. of 20 July 2011.
5. The Richard repository near Litoměřice is currently used for the disposal of institutional waste. The Dukovany repository is used for waste generated by Czech nuclear power plants and the Bratrství repository for the disposal of waste containing only naturally occurring radionuclides.
6. The Radioactive Waste Repository Authority (*Správa úložišť radoaktivního odpadu*, SÚRAO) was established as a special state authority, subordinate to the Ministry of Industry and Trade.

- to look after the implementation by France of the additional protocol, an agreement between France, the European Atomic Energy Community (Euratom) and the IAEA relating to the application of safeguards in France, signed in Vienna on 22 September 1998;
- to ensure the monitoring of the implementation of international commitments signed by France in the nuclear domain, as well as part of agreements concerning the supply of nuclear material, equipment or technologies; and
- to bring to SGAE the technical support necessary for the exercise of its responsibilities, for questions relating to the application of the Euratom treaty.

Regulatory infrastructure and activity

Nuclear Safety Authority (ASN) Resolution (No. 2011-DC-0242) dated 27 September subjecting the restarting of the melting or incineration furnaces of basic nuclear installation 160 (Centraco) to prior authorization by ASN following the accident that occurred on 12 September 2011

Following the accident[7] that occurred on 12 September 2011 in an incineration furnace at the Centraco installation that caused the death of one employee and injured four others, the restarting of the ovens at the Centraco No. 160 installation is subject to prior approval by the Nuclear Safety Authority, without prejudice to the judicial proceeding.

To this end, the operator must provide all of the assurances necessary to ensure that this will be done in a safe and satisfactory manner.

The ASN has a website page dedicated to the accident at the Centraco facility (available only in French): www.asn.fr/index.php/L-ASN-en-region/Division-de-Marseille/Gestion-des-dechets-nucleaires/CENTRACO.

Germany

General legislation

Legislative package on the change of energy policy; 13th Amendment to the Atomic Energy Act (2011)[8]

As a consequence of the Fukushima nuclear accident, the German Federal Government initiated a comprehensive re-assessment of the safety of German nuclear power plants. The Reactor Safety Commission was entrusted with performing safety checks at all nuclear power plants in Germany. Moreover, the

7. The event has been classified at level 1 on the INES Scale as a result of the low radiological activity of the incineration furnace.
8. Act on the Peaceful Utilisation of Atomic Energy and the Protection against its Hazards (Atomic Energy Act) of 23 December 1959, as amended and promulgated on 15 July 1985, last amended by the act of 8 November 2011. This text is available in English at: www.bfs.de/de/bfs/recht/rsh/volltext/A1_Englisch/A1_11_11_AtG.pdf.

newly established *Ethikkommission* discussed the social implications of the risk posed by nuclear energy in comparison to the possibility of a quick transition to renewable energy. The result was a turnaround in German energy policy, the so-called *Energiewende*. The *Energiewende* is aimed at replacing fossil and nuclear energy sources completely as quickly as possible with renewable energy sources, such as wind energy, water energy, solar energy, biogas energy and geothermic energy.

In order to implement this programme, the German Parliament issued a number of acts:

- Act on the Promotion of Climate Protection in Connection with the Development of Towns and Municipalities of 22 July 2011 (*Bundesgesetzblatt* 2011 I, p. 1 509). Entry into force: 30 July 2011.
- Act on the Amendment of Provisions Relating to Energy of 28 July 2011 (*Bundesgesetzblatt* 2011 I p. 1 554). Entry into force: 4 August 2011.
- Act on the Revision of the Legal Framework for Promoting Electricity Production by Renewable Energies of 28 July 2011 (*Bundesgesetzblatt* 2011 I p. 1 634). Entry into force: 1 January 2012 and 1 September 2011 respectively.
- Act on Measures to Expedite the Extension of the Electricity Grid of 28 July 2011 (*Bundesgesetzblatt* 2011 I p. 1 690). Entry into force: 5 August 2011 and 5 February 2012 respectively.
- Act to Amend the Act on Establishing a Special Fund "Energy and Climate Fund" of 29 July 2011 (*Bundesgesetzblatt* 2011 I p. 1 702). Entry into force: 6 August 2011.
- 13th Act to Amend the Atomic Energy Act of 31 July 2011 (*Bundesgesetzblatt* 2011 I p. 1 704). Entry into force: 6 August 2011.

The 13th Act to Amend the Atomic Energy Act not only reversed the extension of the operating lifetime of the 17 German nuclear power plants which had been established as recently as 8 December 2010 (*Nuclear Law Bulletin* No. 86, p. 76) but it puts an end to the generation of electricity by nuclear power at a date which is even earlier than that foreseen in the so-called phase-out legislation of 2002 (see *Nuclear Law Bulletin* No. 69, p. 76).[9]

According to the amended version of Section 7 paragraph 1a of the Atomic Energy Act, the licence to operate a nuclear fission installation with a view to commercially generating electricity expires when the electricity volume for that installation is as listed in Appendix 3, column 2, or if the additional electricity volume derived from transfers pursuant to Section 7 paragraph 1b has been produced. Irrespective of this general rule, the act fixes final dates for the end of operation of each individual German nuclear power plant with the last plants to be shut down not later than 31 December 2022 (Section 7 paragraph 1a).

9. See also Vorwerk, A., "The 2002 Amendment to the German Atomic Energy Act Concerning the Phase-out of Nuclear Power", *Nuclear Law Bulletin* No. 69 (2002/1), pp. 7-14.

India

Liability and compensation

The Civil Liability for Nuclear Damage Act 2010 (Act)[10] *and the Civil Liability for Nuclear Damage Rules, 2011 (Rules)*[11]

The Act and Rules entered into force on 11 November 2011. The Rules establish the procedural framework for implementing the provisions of the Act according to the following outline:

- Insurance and Financial Security (Chapter II, Rule 3).
- Report of Nuclear Incident (Chapter III, Rules 4 and 5).
- Adjudication of Claims (Chapter IV, Rules 6 to 23).
- Right of Recourse (Chapter V, Rule 24).

Insurance and financial security

The operator of a nuclear installation is required to obtain insurance or financial security or a combination of both before beginning operation of a nuclear installation (Section 8 of the Act).[12] The Rules clarify that such financial arrangement shall be irrevocable and shall continue until all spent fuel is removed from the spent fuel storage pool of the nuclear installation.[13]

Instruments constituting financial security have to be pledged with the central government until the decommissioning of the plant. The Rules also provide that "a security margin of 1:1:33 shall be maintained during pledge and in the event of any shortfall in security so calculated shall be immediately made good by the operator by providing insurance or additional financial security to the extent of shortfall".[14]

It is interesting to note that the Rules allow multiple operators to enter into a joint arrangement for financial security through contributions in proportion to each operator's individual installed capacity in thermal megawatts.[15]

Section 7(3) of the Act and Rule 3(5) state that the requirements relating to insurance and financial security do not apply to nuclear installations owned by the central government. The Atomic Energy Act 1962 as amended by the Atomic Energy Act 1987 only permits the government, an authority or corporation established by the government or a "government company" to be a nuclear operator in India. Whereas all nuclear power plants in India are owned by a "government company", these provisions relating to insurance and financial security do not apply, at this time, to nuclear operators in India.

10. A summary of the "Civil Liability for Nuclear Damage Act 2010" is provided in the *Nuclear Law Bulletin* No. 86 (2010/2). Text of the Act reproduced on pp. 145-162 of this bulletin and can be accessed at: www.dae.gov.in/rules/civilnucliab.pdf.
11. Text of the Rules reproduced on pp. 163-171 of this bulletin. The complete text of the Rules can be accessed at: www.npcil.nic.in/pdf/Civil_Nuclear_Liability.pdf.
12. The liability of the operator of nuclear installations is defined in Section 6 of the Act.
13. Rules 3(1) and (2).
14. Rule 3(3).
15. Rule 3(4).

Report of nuclear incidents

An operator is required to report immediately the occurrence of a nuclear incident at its nuclear installation or during transportation of nuclear material to the central government, the insurer of the nuclear installation (if such facility is insured), and to the Atomic Energy Regulatory Board (AERB) when such nuclear installation is under its jurisdiction.[16]

In case of a nuclear incident at a nuclear installation which is not under AERB's jurisdiction, the Rules obligate the operator to report a nuclear accident directly to the central government. The central government reviews the report and forwards it, together with its observations, to the AERB.[17]

The AERB is required to notify (i.e. to publish the notification in the Official Gazette) the occurrence of such nuclear incident within a period of 15 days from the date of its occurrence (i.e. not the date of the receipt of report) except if it considers that the threat and risk of harm involved are insignificant.[18]

If a claim arising out of a notified nuclear incident is filed, the claims adjudication authority shall request a detailed report from the licensing authorities regarding the licence of the concerned operator.[19]

Adjudication of claims

The Rules contain detailed provisions relating to the compensation procedure including who can file an application for compensation, the documents required to file a claim, the procedure for the claims adjudication process including the appearance and examination of parties, guidance for the framing and determination of issues, and the method of recording evidence. The Rules also cover the procedure for awarding compensation and securing the interest of claimants.[20]

Right of recourse

One of the most debated provisions in the Act pertains to the operator's right of recourse against a supplier as provided in Sections 17(a) and (b) of the Act. Section 24 of the Rules provides some clarification on this issue which may be summarised as follows:

- A contract shall include a provision for right of recourse for not less than the extent of the operator's liability under Section 6(2) of the Act or the value of the contract itself, whichever is less.
- The provision for right of recourse referred to above shall be for the duration of the initial license issued under the Atomic Energy (Radiation Protection) Rules 2004[21] (i.e. five years from the date of issue of the license, unless otherwise specified) or the product liability period, whichever is longer.

16. Rule 4(1).
17. Rule 4(2).
18. Sections 2(f) and 3(1) of the Act.
19. Rule 5.
20. The Rules, Chapter IV, Rules 9-23.
21. Rule 9 of the Atomic Energy (Radiation Protection) Rules, 2004, www.dae.gov.in/rules/rpr2004.pdf.

Rule 24 also defines the terms "Product Liability Period" and "Supplier", which were not defined in the Act, as follows:

- "Product Liability Period" means the period for which the supplier has undertaken liability for patent or latent defects or sub-standard services under a contract.
- "Supplier" shall include a person who:
  - manufactures and supplies, either directly or through an agent, a system, equipment or component or builds a structure on the basis of functional specification; or
  - provides build to print or detailed design specifications to a vendor for manufacturing a system, equipment or component or building a structure and is responsible to the operator for design and quality assurance;
  - or provides quality assurances or design services.

Rule 24 thus assigns a broad definition to the term "supplier" as any person who is part of the production chain of components provided to the power plant meets the definition of a "supplier." The operator may therefore be entitled to sue any or all suppliers for damages under a "right of recourse" claim.

The Rules do not clarify, however, the provisions of Section 17(b) of the Act relating to the operator's right of recourse against the supplier when a nuclear accident resulted as a consequence of an act of a supplier or the supplier's employee, including the supply of equipment or material with patent or latent defects or sub-standard services. In addition, the Rules do not clarify the provisions of Section 17(c) relating to an operator's right of recourse when the nuclear incident results from an act or omission of an individual done with the intent to cause nuclear damage.

The implications of Rule 24 in light of Section 17 of the Act may be summarised as follows:

- A supplier can now confine liability to a specific time period, provided such right of recourse is expressly mentioned in a contract in writing. The specific time period is articulated as the period of the initial license issued under the Atomic Energy (Radiation Protection) Rules, which is five years, or the product liability period. The Rules thus restrict the right of recourse to either the duration of the initial license (which shall be issued upon commissioning) or the product liability period, whichever is longer.
- A supplier is exposed only to the extent of the operator's liability under Section 6(2)[22] of the Act if the contract so stipulates or the value of the contract itself (the latter being expected to be the most frequently used option), whichever is less.

22. Section 6(2) of the Act: "The liability of a operator for each nuclear incident shall be – In respect of nuclear reactors having thermal power equal to or above ten MW, rupees 1 500 crores; In respect of spent fuel reprocessing plants, rupees 300 crores; In respect of the research reactors having thermal power below ten MW, fuel cycle facilities other than spent fuel reprocessing plants and transportation of nuclear materials, rupees 100 crores; Provided that the central government may review the amount of operator's liability from time to time and specify by notification, a higher amount under this sub-section; Provided further that the amount of liability shall not include any interest or cost of proceedings."

- Rule 24 appears to apply only to Section 17(a) of the Act (existence of a contract) and offers no interpretation of Section 17(b) and (c) of the Act, thus creating ambiguity regarding the extent of a suppliers' liability under such section.
- If there is no "right of recourse" clause in a contract, the interpretation would be that the supplier has willingly accepted liability in respect to an operator's right of recourse.[23]

It is also important to note that the non-exclusive liability character of the Act[24] – another contentious issue – is not affected by the Rules, thus allowing ordinary citizens to file tort claims against an "operator" or a "supplier" or "both" for damages under other laws in force, in addition to the remedies provided under the Act.

It appears that these Rules have not addressed all issues regarding nuclear civil liability and may leave room for some ambiguity with regard to the extent of suppliers' liability for claims mentioned above and the implication of explanation 2 of Rule 24. Lastly, there appears to be some uncertainty regarding the liability of the suppliers or operators in cases of nuclear incidents which are not notified by the AERB (i.e. the AERB considers the threat and risk involved in a nuclear accident to be insignificant.)[25]

Organisation and structure

The Nuclear Safety Regulatory Authority Bill 2011[26]

On September 2011, the Nuclear Safety Regulatory Authority Bill 2011 was placed before the Lok Sabha (House of the People). The law is in response to assurance given by the Prime Minister to create an independent and autonomous nuclear safety regulator, in the aftermath of the Fukushima nuclear accident in Japan. The Minister in-charge [in the Prime Minister's Office] stated "the Bill was aimed at achieving the highest standards of nuclear safety based on scientific approach, operating experience and best practices followed by the nuclear industry".

Legislatively, the introduction of the bill is the beginning of a long process of consultation within and outside Parliament. When the bill is finally made into law, the Nuclear Safety Regulatory Authority (NSRA) will replace the 28-year-old Atomic Energy Regulatory Board (AERB).

The following important institutions are proposed to be established under the law:

- Council of Nuclear Safety.
- Nuclear Safety Regulatory Authority.
- Appellate Authority.
- Regulatory body(s) for the purpose of national defence and security.

23. Section 17(b) and (c) of the Act.
24. Section 46 of the Act provides that "[t]he 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".
25. Section 3(1) of the Act.
26. This short summary of the bill that has been put out for public discussion highlights important provisions of the draft law. The full text of this draft bill is available at Lok Sabha (House of the People) website: http://164.100.24.219/BillsTexts/LSBillTexts/asintroduced/Nuclear%20Safety%2076%20of%202011.pdf.

Council of Nuclear Safety

The Council's mandate is to oversee and review the overall policies with respect to radiation safety, nuclear safety and any other matters connected with nuclear safety.[27] The Prime Minister will be the Chairperson of the Council whose members will include the Ministers of Environment and Forest, External Affairs (Foreign Affairs), Health, Home Affairs (Internal Affairs), Science and Technology, and others, including eminent experts. The Cabinet Secretary and Chairman of the Atomic Energy Commission are *ex-officio* members of the Council.

Nuclear Safety Regulatory Authority

At present all regulatory functions in respect of the safety of nuclear facilities and materials rest with the Atomic Energy Regulatory Board (AERB). The AERB reports to the Atomic Energy Commission (AEC) on the observance of safety regulations, standards and recommendations in all Department of Atomic Energy (DAE) and non-DAE units. Since the AEC, the highest policy-making authority, and the DAE, under which all nuclear facilities and materials are maintained, are structurally headed by the same official, the regulator reports to an authority led by the same official in charge of the entire nuclear industry. To avoid conflict of interest situations and to remove arguments of weak regulatory oversight, the creation of an independent and autonomous regulatory structure, the Nuclear Safety Regulatory Authority (NSRA) has been proposed.

The primary function of the NSRA is to ensure that the use of radiation and atomic energy is safe for radiation workers, members of the public and the environment. It will be comprised of a chairperson, two full-time members and not more than four part-time members.[28] It will also be empowered to make regulations with the prior approval of the central government. Some of the other proposed changes include:

- The existence of the Council of Nuclear Safety shall not compromise the independence and autonomy of NSRA.[29]
- Excepting programmes under national defence and security, the NSRA will be given wide powers relating to the production, development or use of atomic energy and radiation in all its applications, including the transport (within or outside India), transfer by sale or otherwise, import, export, storage or disposal of nuclear and radioactive material or any other substance or equipment used for the production or use of radiation or atomic energy.[30]
- The AERB will cease to exist with the notification of the establishment of the NRSA.[31]
- Mandatory written consent is to be obtained from NSRA for any activity within its jurisdiction and NSRA has the power to suspend or cancel consent.[32]
- The NSRA is to ensure transparency by systematic public outreach on matters relating to nuclear safety without disclosing sensitive or commercially confidential information.[33]

27. Section 5 and Section 6.
28. Section 9.
29. Explanation in Section 8(1).
30. Section 19.
31. Section 18(1).
32. Section 4 and Section 28.
33. Section 20 (2)(c).

Appellate Authority

The Council of Nuclear Safety will be empowered to constitute an "Appellate Authority" to hear appeals from the central government or any person aggrieved in respect of orders or decisions of the NSRA.[34] Appeals may only concern (i) granting of consent, (ii) suspension and cancellation of consent, and (iii) timely conclusion of application for review before NSRA. The Appellate Authority consists of a chairperson who is a Judge of the Supreme Court or Chief Justice of a High Court and two other members who are eminent scientists in the field of nuclear or atomic energy.[35]

Regulatory body(s) for the purpose of national defence and security

The central government will be able, in the interests of national defence and security, to exempt any nuclear facilities and materials from NSRA jurisdiction provided that the government regulates same through the establishment of another regulatory body.[36] Such other body would have to ensure that the use of radiation or atomic energy is safe for radiation workers, the public and the environment and report to the government any release of radiation or radioactive material exceeding specified limits from facilities under its jurisdiction into any area falling within the jurisdiction of the NSRA.

Central government and NSRA

- The central government will have the power to issue to the NSRA or other regulatory bodies necessary directions in the interest of the sovereignty and integrity of India, the security of the state, friendly relations with foreign states, public order, decency or morality or the public interest.[37]
- The central government will determine policy and the NSRA will be bound by directions on policy.[38]
- The central government, under certain circumstances, will be able to supersede the NSRA[39] when in the opinion of central government:
  - the NSRA has acted in a manner inconsistent with the provisions of this Act or Rules and regulations; or
  - on account of circumstances beyond the control of the NSRA, it is unable to discharge its functions and duties; or
  - the NSRA has persistently failed to comply with any direction issued by the central government or to discharge its functions and duties as a result of which its financial position has suffered or the administration of any radiation or nuclear installation has deteriorated; or
  - circumstances exist which render it necessary in the public interest.

34. Section 35.
35. Section 35(2), (3) and (4).
36. Section 25.
37. Section 42(1), (2).
38. Section 42(3).
39. Section 48.

Ireland

Radiation protection

The following regulations were made by the Minister for the Environment and Local Government in July 2011, thus providing the regulatory basis to enable Ireland to implement these same regulations.

Radiological Protection Act 1991 (Nuclear Safety) Order 2011

The above order was adopted as Statutory Instrument No. 390 of 2011 for the purpose of transposing into national legislation Ireland's obligations in relation to Directive 2009/71/Euratom. The objectives of this directive are to establish a Community framework in order to maintain and promote the continuous improvement of nuclear safety and its regulation through the provision of appropriate national arrangements for a high level of nuclear safety to protect workers and the general public against the dangers arising from ionising radiation from nuclear installations.

This order applies to civilian nuclear installations and is without prejudice to the provisions of the Electricity Regulation Act, 1999 (No. 23 of 1999). Section 18(6) of the Electricity Regulation Act places a prohibition on the use of nuclear fission within the state for the generation of electricity. This order establishes the Radiological Protection Institute of Ireland (RPII) as the competent authority in the state for the purpose of this order and the directive. It requires the RPII, where appropriate, to establish and maintain a national, regulatory and organisational framework for nuclear safety of nuclear installations. It states that the powers of inspectors appointed by the RPII shall apply with any necessary changes to account for the fact that they are now being applied to nuclear installations. The order sets out the procedures for the serving of an enforcement notice by an inspector appointed by the RPII. It also sets out the reporting obligations of the RPII.

General legislation

Control of Exports (Brokering Activities) Order 2011

The above order was adopted as Statutory Instrument No. 86 of 2011. The effect of this order, which has been made under the Control of Exports Act 2008, is to enable the Minister for Enterprise, Trade and Innovation to control certain brokering activities in relation to goods and technology listed in the schedule of this order.

The order states that a person shall not carry on or otherwise engage in any brokering activities relating to any controlled goods:

- from one third country to another third country;
- from the state to a third country;
- from another EU member state to a third country;

unless a licence has been granted to that person in respect of each brokering activity.

Schedule Item ML17 refers to miscellaneous equipment, materials, parametric technical databases and specially designed components having the capabilities of military and non-military use to include nuclear power generating or propulsion equipment.

Korea (Republic of)

Organisation and structure

Establishment of the Nuclear Safety and Security Commission

Korea implemented three acts on 26 October 2011 to enhance independence, expertise and transparency in nuclear regulation:

- Act on Establishment and Operation of Nuclear Safety Commission.[40]
- Nuclear Safety Act.
- Nuclear Promotion Act.

Taken as a whole, these three acts establish the Nuclear Safety and Security Commission (NSSC) as a new independent regulatory body and split the comprehensive provisions of the Atomic Energy Act (AEA) into two new acts, i.e. the Nuclear Safety Act and the Nuclear Promotion Act, with no substantial changes to the content of the AEA.

The NSSC was established as an independent and stand-alone regulatory body reporting directly to the President. The regulatory function of the Ministry of Education, Science and Technology's (MEST) Nuclear Regulatory Bureau was transferred to the NSSC, which will have oversight of nuclear safety, security and safeguards. The role of MEST has been restricted to promoting the use of nuclear energy. The NSSC will have seven to nine members, each appointed for a three-year term by the President. The NSSC Chairman and Vice-chairman are permanent positions at the equivalent of minister and vice-minister levels. Members of a political party, individuals who are working or who have worked for the last three years at a licensee organisation, individuals who are conducting research and development projects for licensees or who have worked during the last three years on such projects are disqualified from serving as NSSC "members" and are required to resign from NSSC membership if such circumstances arise.

Substantively, the NSSC will have overall responsibility for the establishment of rules and regulations regarding nuclear safety, security and safeguards. In addition, the NSSC will be responsible for the formulation of a Comprehensive National Plan for Nuclear Safety as well as authorisation for access, safety controls and enforcement regarding nuclear materials, radioactive isotopes, nuclear reactors, fuel cycle facilities and nuclear waste. The NSSC will have responsibility for emergency preparedness and international co-operation on nuclear safety. The NSSC may establish one or more advisory committees to provide advisory opinions or to conduct fact-finding research to advise NSSC deliberations on a particular topic. In addition, the Korea Institute of Nuclear Safety (KINS) and the Korea Institute of Nuclear Non-proliferation and Control (KINAC) will provide expertise and support to the NSSC.

40. Text of this act reproduced on pp. 173-179 of this bulletin.

Lithuania

Regulatory infrastructure and activity

Due the planned development of nuclear energy in Lithuania, several laws were adopted on 28 June 2011 and came into force on 1 October 2011.

Law on Nuclear Energy (2011)[41]

The amendments to the Law on Nuclear Energy establish the basis for a stronger nuclear regulatory authority with functions clearly separated from other authorities, institutions and organisations engaged in the development and/or use of nuclear energy, including the production of electricity. The Lithuanian State Power Safety Inspectorate (VATESI) is now accountable to the President of Republic of Lithuania and the Government of Republic of Lithuania.

The Law on Nuclear Energy and the Law on Nuclear Safety transpose the Council Directive 2009/71/EURATOM of 25 June 2009 establishing a Community framework for safety of nuclear facilities.

Radioactive waste management

Law on Radioactive Waste Management (2011)[42]

The main amendment to the Law on Radioactive Waste Management is related to the change of competences in state regulation of radioactive waste management. The State Nuclear Power Safety Inspectorate has responsibility for the establishment of the clearance levels of radionuclides for the materials and waste generated during the activities involving sources of ionising radiation in the area of nuclear energy (formerly functions of the Ministry of Environment).

Radiation protection

Law on Radiation Protection (2011)[43]

The key amendments to the Law on Radiation Protection are related to the separation of functions of the Radiation Protection Centre and the State Nuclear Power Safety Inspectorate in the field of radiation protection. The State Nuclear Power Safety Inspectorate is now responsible for implementing state-level regulation relating to and supervising the protection of those working in the area of nuclear energy involving sources of ionising radiation.

International co-operation

Amendment of the Law on the Implementation of the Law on the National Language of the Republic of Lithuania (2011)[44]

The amendment of the Law on the Implementation of the Law on the National Language of the Republic of Lithuania allows an applicant, in agreement with the appropriate authorities, to provide certain documents in one of the official

41. I-1613, adopted on 28 June 2011.
42. VIII-1190, adopted on 28 June 2011.
43. VIII-1019, adopted on 28 June 2011.
44. I-789, adopted on 28 June 2011.

languages of the International Atomic Energy Agency relating to different types of authorisations carried out by the nuclear safety authority.

Nuclear safety

Law on Nuclear Safety (2011)[45]

The Law on Nuclear Safety concentrates on establishing a detailed procedure for issuing licenses, permits and other types of authorisations, including the documents required and conditions to be fulfilled in order for an activity to receive authorisation. This law also establishes the main principles for safety assessments and provides for different types of enforcement measures, including economic sanctions (penalties) for the most severe cases of non-compliance with safety requirements.

The Law on Nuclear Energy and the Law on Nuclear Safety transpose the Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the safety of nuclear facilities.

Poland

General legislation

Amendment to the Atomic Law Act (2011)

The comprehensive Atomic Law Act was amended by the Act amending Atomic Law and other laws of 13 May 2011[46] that entered into force on 1 July 2011.

The changes to the Atomic Law Act address the transposition to the Polish legal system of Council Directive 2009/71/Euratom of 25 June 2009 establishing the Community framework of nuclear safety,[47] as required of all EU member states. These changes are also of direct relevance to the national nuclear power programme that is in the planning stages.

The amendment introduces comprehensive provisions for the regulation of power-generating nuclear reactors to the Atomic Law Act, including:

- detailed terms and conditions for the licensing process, including siting, public awareness and participation, and design and construction requirements;
- specific nuclear facility operational requirements regarding staff training and authorisations and nuclear safety principles, as well as the procedure for facility decommissioning, and procedures for the establishment of radioactive waste repositories and a spent fuel management fund.

The Atomic Law Act also envisages several implementing regulations which will be issued by the Council of Ministries, Ministry of Environment and the Ministry of Health once the drafting procedure has been completed. In parallel with the amendment of the Atomic Law Act, the Law on Preparation and Implementation of Investment in Nuclear Facilities and Accompanying Investments[48] (Investment Act) was passed on 29 June 2011 and entered into force on 1 July 2011.

45. XI-1539, adopted on 28 June 2011.
46. *Journal of Laws*, No. 132, Item 766.
47. OJ L 172 of 02.07.2009, p. 18 and OJ L 260 of 03.10.2009, p. 40.
48. *Journal of Laws*, No. 135, Item 789.

Whereas the comprehensive Atomic Law Act establishes provisions concerning nuclear safety, security, safeguards and liability, the Investment Act establishes a non-regulatory special administrative regime for investment in nuclear power-generating facilities, covering, amongst other things, the allocation of authority for making administrative decisions, changes in certain property and procurement procedures, the obligation to assure the security of the investment, and the introduction of fees for local communities.

Romania

Environmental protection

Law No. 101/15.06.2011 for the Prevention and Punishment of Acts Involving Damage to the Environment (2011)

Law No. 101/15.06.2011 for the Prevention and Punishment of Acts Involving Damage to the Environment has been published in the Official Journal of Romania.[49] This law transposes Directive 2008/99/EC of the European Parliament and the Council on environmental protection through criminal law.[50] This new law establishes measures to ensure the effective protection of the environment and provides that the production, handling, processing, treatment, temporary or permanent storage, importation and exportation of dangerous nuclear or radioactive materials in violation of relevant laws shall be offences that are punishable by imprisonment.

Russian Federation

Radioactive waste management

Federal Law on Management of Radioactive Waste and on Introduction of Changes in Individual Legislative Acts of the Russian Federation (N 190-FZ) (2011)[51]

Russian President Dmitry Medvedev signed the Federal Law on Management of Radioactive Waste and on Introduction of Changes in Individual Legislative Acts of the Russian Federation (N 190-FZ) on 11 July 2011, more than one and a half year after the law was introduced in the Russian State Duma in December 2009. The law is a significant first step in establishing a national, central legal framework for radioactive waste management and implements Russia's commitments under the Joint Convention on the Safe Management of Spent Fuel and the Safe Management of Radioactive Wastes, ratified by the Russian Federation in 2006. The law sets out the powers and responsibilities of the Russian Government and federal, regional and local agencies, clarifies ownership of waste as well as storage and burial locations, establishes a national operator for management of radioactive waste, classifies radioactive waste into specific types, establishes the requirements related to management and disposal thereof and places a ban on the construction of new facilities for the disposal of liquid low-level and medium-level radioactive waste in deep geological formations. Implementation of the new law will require adoption of subordinate legislation, which some experts believe may take a few years.

49. No. 449/28.06.2011.
50. OJ L 328 of 6.12.2008.
51. Text of this federal law reproduced on pp. 181-200 of this bulletin.

Slovenia

Nuclear safety

Act Amending the Act on Ionising Radiation Protection and Nuclear Safety (2011)

The Act Amending the Act on Ionising Radiation Protection and Nuclear Safety entered into force on 13 August 2011. While many of the amendments represent minor editorial corrections, the amending act introduces the requirements of Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations.[52] The provisions on physical protection in Slovenian law have been substantially completed as the result of amendments implementing the requirements of Slovenian international commitments and EU directives.

Spain

Liability and compensation

Act on Third Party Liability for Nuclear Damage or Damage Caused by Radioactive Materials[53]

Traditionally, the application of the Paris and Brussels Conventions in internal law has been established by Chapters VII to X of the Nuclear Energy Act,[54] which has been amended several times. Recently, a new law on nuclear third party liability has been approved in order to implement the 2004 Paris and Brussels Protocols that amend the said Conventions, in a law independent from Act 25/1964, taking into account the special nature of the issue and the intervention of different organisations depending on their competencies. The new law will enter into force on the date on which the 2004 Protocols enter into force in Spain.

The law incorporates into Spanish internal law the provisions contained in the revised Conventions. The most significant contents of this law are the following:

- Definitions and limit of damages as established in the revised Paris Convention, including those considered to be most relevant, such as the increase in the period for claims regarding personal injury (30 years), or the extension of the concept of nuclear damage to include measures for restoration of the degraded environment and prevention, as well as compensation for loss of income relating directly to the use and enjoyment of the degraded environment.

- Limited liability of the licensee: the liability of the licensee is limited to the amount of EUR 1 200 million for damages caused within the national territory or in the territory of states parties to both the Paris and the Brussels Conventions. This liability has been thus increased from the EUR 700 million established in the current policies to EUR 1 200 million. In other cases, the same rules stated in both the Paris and the Brussels revised Conventions are applicable.

52. OJ L 172, 2.7.2009.
53. Act 12/2011, published in the Official State Gazette on 28 May 2011.
54. Act 25/1964.

- Financial guarantees: the law obliges the licensee to establish financial guarantees for the total amount of liability. This guarantee is to be provided by contracting an insurance policy, by some other financial guarantee constituted with an entity authorised by the Ministry of Economy, or by a combination of both options. Shall the operator not be capable to cover its financial liability up to EUR 700 or 1 200 million, then the law establishes two options:
  - For those heads of damage which are insurable, and in case the insurance capacity of the markets would not be capable to cover the total liability amount, the Spanish Consortium of Insurance Compensation would intervene in the policy as a co-insurer. This consortium is a public body attached to the Ministry of Economy and thus integrated in the Spanish Administration.
  - For those heads of damage which are not insurable, the law allows the establishment of different procedures, like allocation of enough capital exclusively dedicated to cover the nuclear damage or a system of guarantees ruled by the Spanish electricity system, for which the operators should pay the corresponding fees. This mechanism has to be established by law and should be considered as a last resort, if no other mechanisms are available in the private market.
- Priority rules in the distribution of compensation continue existing in the Spanish liability regime. In this sense, priority is given to personal injury claims formulated in the first three years after the nuclear accident, to be covered without any delay. Measures of reinstatement of the damaged environment including preventive measures damages are to be processed next and lastly, the rest of the damages to property. After the first three years, there will be no priority rule (rule "first come, first served").

Furthermore, the act includes a specific regulation for damages caused by accidents involving radioactive materials that are not nuclear substances and occurring within the national territory, either during operation or during the transport.

Nuclear security

Royal Decree on the Physical Protection of Nuclear Installations and Materials (2011)[55]

Royal Decree 1308/2011 incorporates into Spanish legislation the commitments made by Spain on physical protection matters, particularly the Amendment to the Convention on the physical protection of nuclear materials (approved in July 2005), the International Convention for the Suppression of Acts of Nuclear Terrorism (ratified in January 2007), and the United Nations Security Council Resolution 1540 of 2004 on efforts to prevent the proliferation of nuclear, chemical and biological weapons. It repeals Royal Decree 158/1995 on the Physical Protection of Nuclear Materials.

55. Published in the Official State Gazette on 7 October 2011.

The most relevant objectives of this royal decree are the following:

- enhancement of the physical protection measures applied to the facilities, nuclear materials and most relevant radioactive sources;
- revision of the system of authorisations in force, contemplating separately those corresponding to facilities and those relating to the transport of nuclear material;
- establishment of a system of physical protection at facilities using radioactive sources, specifying in which cases it is obligatory to have a specific system of physical protection for transport;
- more specific mapping out of the basic obligations of the licensees of physical protection authorisations;
- strengthening of the measures for the control and supervision of companies participating in the transport of nuclear and radioactive materials; and
- co-ordination of the competent authorities and prevention of events relating to the illicit trafficking of nuclear and radioactive materials, establishing a point of contact with the IAEA Illicit Trafficking Database.

Sweden

Nuclear safety

Swedish Radiation Safety Authority regulations concerning clearance of materials, premises, buildings and land in connection with activities involving ionising radiation (2011)

The Swedish Radiation Safety Authority (SSM) has adopted new regulations on clearance of materials, premises, buildings and land resulting from activities involving ionising radiation.[56] Clearance means that items are exempted from continued regulation from a radiation protection point of view. A prerequisite is that the presence of radioactive substances is so low that it can be seen as innocuous from the radiation protection point of view. The new regulations come into effect from 1 January 2012.

The regulations concern ongoing or past activities licensed under the Ordinance on Nuclear Activities or the Radiation Protection Ordinance. The regulations specify, *inter alia*, limits on the levels of various radioactive substances in materials leaving nuclear facilities or from non-nuclear activities in order to be recycled or managed as conventional waste. The regulations require that the operator carries out controls in a structured and documented way and shows that any presence of radioactive substances is less than the clearance levels specified in regulations.

The regulations set nuclide specific clearance levels for concentrations of radioactive materials for the following cases: clearance of materials for continued use (including recycling), clearance of waste oil and hazardous waste for disposal in accordance with the Swedish Environmental Code and conventional waste regulation, clearance of premises for continued use, and clearance of buildings for demolition.

56. SSMFS 2011:2.

The SSM may decide that other clearance levels apply in individual cases, for example for the disposal of non-hazardous waste. The SSM also intends to decide in individual cases the clearance levels that will apply for clearance of land areas.

Turkey

Radiation protection

Regulation on Nuclear Power Plant Sites (2009)

The Regulation on Nuclear Power Plant Sites entered into force on 21 March 2009, establishing nuclear safety requirements for the site of nuclear power plants. The Turkish Atomic Energy Authority (TAEK) also issued a "Guide on Format and Content of Site Report for Nuclear Power Plants" in order to determine the format and content of the site report. It also entered into force in 2009.

Regulation on Specific Safety Principles for Nuclear Fuel Cycle Facilities (2010)

In order to establish the nuclear safety requirements for the site of the nuclear power plants the Regulation on Specific Safety Principles for Nuclear Fuel Cycle Facilities entered into force on 30 July 2010.

Regulatory infrastructure and activity

Directive on Principles of Licensing of Nuclear Power Plants (2010)

In order to establish the basic principles that the Turkish Atomic Energy Authority will use during the process of licensing of a nuclear power plant, the Directive on Principles of Licensing of Nuclear Power Plants was issued by the TAEK Atomic Energy Commission in 2010.

Nuclear safety

Regulation on High Activity Sealed Radioactive Sources and Orphan Sources (2009)

The Regulation on High Activity Sealed Radioactive Sources and Orphan Sources entered into force on 21 March 2009 with the aim of preventing workers, the public and the environment from the harmful effects of ionising radiation that might arise from exposure to registered sealed radioactive sources and orphan sources.

Regulation on Radiation Safety Inspections and Enforcements (2010)

The Regulation on Radiation Safety Inspections and Enforcements establishing regulatory inspection procedures to be used by the Turkish Atomic Energy Authority entered into force on 31 July 2010.

Revision of Regulation on Radiation Safety (2010)

The Regulation on Radiation Safety has been revised and amended provisions were published in the Official Gazette dated 3 June 2010.

Regulation on Protection of Outside Workers from Ionising Radiation (2011)

Regulation on Protection of Outside Workers from Ionising Radiation entered into force on 18 June 2011 laying down the requirements for working conditions to

provide protection against ionising radiation for outside workers performing nuclear and ionising radiation activities in controlled areas.

Liability and compensation

A draft law on third part liability has been under preparation since the beginning of 2010 for the adoption of Paris Convention into domestic legislation. The proposed title of this law is the Law on Civil Liability in the Field of Nuclear Energy. This study is being co-ordinated by Ministry of Energy and Natural Resources.

United States

General legislation

Update on the NRC's response to the events at the Fukushima Daiichi nuclear site

On 12 July 2011, the NRC's Near-Term Task Force published the results of its review of insights from the Fukushima Daiichi accident.[57] This report represents the first part of a long-term evaluation of insights to be gained from the tragic events in Japan. The NRC charged the task force with conducting a systematic and methodical review of agency processes and regulations, recommending regulatory improvements on the basis of this review, and suggesting policy directions for NRC consideration. At the outset, the task force noted that "a sequence of events like the Fukushima accident is unlikely to happen in the United States ... [t]herefore, continued operation and continued licensing activities do not pose an imminent risk to public health and safety." As a result of its review, however, the task force developed several overarching recommendations in the areas of: 1) clarifying the regulatory framework, 2) ensuring protection, 3) enhancing mitigation, 4) strengthening emergency preparedness, and 5) improving the efficiency of NRC programmes. Within these topical areas, several particular emphases emerged. First, the task force underscored the importance of balancing risk-informed evaluation with defence-in-depth considerations. The task force also recommended that the NRC strengthen requirements for design-basis and beyond-design-basis events, emergency response capability requirements, and other emergency preparedness issues.

Following the publication of the task force report, the NRC directed several actions, including: review of the recommendations with the input of stakeholders, preparation of a draft charter for the agency's long-term review, preparation of a notation vote paper that prioritises the task force recommendations, and formal review of the recommendations by the Advisory Committee on Reactor Safeguards.[58] On 18 October 2011, the NRC issued a Staff Requirements Memorandum (SRM) approving the staff's proposal to implement the task force recommendations described in SECY-11-0124 without delay.[59] The NRC set a goal of five years to

57. Recommendations for Enhancing Reactor Safety in the 21 Century, "The Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident" (12 July 2011) available at: http://pbadupws.nrc.gov/docs/ML1118/ML111861807.pdf.
58. See "Staff Requirements – SECY-11-093 – Near-Term Report and Recommendations for Agency Actions Following the Events in Japan" (19 August 2011). This and other NRC-developed documents referenced in this update are available at the NRC's website at: www.nrc.gov/japan/japan-activities.html.
59. SECY-11-0124, "Recommended Actions to Be Taken without Delay from the Near-Term Task Force Report" (18 October 2011) presents a set of priority near-term regulatory recommendations for the NRC's consideration. Generally, these recommendations pertain to ensuring adequate protection in the event of design-basis seismic and flooding events,

complete and implement the lessons learnt from the accident, with high priority (to be completed in 24-30 months) on the rulemaking to address station blackout mitigation capabilities. The NRC also commented that regulatory changes should incorporate performance-based principles and be flexible to accommodate a diverse range of circumstances and conditions.

In an SRM issued on 19 October 2011, the NRC approved a charter for the longer-term review of lessons learnt from the Fukushima accident.[60] The objective of this effort is to oversee assessment and implementation of the Near-Term Task Force's recommendations, identify any additional recommendations, and address the items identified for longer-term review in the Chairman's 23 March 2011 tasking memorandum.[61] The charter addresses the steering committee that will lead the longer-term effort — its staffing, scope, co-ordination and communication, and expected work products and schedule. The steering committee will be supported by an internal NRC advisory committee, but will also solicit information and comments from a panel of external stakeholders from industry, academia, states, native American tribes, and public interest groups.

On 9 September 2011 the NRC issued an order ruling on a series of petitions requesting suspension of numerous adjudicatory, licensing, and rulemaking activities and other relief in light of the events at Fukushima.[62] The NRC granted the petitioners' request for a safety analysis of the regulatory implications of the Fukushima accident to the extent that the task force and the staff had already been directed to undertake such an analysis. But the NRC rejected the request to suspend adjudicatory proceedings, rulemakings, and other licensing activities. With reference to the agency's previous handling of the Three Mile Island accident and the events of 11 September 2001, the NRC concluded that, as in those previous instances, the drastic remedy of broadly applied suspensions is inappropriate. The NRC based this decision on three grounds: 1) there is no immediate threat posed to public health and safety by the agency activities at issue, 2) the continuing review process will not be an obstacle to fair and efficient decision making, and 3) going forward will not prevent the appropriate implementation of rule or policy changes that may result from the post-Fukushima review. The NRC also declined to require a generic analysis under the National Environmental Policy Act regarding whether the events at Fukushima constitute "new and significant information". This, ruled the NRC, would be premature because the full picture of what happened at the Fukushima site, and the implications of this on United States facilities, is unclear.

Issuance of draft report of the Secretary of Energy's Blue Ribbon Commission

On 29 July 2011, the Blue Ribbon Commission on America's Nuclear Future (BRC) issued its draft report to the Secretary of Energy with preliminary policy recommendations regarding the development of a disposal strategy for high-level

strengthening station blackout mitigation capabilities for severe accidents, requiring a hardened vent design in boiling-water reactor facilities with Mark I and Mark II containments, strengthening and integrating onsite emergency response capabilities, requiring that emergency plans address prolonged station blackout and multiunit events, and ensuring that sites have adequate staffing and communication capabilities to respond to a multiunit event.

60. SECY-11-0117, "Proposed Charter for the Longer-Term Review of Lessons Learned from the March 11, 2011, Japanese Earthquake and Tsunami" (19 October 2011).
61. See COMGBJ-11-0002, "NRC Actions Following the Events in Japan" (21 March 2011).
62. See Union Electric Co. d/b/a Ameren Missouri (Callaway Plant, Unit 2), CLI-11-05, 74 NRC __, __ (slip op.) (9 September 2011).

waste.[63] The BRC, which was tasked with conducting a comprehensive review of the policies for managing the back end of the nuclear fuel cycle, determined that deep geologic disposal continues to represent the best long-term solution. But the BRC identified several other key elements, including the prompt undertaking of efforts to develop one or more consolidated interim storage facilities and the creation of a consent-based approach to siting future nuclear waste management facilities. In addition, the BRC acknowledged that implementing its recommendations would require a number of legislative changes – the most important of which would be to amend the portion of the Nuclear Waste Policy Act that now provides only for the evaluation and licensing of a single repository site at Yucca Mountain. The BRC also asserted its confidence that its recommendations can be implemented using the existing revenue streams from the Nuclear Waste Fund and ratepayer fee. The BRC's final report is due to be delivered to the Secretary of Energy on or before 29 January 2012. More information is available at: http://brc.gov/.

63. Blue Ribbon Commission on America's Nuclear Future Draft Report to the Secretary of Energy (29 July 2011), available at http://brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf.

Intergovernmental organisation activities

European Atomic Energy Community

Adopted legislative instruments

Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste (O.J L 199 of 2 August 2011, p. 48)

In July 2011, new legislation establishing a framework for the responsible and safe management of spent fuel and radioactive waste was adopted in the EU. It is anchored in internationally endorsed principles and requirements of the IAEA Safety Standards and the Joint Convention and in this context it makes them legally binding and enforceable in the EU as all 27 EU member states shall bring into force the laws, regulations and administrative provisions necessary to comply with this legislation by August 2013.

The EU approach aims at ensuring responsible and safe management of spent fuel and radioactive waste to avoid undue burdens on future generations. It reaffirms the ultimate responsibility of member states for the management of spent fuel and radioactive waste, including to establish and maintain national policies and frameworks, and to assure the needed resources and transparency.

Prime responsibility of the licence holder for the safety of spent fuel and radioactive waste management under the supervision of its national competent regulatory authority is also reaffirmed. Strong provisions are foreseen for assuring safety of spent fuel and radioactive waste management, including in the long term. The role of the national regulatory authorities is reinforced and their independence strengthened.

Each member state remains free to define its fuel cycle policy – spent fuel can be regarded either as a valuable resource that may be reprocessed or as radioactive waste that is destined for direct disposal. Whatever option is chosen, the disposal of high-level waste, separated at reprocessing, or of spent fuel regarded as waste should be considered. The storage of radioactive waste, including long-term storage, is an interim solution, but not an alternative to disposal. To this end, member states are obliged to establish, implement, review and update national programmes for management of spent fuel and radioactive waste from generation to disposal. They will invite international peer reviews to exchange experience and ensure the application of the highest standards.

Commission Implementing Regulation No. 1371/2011 of 21 December 2011 amending Implementing Regulation (EU) No. 961/2011 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 (OJ L 341, 22.12.2011, pp. 41-44)

The European Commission continued to monitor the situation in Japan. Implementing Regulation 297/2011 of 25 March 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 was adopted in the aftermath of the accident and subsequently amended several times. It was finally repealed and replaced by Regulation 961/2011 of 27 September (OJ L 252, 28.9.2011, pp. 10-15) which was in force until 31 December 2011.

On 21 December 2011, based on the latest developments with regard to the radiological situation in Japan, the Commission adopted Implementing Regulation No. 1371/2011 amending Implementing Regulation (EU) No. 961/2011 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 which *inter alia* extends the period of validity of Regulation (EU) No. 961/2011 until 31 March 2012.

Reports

Euratom Report on the implementation of the obligations under the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management for the 4th Review Meeting of the Contracting Parties

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 will be held in Vienna, from 14 to 23 May 2012. The Euratom Report on the implementation of the obligations under the Joint Convention was submitted to the IAEA on 13 October 2011, in accordance with the procedural rules. This report also includes a detailed analysis of the provisions of the new Council Directive 2011/70/Euratom establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste.

Seventh Situation Report Radioactive Waste and Spent Fuel Management in the European Union [SEC(2011) 1007 final]

This report is the seventh in the series of reports by the European Commission on the situation of radioactive waste and spent fuel management in the EU. It is based on data and information provided by EU member states and presents the status concerning waste generation, inventories and disposal capacities in the EU member states, mainly in tabular form. The reference date for generation and inventories is the end of 2007, in line with the data available in the latest national reports provided by member states under the Joint Convention. The report provides further information on radioactive waste and spent fuel management policies, financing schemes, etc., which are based on most recent statements (December 2010). Additionally, the report considers the likely evolution of waste quantities over the coming years (to 2040), as well as the disposal capacities up to 2070. In addition to the tables present in the previous report, new information is included, such as the foreseen saturation date of the storage capacities and planned as well as best estimates for new disposal capacities.

Meetings

Third Party Liability Group

Following a workshop organised in June 2010 by the European Commission and the Brussels Nuclear Law Association, a Third Party Liability Group has been set up to analyse the potential harmonisation of national legislation regarding nuclear liability in order to ensure legal coherence in the EU in line with international principles. The main objectives are to improve the victims' protection in the different member states and to tackle the impact on the functioning of the internal market because of diverging financial guarantee obligations.

Three working groups are dealing with questions of (1) claims management, (2) insurance, operators' pools and other financial guarantees, and (3) amounts and other areas. The aim of the group is to give recommendations for a potential Commission proposal under Article 98 Euratom Treaty.[1] Three meetings have already been convened and a fourth is scheduled for 2012.

16th plenary meeting of the European Nuclear Safety Regulators Group (ENSREG) – 11 October 2011, Brussels

At the 16th ENSREG meeting, the proposed procedure on peer reviews of EU nuclear power plant stress tests, elaborated within a task force, was approved after minor modifications were agreed upon. The main outcome will be the creation of topical and country review teams overseen by a board. Representatives of non-nuclear countries as well as the European Commission will also sit on the board.

International Atomic Energy Agency

IAEA Action Plan on Nuclear Safety

The Ministerial Conference on Nuclear Safety which took place at the IAEA headquarters in Vienna from 20 to 24 June, and the Ministerial Declaration[2] adopted at the Conference provided valuable guidance for the preparation of the IAEA Action Plan on Nuclear Safety (Action Plan),[3] which was approved by the Board of Governors and the General Conference in September 2011.

The purpose of the Action Plan is to define a programme of work to strengthen the global nuclear safety framework. With respect to improving the effectiveness of the international legal framework, the Action Plan provides the following:

- State parties to explore mechanisms to enhance the effective implementation of the Convention on Nuclear Safety, the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management, the Convention on the Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, and to consider proposals made to amend the Convention on Nuclear Safety and the Convention on the Early Notification of a Nuclear Accident.

- Member states to be encouraged to join and effectively implement these Conventions.

- Member states to work towards establishing a global nuclear liability regime that addresses the concerns of all states that might be affected by a nuclear accident with a view to providing appropriate compensation for nuclear damage. The IAEA International Expert Group on Nuclear Liability (INLEX) to recommend actions to facilitate achievement of such a global regime. Member states to give due consideration to the possibility of joining the

1. Article 98 of the Treaty establishing the European Community (25 March 1957) provides as follows: "Member states shall take all measures necessary to facilitate the conclusion of insurance contracts covering nuclear risks. Within two years of the entry into force of this Treaty, the Council, acting by a qualified majority on a proposal from the Commission, which shall first request the opinion of the Economic and Social Committee, shall, after consulting the European Parliament, issue directives for the application of this Article."
2. INFCIRC/821.
3. GOV/2011/59-GC(55)/14.

international nuclear liability instruments as a step towards achieving such a global regime.

Non-binding instrument on the transboundary movement of scrap metal

An open-ended meeting of technical and legal experts took place from 6 to 8 July 2011 at the IAEA's headquarters in Vienna to discuss the development of a non-binding instrument on the transboundary movement of scrap metal that may inadvertently contain radioactive material.

A key conclusion noted in the Chairman's Report is that the instrument should be developed as a "Code of Conduct" so that it can be easily identified, but also understood to be non-binding, and so that it follows a well-established development process similar to other codes of conduct. The participants agreed on a schedule to develop the Code of Conduct including a second open-ended meeting of technical and legal experts to be convened in late 2011 or early 2012. This meeting will be held with the goal of producing a final draft Code of Conduct.

55th IAEA General Conference

The 55th regular session of the IAEA General Conference was held in Vienna from 19 to 23 September 2011. Delegates from 141 member states and representatives of various international organisations participated in the conference. A number of resolutions were adopted by the General Conference including two resolutions of particular legal significance: GC(55)/RES/9 relating to international co-operation in nuclear, radiation, transport and waste safety and GC(55)/RES/10 relating to nuclear security.

Measures to Strengthen International Co-operation in Nuclear, Radiation, Transport and Waste Safety [GC(55)/RES/9]

- Nuclear liability

The General Conference again recognised the importance of effective and coherent nuclear liability mechanisms at the national and global levels [preambular paragraph (cc)], and recalled the Paris Convention on Third Party Liability in the Field of Nuclear Energy, the Vienna Convention on Civil Liability for Nuclear Damage, the Brussels Convention supplementary to the Paris Convention, the Joint Protocol Related to the Application of the Vienna Convention and the Paris Convention as well as the protocols amending these conventions and the objectives thereof, while noting the intention of the Convention on Supplementary Compensation for Nuclear Damage to establish a worldwide nuclear liability regime based on the principles of nuclear liability law, without prejudice to other liability regimes [preambular paragraph (dd)].

In Part 1 of the Resolution, the Conference again encouraged member states to give due consideration to the possibility of joining international nuclear liability instruments and welcomed the valuable work of the International Expert Group on Nuclear Liability (INLEX), including the consideration and identification of specific actions to address the gaps in the scope and coverage of the international nuclear liability regime, the recommendation of actions to facilitate the achievement of a coherent global nuclear liability regime, and outreach activities.

In Part 5 of the Resolution relating to transport safety, the Conference continued to stress the importance of having effective liability mechanisms in place to ensure prompt compensation for damage due to a radiological accident or incident during the transport or radioactive material, including maritime transport, and noted in particular the application of the principles of nuclear liability including strict liability

in the event of a nuclear accident or incident during the transport of radioactive material.

- National infrastructures

In Part 1 of the Resolution, the Conference requested the Director General to continue the current programme to assist member states in developing and improving their national infrastructure, including legislative and regulatory frameworks, for nuclear, radiation, transportation and waste safety.

- Nuclear installation safety

In Part 3 of the Resolution, the Conference urged all states operating, commissioning, constructing or planning nuclear power plants, or considering a nuclear power programme, to become parties to the Convention on Nuclear Safety (CNS), recognised that implementation of the Convention may be further enhanced, and invited the contracting parties to consider proposals for its amendment.

The Conference continued to endorse the principles and objectives of the non-legally binding Code of Conduct on the Safety of Research Reactors and encouraged member states constructing, operating or decommissioning research reactors, or with research reactors in extended shutdown, to apply the guidance in the code.

- Safety of spent fuel and radioactive waste management

In Part 6 of the Resolution, the Conference welcomed the increase in the number of contracting parties to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management to 60, and urged all member states, in particular those exploring nuclear energy, to become parties to the Joint Convention. It also noted the importance of regional activities for promoting the benefits of the Joint Convention.

- Safety and security of radioactive sources

In Part 10 of the Resolution, the Conference continued to endorse the principles and objectives of the non-legally-binding Code of Conduct on the Safety and Security of Radioactive Sources and noted that, as at 23 May 2011, 103 states had notified the Director General of their intention to act in accordance with the code. It urged other states to make such a notification.

The Conference also underlined the importance of the Guidance on the Import and Export of Radioactive Sources for the establishment of continuous control of radioactive sources and noted that, as at 5 September 2011, 66 states had notified the Director General of their intention to act in accordance with the guidance. It encouraged other states to make such a notification and reiterated the need for states to implement the guidance in a harmonised and consistent fashion. In addition, the Conference endorsed the revised version of the guidance, which had been agreed by the open-ended meeting of technical and legal experts held from 30 May to 1 June 2011 and which had been endorsed by the Board of Governors,[4] and noted that the revised version of the guidance does not require states which have previously notified the Director General of their intention to act in accordance therewith to do so again.

4. GOV/2011/44-GC(55)/11.

- Nuclear and radiological incident and emergency preparedness and response

In Part 11 of the Resolution, the Conference urged all member states to become parties to the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, thereby contributing to a broader and stronger international emergency response capability which would be of benefit to all member states.

The Conference also recognised that implementation of these Conventions may be further enhanced and invited contracting parties to the Early Notification Convention to consider proposals to amend the Convention.

Nuclear Security [GC(55)/RES/10]

The General Conference again reaffirmed the importance of the Convention on the Physical Protection of Nuclear Material (CPPNM) and the value of the Amendment extending its scope, called upon states parties to the CPPNM to ratify the Amendment to the Convention as soon as possible and encouraged them to act in accordance with the objectives and purposes of the Amendment until such time as it enters into force. It also encouraged member states that have not yet done so to adhere to the Convention and adopt its Amendment as soon as possible. In addition, the Conference encouraged all member states that have not yet done so to become party to the International Convention on the Suppression of Acts of Nuclear Terrorism as soon as possible.

The Conference also noted the central role of the Agency in developing comprehensive nuclear security guidance documents and, on request, providing assistance to member states in their implementation, welcomed the publication of the three Nuclear Security Recommendation documents NSS 13, 14 and 15, noted the intent of the Secretariat also to publish the recommendations in NSS 13 as INFCIRC/225/Rev.5, and encouraged all member states to take account, as appropriate, of these IAEA recommendations.

Basic Safety Standards

The "IAEA Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards – Interim Edition" was published on 3 November 2011 in the IAEA Safety Standards Series of publications as General Safety Requirements Part 3 (No. GSR Part 3 [Interim]).

This interim edition has been submitted to the other potential sponsoring organisations for their approval. Following their decisions on its approval, it will be issued as a jointly sponsored standard.

Nuclear Law Institute

The first annual session of the Nuclear Law Institute (NLI) was organised by the IAEA Office of Legal Affairs in Vienna from 19 November to 3 December 2011. The two-week training course was established in order to meet the increasing demand for legislative assistance by member states. Approximately 60 representatives from member states participated. Utilising modern teaching methods based on interaction and practice, all areas of nuclear law were comprehensively addressed. More details including the NLI programme are available at: http://ola.iaea.org/OLA/NLI/ main.asp.

OECD Nuclear Energy Agency

Basic Safety Standards

During its 123rd meeting held on 27-28 October 2011, the NEA Steering Committee approved the new "Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards" as approved by the IAEA Board of Governors at its 12 September 2011 meeting, and recommended to all NEA member countries that the domestic implementation measures referred to in the relevant 1962 OECD Council Decision be based on these revised standards.

International Nuclear Law Essentials

On 3-7 October 2011, OECD/NEA Legal Affairs hosted the first session of a new programme, International Nuclear Law Essentials (INLE). Some 35 participants from 19 countries participated in this one-week comprehensive course covering various aspects of international nuclear law. Built on the success of the International School of Nuclear Law (ISNL), INLE was designed to provide focused, relevant and practical training to mid-to-senior level working professionals. Renowned experts from international organisations, governments and private industry led lectures, discussions and case studies. Mr. Paul Bowden, a senior partner in the London office of Freshfields Bruckhaus Deringer, served as the programme leader. The next INLE session will be held on 4-8 June 2012. More information is available at: www.oecd-nea.org/law/inle/

International School of Nuclear Law

The 11th session of the International School of Nuclear Law (ISNL), a unique academic programme organised by the NEA and the University of Montpellier 1, took place from 22 August to 2 September 2011. Over the past 11 sessions, the ISNL has provided a unique educational experience to more than 600 participants from around the world. This session brought together 56 participants from 33 countries who benefited from lectures delivered by 25 highly renowned experts. Mr. Paul Bowden, a senior partner in the London office of Freshfields Bruckhaus Deringer, served as the programme leader and engaged participants in various Q&A sessions and case studies. A special panel session focused on the impact of the Fukushima Daiichi accident on international nuclear safety, radiological protection and emergency management instruments. Building on the success of the ISNL, the NEA launched the International Nuclear Law Essentials (INLE), a more intensive one-week course in international nuclear law (see note above.) The 2012 session will be held on 27 August-7 September 2012. More information is available at: www.oecd-nea.org/law/isnl.

New members

Slovenia became the 30th member country of the NEA on 11 May 2011.

Russian Federation request for membership

During the 123rd meeting of the NEA Steering Committee on 27-28 October 2011 in Paris, the Steering Committee addressed the official request received from the Russian Federation on 24 October to join the NEA. It agreed to send a fact-finding mission to the Russian Federation to gather information that would be helpful for making a decision on membership, which it expects to take at its next meeting in April 2012. In accordance with Article 17c) of the NEA Statute, the Russian Federation would become a member of the Agency upon a) being invited by the

Secretary-General, and b) addressing to the Secretary-General an acceptance of that invitation. The Secretary-General would send such an invitation upon recommendation of the Steering Committee and approval of the OECD Council. If the Russian Federation is granted membership, it will be the second such country (after the Republic of Korea in 1993) to accede to the NEA prior to joining the OECD.

Multilateral agreements

I. Status of conventions in the field of nuclear energy as of December 2011

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. 86, 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	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	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
Burkina Faso	Hungary	Nauru	Thailand
Burundi	Iceland	Nepal	Timor-Leste
Cambodia	Indonesia	Netherlands	Togo
Cameroon	Iran	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	Kiribati	Paraguay	United Kingdom
Democratic Republic of the Congo	Democratic People's Republic of Korea*	Peru	United States of America
Costa Rica	Republic of Korea	Philippines	Uruguay
Côte d'Ivoire	Kuwait	Poland	Uzbekistan
Croatia	Kyrgyzstan	Portugal	Vanuatu
Cuba	Lao People's Democratic Republic	Qatar	Venezuela
Cyprus	Latvia	Romania	Viet Nam
Czech Republic	Lebanon	Russian Federation	Yemen
Denmark		Rwanda	Zambia
Djibouti		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 145 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, there have been no additional ratifications.

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	Latvia	Portugal
Albania	Djibouti	Lebanon	Qatar
Algeria	Dominica	Lesotho	Romania∗
Andorra	Dominican Republic	Libya	Russian Federation∗
Antigua and Barbuda	Ecuador	Liechtenstein	Rwanda
Argentina*	El Salvador	Lithuania	Saint Kitts and Nevis
Armenia∗	Equatorial Guinea	Luxembourg	Saudi Arabia
Australia	Estonia	Macedonia	Senegal
Austria	Fiji	Madagascar	Serbia
Azerbaijan	Finland∗	Mali	Seychelles
Bahamas	France∗	Malta	Slovak Republic∗
Bahrain	Gabon	Marshall Islands	Slovenia∗
Bangladesh	Georgia	Mauritania	South Africa∗
Belarus	Germany∗	Mexico∗	Spain∗
Belgium∗	Ghana	Moldova	Sudan
Bolivia	Greece	Monaco	Swaziland
Bosnia and Herzegovina	Grenada	Mongolia	Sweden∗
Botswana	Guatemala	Montenegro	Switzerland∗
Brazil∗	Guinea	Morocco	Tajikistan
Bulgaria∗	Guinea-Bissau	Mozambique	Tanzania
Burkina Faso	Guyana	Namibia	Togo
Cambodia	Honduras	Nauru	Tonga
Cameroon	Hungary∗	Netherlands∗	Trinidad and Tobago
Canada∗	Iceland	New Zealand	Tunisia
Cape Verde	India∗	Nicaragua	Turkey
Central African Republic	Indonesia	Niger	Turkmenistan
Chile	Ireland	Nigeria	Uganda
China∗	Israel	Niue	Ukraine∗
Colombia	Italy	Norway	United Arab Emirates
Comoros	Jamaica	Oman	United Kingdom∗
Democratic Republic of the Congo	Japan∗	Pakistan∗	United States of America∗
	Jordan	Palau	Uruguay

Costa Rica	Kazakhstan	Panama	Uzbekistan
Croatia	Kenya	Paraguay	Yemen
Cuba	Republic of Korea*	Peru	Euratom
Cyprus	Kuwait	Philippines	
Czech Republic*	Lao People's Democratic Republic	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 49 contracting states to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, seven states have become contracting states to this amendment: the Czech Republic, Finland, Kazakhstan, Latvia, the Netherlands, Portugal and Saudi Arabia.

The text of this amendment is available at: http://ola.iaea.org/OLA/treaties/FullText.pdf.

Algeria	Fiji	Liechtenstein	Romania*
Antigua and Barbuda Australia	Finland*	Lithuania	Russian Federation*
Austria	Gabon	Mali	Saudi Arabia
Bahrain	Germany*	Mauritania	Seychelles
Bosnia and Herzegovina	Hungary	Moldova	Slovenia
Bulgaria*	India*	Nauru	Spain*
Chile	Indonesia	Netherlands	Switzerland*
China*	Jordan	Niger	Tunisia
Croatia	Kazakhstan	Nigeria	Turkmenistan
Czech Republic*	Kenya	Norway	Ukraine*
Denmark	Latvia	Poland	United Arab Emirates
Estonia	Libya	Portugal	United Kingdom*

* 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 77 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, two states have become state parties to this convention: Algeria and China.

The text of the convention is available at: http://untreaty.un.org/English/Terrorism/English_18_15.pdf.

Algeria	Czech Republic	Libya	Romania
Antigua and Barbuda	Denmark	Liechtenstein	Russian Federation
Armenia	Dominican Republic	Lithuania	Saint Vincent and the Grenadines
Austria	El Salvador	Luxembourg	Saudi Arabia
Azerbaijan	Fiji	Macedonia	Serbia
Bahrain	Finland	Malawi	Slovak Republic
Bangladesh	Gabon	Mali	Slovenia
Belarus	Georgia	Mauritania	Solomon Islands
Belgium	Germany	Mexico	South Africa
Brazil	Guinea-Bissau	Moldova	Spain
Burundi	Hungary	Mongolia	Sri Lanka
Central African Republic	India	Morocco	Switzerland
Chile	Japan	Nauru	Tunisia
China	Kazakhstan	Netherlands	Turkmenistan
Comoros	Kenya	Nicaragua	Ukraine
Democratic Republic of the	Kiribati	Niger	United Arab Emirates
Congo	Kyrgyzstan	Panama	United Kingdom

Croatia	Latvia	Paraguay	Uzbekistan
Cuba	Lebanon	Peru	
Cyprus	Lesotho	Poland	

Comprehensive Nuclear-Test-Ban Treaty

The treaty was adopted on 10 September 1996 and has not yet entered into force. There are 155 contracting states to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, two countries have become contracting states to this convention: Ghana and Guinea.

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, Indonesia, 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	Denmark	Lesotho	Qatar
Albania	Djibouti	Liberia	Romania
Algeria	Dominican Republic	Libya	Russian Federation
Andorra	Ecuador	Liechtenstein	Rwanda
Antigua and Barbuda	El Salvador	Lithuania	Saint Kitts and Nevis
Argentina	Eritrea	Luxembourg	Saint Lucia
Armenia	Estonia	Macedonia	Saint Vincent and the Grenadines
Australia	Ethiopia	Madagascar	Samoa
Austria	Fiji	Malawi	San Marino
Azerbaijan	Finland	Malaysia	Senegal
Bahamas	France	Maldives	Serbia
Bahrain	Gabon	Mali	Seychelles
Bangladesh	Georgia	Malta	Sierra Leone
Barbados	Germany	Marshall Islands	Singapore
Belarus	Ghana	Mauritania	Slovak Republic
Belgium	Greece	Mexico	Slovenia
Belize	Grenada	Micronesia	South Africa
Benin	Guinea	Moldova	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
Burundi	Ireland	Nauru	Togo
Cambodia	Italy	Netherlands	Trinidad and Tobago
Cameroon	Jamaica	New Zealand	Tunisia
Canada	Japan	Nicaragua	Turkey
Cape Verde	Jordan	Niger	Turkmenistan
Central African Republic	Kazakhstan	Nigeria	Uganda
Chile	Kenya	Norway	Ukraine
Colombia	Kiribati	Oman	United Arab Emirates
Democratic Republic of the Congo	Republic of Korea	Palau	United Kingdom
Cook Islands	Kuwait	Panama	Uruguay
Costa Rica	Kyrgyzstan	Paraguay	Uzbekistan
Côte d'Ivoire	Lao People's Democratic	Peru	Vanuatu
Croatia	Republic	Philippines	Venezuela
Cyprus	Latvia	Poland	Viet Nam
Czech Republic	Lebanon	Portugal	Zambia

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 107 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, two countries have become state parties to this convention: Mauritania and Tajikistan.

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	Slovenia∗
Bangladesh	Hungary∗	Monaco	South Africa∗
Belarus	Iceland	Mongolia	Spain∗
Belgium∗	India∗	Montenegro	Sri Lanka
Bolivia	Indonesia	Morocco	Sweden∗
Bosnia and Herzegovina	Iran*	Mozambique	Switzerland∗
Brazil∗	Iraq	Netherlands∗	Tajikistan
Bulgaria∗	Ireland	New Zealand	Tanzania
Cameroon	Israel	Nicaragua	Thailand
Canada∗	Italy	Nigeria	Tunisia
Chile	Japan∗	Norway	Turkey
China∗	Jordan	Oman	Ukraine∗
Colombia	Kazakhstan	Pakistan∗	United Arab Emirates
Costa Rica	Republic of Korea∗	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	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 112 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, three countries have become parties to this convention: Bahrain, Mauritania and Tajikistan.

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	El Salvador	Macedonia	Saudi Arabia
Algeria	Estonia	Malaysia	Senegal
Angola	Finland∗	Mali	Serbia
Argentina∗	France∗	Mauritania	Singapore
Armenia∗	Gabon	Mauritius	Slovak Republic∗

Australia	Georgia	Mexico*	Slovenia*
Austria	Germany*	Moldova	South Africa*
Bahrain	Greece	Monaco	Spain*
Bangladesh	Guatemala	Mongolia	Sri Lanka
Belarus	Hungary*	Montenegro	Sweden*
Belgium*	Iceland	Morocco	Switzerland*
Bolivia	India*	Mozambique	Tajikistan
Bosnia and Herzegovina	Indonesia	Myanmar	Tanzania
Brazil*	Iran*	Netherlands*	Thailand
Bulgaria*	Iraq	New Zealand	Tunisia
Cameroon	Ireland	Nicaragua	Turkey
Canada*	Israel	Nigeria	Ukraine*
Chile	Italy	Norway	United Arab Emirates
China*	Japan*	Oman	United Kingdom*
Colombia	Jordan	Pakistan*	United States of America*
Costa Rica	Kazakhstan	Panama	Uruguay
Croatia	Republic of Korea*	Peru	Viet Nam
Cuba	Kuwait	Philippines	Euratom
Cyprus	Latvia	Poland	Food and Agriculture Organisation
Czech Republic*	Lebanon	Portugal	World Health Organisation
Denmark	Libya	Qatar	World Meteorological Organisation
Dominican Republic	Liechtenstein	Romania*	
Egypt	Lithuania	Russian Federation*	
	Luxembourg	Saint Vincent and the Grenadines	

* 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 74 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, three countries have become state parties to this convention: Albania, Bahrain and Ghana.

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	South Africa*
Austria	Ghana	Mali	Spain*
Bahrain	Greece	Malta	Sri Lanka
Bangladesh	Hungary*	Mexico*	Sweden*
Belarus	Iceland	Moldova	Switzerland*
Belgium*	India*	Netherlands*	Tunisia
Bosnia and Herzegovina	Indonesia	Nigeria	Turkey
Brazil*	Ireland	Norway	Ukraine*
Bulgaria*	Italy	Pakistan*	United Arab Emirates
Canada*	Japan*	Peru	United Kingdom*
Chile	Jordan	Poland	United States of America*
China*	Kazakhstan	Portugal	Uruguay
Croatia	Republic of Korea*	Romania*	Viet Nam
Cyprus	Kuwait	Senegal	Euratom
Czech Republic*	Latvia	Russian Federation*	
Denmark	Lebanon	Saudi Arabia	

* 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 63 parties to this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, six countries have become state parties to this convention: Albania, Chile, Ghana, Indonesia, Mauritania and Saudi Arabia.

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	South Africa*
Belarus	Germany*	Mauritania	Spain*
Belgium*	Ghana	Moldova	Sweden*
Brazil*	Greece	Montenegro	Switzerland*
Bulgaria*	Hungary*	Morocco	Tajikistan
Canada*	Iceland	Netherlands*	Ukraine*
Chile	Indonesia	Nigeria	United Arab Emirates
China*	Ireland	Norway	United Kingdom*
Croatia	Italy	Poland	United States of America*
Cyprus	Japan*	Portugal	Uruguay
Czech Republic*	Kazakhstan	Romania*	Uzbekistan
Denmark	Republic of Korea *	Russian Federation*	Euratom
Estonia	Kyrgyzstan	Saudi Arabia	

* 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.

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.

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. 86, two countries have become state parties to this convention: Kazakhstan and Saudi Arabia.

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	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	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 9 parties to this convention: Argentina*, Belarus, Kazakhstan, Latvia, Montenegro, Morocco, Poland, Romania* and Saudi Arabia (* 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

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 26 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. 86, there have been no additional ratifications.

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	Uruguay (VC)
Egypt (VC)	Latvia (VC)	Grenadines (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. 86, there has been no further ratification.

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 2011

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. 44 states and the European Union have ratified this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, Iceland has become state party to this convention.

The text of the convention is available at: www.unece.org/env/pp/documents/cep43e.pdf.

Albania	Denmark	Kyrgyzstan	Portugal
Armenia	Estonia	Latvia	Romania
Austria	Finland	Lithuania	Serbia Slovak Republic
Azerbaijan	France	Luxembourg	Slovenia
Belarus	Georgia	Macedonia	Spain
Belgium	Germany	Malta	Sweden
Bosnia and Herzegovina	Greece	Moldova	Tajikistan
Bulgaria	Hungary	Montenegro	Turkmenistan
Croatia	Iceland	Netherlands	Ukraine
Cyprus	Italy	Norway	United Kingdom
Czech Republic	Kazakhstan	Poland	European Union

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. 44 states and the European Union have ratified this convention (see table below). Since the last status report in *Nuclear Law Bulletin* No. 86, there have been no additional ratifications.

The text of the convention is available at: www.unece.org/env/eia/documents/legaltexts/conventiontextenglish.pdf.

Albania	Denmark	Liechtenstein	Serbia
Armenia	Estonia	Lithuania	Slovak Republic
Austria	Finland	Luxembourg	Slovenia
Azerbaijan	France	Macedonia	Spain
Belarus	Germany	Malta	Sweden
Belgium	Greece	Moldova	Switzerland
Bosnia and Herzegovina	Hungary	Montenegro	Ukraine
Bulgaria	Ireland	Netherlands	United Kingdom
Canada	Italy	Norway	European Union
Croatia	Kazakhstan	Poland	
Cyprus	Kyrgyzstan	Portugal	
Czech Republic	Latvia	Romania	

Protocol on Strategic Environmental Assessment (Kiev Protocol)

The protocol was adopted on 21 May 2003 and has not yet entered into force. 22 countries and the European Union have ratified this protocol: Albania, Armenia, Austria, Bulgaria, Croatia, the Czech Republic, Estonia, Finland, Germany, Hungary, Lithuania, Luxembourg, Montenegro, the Netherlands, Norway, Poland, Romania, Serbia, the 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 2011

The following list illustrates the convention/treaty status of each OECD member country as of December 2011.

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

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

* Not yet in force.

- 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

* Not yet in force.

- 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
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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
- 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*
- 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
- Convention for the Protection of the Marine Environment of the North-East Atlantic

* Not yet in force.

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
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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
- 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
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- 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
- 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

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

* Not yet in force.

- 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 for the Protection of the Marine Environment of the North-East Atlantic

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
- 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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- Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy
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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

Greece

- 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

* Not yet in force.

- 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
- 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

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
- 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

Iceland

- 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 Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
- Convention for the Protection of the Marine Environment of the North-East Atlantic

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
- 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
- Convention on Environmental Impact Assessment in a Transboundary Context
- Convention for the Protection of the Marine Environment of the North-East Atlantic

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
- 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

* Not yet in force.

- 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
- 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
- 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
- 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
- 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
- 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*

* Not yet in force.

- 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

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
- 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

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

* Not yet in force.

- 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*
- 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

* Not yet in force.

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
- 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

* Not yet in force.

Sweden

- 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*
- 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
- 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

* Not yet in force.

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.

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

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
- 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*

* Not yet in force.

European Union

Council Directive 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Atomic Energy Community, and in particular Articles 31 and 32 thereof,

Having regard to the proposal from the European Commission, drawn up after obtaining the opinion of a group of persons appointed by the Scientific and Technical Committee from among scientific experts in the Member States,

Having regard to the opinion of the European Economic and Social Committee,[1]

Having regard to the opinion of the European Parliament,[2]

Whereas:

(1) Article 2(b) of the Treaty establishing the European Atomic Energy Community ('Euratom Treaty') provides for the establishment of uniform safety standards to protect the health of workers and of the general public.

(2) Article 30 of the Euratom Treaty provides for the establishment of basic standards for the protection of the health of workers and the general public against the dangers arising from ionising radiations.

(3) Article 37 of the Euratom Treaty requires Member States to provide the Commission with general data relating to any plan for the disposal of radioactive waste.

(4) Council Directive 96/29/Euratom[3] establishes basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation. That Directive has been supplemented by more specific legislation.

(5) As recognised by the Court of Justice of the European Union in its case-law, the provisions of Chapter 3 of the Euratom Treaty, on health and safety, form a coherent whole conferring upon the Commission powers of some considerable scope in order to protect the population and the environment against the risks of nuclear contamination.[4]

(6) Council Decision 87/600/Euratom of 14 December 1987 on Community arrangements for the early exchange of information in the event of a radiological emergency[5] established a framework for notification and provision of information to be used by the Member States in order to protect the general public in case of a

1. Opinion of 4 May 2011 (not yet published in the Official Journal).
2. Opinion of 23 June 2011 (not yet published in the Official Journal).
3. OJ L 159, 29.6.1996, p. 1.
4. C-187/87 (1988 ECR page 5013) and C-29/99 (2002 ECR page I-11221).
5. OJ L 371, 30.12.1987, p. 76.

radiological emergency. 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[6] imposed obligations on the Member States to inform the general public in the event of a radiological emergency.

(7) Council Directive 2003/122/Euratom[7] provides for the control of high-activity sealed radioactive sources and orphan sources, including disused sources. In accordance with the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management ('the Joint Convention') and the International Atomic Energy Agency (IAEA) Code of Conduct on the Safety and Security of Radioactive Sources, and current industrial practices, disused sealed sources can be reused, recycled or disposed of. In many cases, this needs a return of the source or return of the equipment, including the source, to a supplier or a manufacturer, for requalification or processing.

(8) Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries[8] covers the management of waste from extractive industries which may be radioactive, but excluding such aspects as are specific to radioactivity, which are matters dealt with under the Euratom Treaty.

(9) Council Directive 2006/117/Euratom[9] lays down a European Atomic Energy Community ('Community') system of supervision and control of transboundary shipments of radioactive waste and spent fuel. That Directive was supplemented by Commission Recommendation 2008/956/Euratom of 4 December 2008 on criteria for the export of radioactive waste and spent fuel to third countries.[10]

(10) Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations[11] imposes obligations on the Member States to establish and maintain a national framework for nuclear safety. While that Directive concerns principally the nuclear safety of nuclear installations, it states that it is also important to ensure the safe management of spent fuel and radioactive waste, including at storage and disposal facilities. Therefore, those facilities, addressed both in Directive 2009/71/Euratom and in this Directive, should not be subject to disproportionate or unnecessary obligations, especially as regards reporting.

(11) Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment[12] applies to certain plans and programmes within the scope of Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.[13]

(12) Commission Recommendation 2006/851/Euratom of 24 October 2006 on the management of the financial resources for the decommissioning of nuclear installations, spent fuel and radioactive waste[14] focuses on the adequacy of funding,

6. OJ L 357, 7.12.1989, p. 31.
7. OJ L 346, 31.12.2003, p. 57.
8. OJ L 102, 11.4.2006, p. 15.
9. OJ L 337, 5.12.2006, p. 21.
10. OJ L 338, 17.12.2008, p. 69.
11. OJ L 172, 2.7.2009, p. 18.
12. OJ L 156, 25.6.2003, p. 17.
13. OJ L 197, 21.7.2001, p. 30.
14. OJ L 330, 28.11.2006, p. 31.

its financial security and its transparency in order to ensure that the funds are only used for the intended purposes.

(13) Under the specific terms of accession of Lithuania, Slovakia and Bulgaria to the European Union, where certain nuclear power plants were subject to early shutdown, the Community has taken part in the raising of financial resources and provides financial support subject to certain conditions to various decommissioning projects, including management of radioactive waste and spent fuel.

(14) The Joint Convention, concluded under the auspices of the IAEA, represents an incentive instrument which aims at achieving and maintaining a high level of safety worldwide in spent fuel and radioactive waste management through the enhancement of national measures and international co-operation.

(15) Some Member States have already participated and intend to participate further in the US-Russian driven programme, called the Global Threat Reduction Initiative, by shipping the spent fuel of research reactors to the United States of America and to the Russian Federation.

(16) In 2006, the IAEA updated the structure of standards and published the Fundamental Safety Principles, which were jointly sponsored by the Community, the Organisation for Economic Co-operation and Development/Nuclear Energy Agency and other international organisations. Applying the Fundamental Safety Principles will facilitate the application of international safety standards and will make for greater consistency between the arrangements of different states.

(17) Following the Council's invitation to set up a High Level Group at EU level, as recorded in its Conclusions of 8 May 2007 on Nuclear Safety and Safe Management of Spent Nuclear Fuel and Radioactive Waste, the European Nuclear Safety Regulators Group (ENSREG) was set up by Commission Decision 2007/530/Euratom of 17 July 2007 on establishing the European High Level Group on Nuclear Safety and Waste Management[15] to contribute to the achievement of the Community objectives in the field of spent fuel and radioactive waste management. The conclusions and recommendations of ENSREG were reflected in the Council Resolution of 16 December 2008 on Spent Fuel and Radioactive Waste Management and the Council Conclusions of 10 November 2009 on the report by the European Nuclear Safety Regulators Group.

(18) The European Parliament adopted on 10 May 2007 a Resolution 'Assessing Euratom – 50 Years of European nuclear energy policy' where it called for harmonised standards for radioactive waste management and invited the Commission to review the relevant drafts of its legislative proposal and submit a new proposal for a directive on radioactive waste management.

(19) While each Member State remains free to define its energy mix, all Member States generate radioactive waste from power generation or in the course of industrial, agricultural, medical and research activities, or through decommissioning of nuclear facilities or in situations of remediation and interventions.

(20) The operation of nuclear reactors generates spent fuel. Each Member State remains free to define its fuel cycle policy. The spent fuel can be regarded either as a valuable resource that may be reprocessed or as radioactive waste that is destined for direct disposal. Whatever option is chosen, the disposal of high-level waste, separated at reprocessing, or of spent fuel regarded as waste should be considered.

(21) Radioactive waste, including spent fuel considered as waste, requires containment and isolation from humans and the living environment over the long

15. OJ L 195, 17.7.2007, p. 44.

term. Its specific nature, namely that it contains radionuclides, requires arrangements to protect human health and the environment against dangers arising from ionising radiation, including disposal in appropriate facilities as the end location point. The storage of radioactive waste, including long-term storage, is an interim solution, but not an alternative to disposal.

(22) A national radioactive waste classification scheme should support those arrangements, taking fully into account the specific types and properties of radioactive waste.

(23) The typical disposal concept for low and intermediate-level waste is near-surface disposal. It is broadly accepted at the technical level that, at this time, deep geological disposal represents the safest and most sustainable option as the end point of the management of high-level waste and spent fuel considered as waste. Member States, while retaining responsibility for their respective policies in respect of the management of their spent fuel and low, intermediate or high-level radioactive waste, should include planning and implementation of disposal options in their national policies. Since the implementation and development of a disposal facility will take place over many decades, many programmes recognise the necessity of remaining flexible and adaptable, e.g. in order to incorporate new knowledge about site conditions or the possible evolution of the disposal system. The activities conducted under the Implementing Geological Disposal of Radioactive Waste Technology Platform (IGD-TP) could facilitate access to expertise and technology in this respect. To that end, reversibility and retrievability as operating and design criteria may be used to guide the technical development of a disposal system. However, those criteria should not be a substitute for a well designed disposal facility that has a defensible basis for closure. A compromise is needed as the management of radioactive waste and spent fuel is based on state-of-the-art science and technology.

(24) It should be an ethical obligation of each Member State to avoid any undue burden on future generations in respect of spent fuel and radioactive waste including any radioactive waste expected from decommissioning of existing nuclear installations. Through the implementation of this Directive Member States will have demonstrated that they have taken reasonable steps to ensure that that objective is met.

(25) The ultimate responsibility of Member States for the safety of spent fuel and radioactive waste management is a fundamental principle reaffirmed by the Joint Convention. That principle of national responsibility, as well as the principle of prime responsibility of the licence holder for the safety of spent fuel and radioactive waste management under the supervision of its competent regulatory authority, should be enhanced and the role and independence of the competent regulatory authority should be reinforced by this Directive.

(26) It is understood that the utilisation of radioactive sources by a competent regulatory authority for the purpose of carrying out its regulatory tasks does not affect its independence.

(27) Member States should ensure that adequate funding is available for the management of spent fuel and radioactive waste.

(28) Member States should establish national programmes to ensure the transposition of political decisions into clear provisions for the timely implementation of all steps of spent fuel and radioactive waste management from generation to disposal. It should be possible for such national programmes to be in the form of a single reference document or a set of documents.

(29) It is understood that national arrangements for the safety of spent fuel and radioactive waste management will be applied through some form of legal,

regulatory or organisational instrument, the choice of which rests within the competence of the Member States.

(30) The different steps in spent fuel and radioactive waste management are closely interrelated. Decisions taken in one individual step may affect a subsequent step. Therefore such interdependencies should be taken into account when developing national programmes.

(31) Transparency is important in the management of spent fuel and radioactive waste. Transparency should be provided by ensuring effective public information and opportunities for all stakeholders concerned, including local authorities and the public, to participate in the decision-making processes in accordance with national and international obligations.

(32) Co-operation between Member States and at an international level could facilitate and accelerate decision-making through access to expertise and technology.

(33) Some Member States consider that the sharing of facilities for spent fuel and radioactive waste management, including disposal facilities, is a potentially beneficial, safe and cost-effective option when based on an agreement between the Member States concerned.

(34) The documentation of the decision-making process as it relates to safety should be commensurate with the levels of risk (graded approach) and should provide a basis for decisions related to the management of spent fuel and radioactive waste. This should enable the identification of areas of uncertainty on which attention needs to be focused in an assessment of safety. Safety decisions should be based on the findings of an assessment of safety and information on the robustness and reliability of that assessment and the assumptions made therein. The decision-making process should therefore be based on a collection of arguments and evidence that seek to demonstrate that the required standard of safety is achieved for a facility or activity related to the management of spent fuel and radioactive waste. In the particular case of a disposal facility, the documentation should improve understanding of those aspects influencing the safety of the disposal system, including natural (geological) and engineered barriers, and the expected development of the disposal system over time.

(35) A Member State which has no spent fuel, no immediate prospect of having spent fuel and no present or planned activities related to spent fuel, would be under a disproportionate and unnecessary obligation if it had to transpose and implement the provisions of this Directive with regard to spent fuel. Therefore, such Member States should be exempted, for as long as they have not taken a decision to develop any activity related to nuclear fuel, from the obligation to transpose and implement the provisions related to spent fuel of this Directive.

(36) A Treaty between the government of the Republic of Slovenia and the government of the Republic of Croatia on the regulation of the status and other legal relations regarding investment, exploitation and decommissioning of the Krško nuclear power plant governs the co-ownership of a nuclear power plant. That Treaty provides for shared responsibility for the management and disposal of radioactive waste and spent fuel. Therefore an exemption to certain provisions of this Directive should be laid down in order not to hinder the full implementation of that bilateral Treaty.

(37) While recognising that radiological and non-radiological hazards associated with spent fuel and radioactive waste should be taken into account in the national framework, this Directive does not cover non-radiological hazards, which fall under the Treaty on the Functioning of the European Union.

(38) Maintenance and further development of competences and skills in the management of spent fuel and radioactive waste, as an essential element to ensure high levels of safety, should be based on learning through operational experience.

(39) Scientific research and technological development supported by technical co-operation between actors may open horizons to improve the safe management of spent fuel and radioactive waste, as well as contribute to reducing the risk of the radiotoxicity of high-level waste.

(40) Peer review could serve as an excellent means of building confidence and trust in the management of radioactive waste and spent fuel in the European Union, with the aim of developing and exchanging experience and ensuring high standards, has adopted this directive:

Chapter 1. Scope, definitions and general principles

Article 1. Subject-matter

1. This Directive establishes a Community framework for ensuring responsible and safe management of spent fuel and radioactive waste to avoid imposing undue burdens on future generations.

2. It ensures that Member States provide for appropriate national arrangements for a high level of safety in spent fuel and radioactive waste management to protect workers and the general public against the dangers arising from ionising radiation.

3. It ensures the provision of necessary public information and participation in relation to spent fuel and radioactive waste management while having due regard to security and proprietary information issues.

4. Without prejudice to Directive 96/29/Euratom, this Directive supplements the basic standards referred to in Article 30 of the Euratom Treaty as regards the safety of spent fuel and radioactive waste.

Article 2. Scope

1. This Directive shall apply to all stages of:

   a) spent fuel management when the spent fuel results from civilian activities;

   b) radioactive waste management, from generation to disposal, when the radioactive waste results from civilian activities.

2. This Directive shall not apply to:

   a) waste from extractive industries which may be radioactive and which falls within the scope of Directive 2006/21/EC;

   b) authorised releases.

3. Article 4(4) of this Directive shall not apply to:

   a) repatriation of disused sealed sources to a supplier or manufacturer;

   b) shipment of spent fuel of research reactors to a country where research reactor fuels are supplied or manufactured, taking into account applicable international agreements;

   c) the waste and spent fuel of the existing Krško nuclear power plant, when it concerns shipments between Slovenia and Croatia.

4. This Directive shall not affect the right of a Member State or an undertaking in that Member State to return radioactive waste after processing to its country of origin where:

a) the radioactive waste is to be shipped to that Member State or undertaking for processing; or

b) other material is to be shipped to that Member State or undertaking with the purpose of recovering the radioactive waste.

This Directive shall not affect the right of a Member State or an undertaking in that Member State to which spent fuel is to be shipped for treatment or reprocessing to return to its country of origin radioactive waste recovered from the treatment or reprocessing operation, or an agreed equivalent.

Article 3. Definitions

For the purpose of this Directive the following definitions shall apply:

(1) 'closure' means the completion of all operations at some time after the emplacement of spent fuel or radioactive waste in a disposal facility, including the final engineering or other work required to bring the facility to a condition that will be safe in the long term;

(2) 'competent regulatory authority' means an authority or a system of authorities designated in a Member State in the field of regulation of the safety of spent fuel or radioactive waste management as referred to in Article 6;

(3) 'disposal' means the emplacement of spent fuel or radioactive waste in a facility without the intention of retrieval;

(4) 'disposal facility' means any facility or installation the primary purpose of which is radioactive waste disposal;

(5) 'licence' means any legal document granted under the jurisdiction of a Member State to carry out any activity related to the management of spent fuel or radioactive waste, or to confer responsibility for siting, design, construction, commissioning, operation, decommissioning or closure of a spent fuel management facility or of a radioactive waste management facility;

(6) 'licence holder' means a legal or natural person having overall responsibility for any activity or facility related to the management of spent fuel or radioactive waste as specified in a licence;

(7) 'radioactive waste' means radioactive material in gaseous, liquid or solid form for which no further use is foreseen or considered by the Member State or by a legal or natural person whose decision is accepted by the Member State, and which is regulated as radioactive waste by a competent regulatory authority under the legislative and regulatory framework of the Member State;

(8) 'radioactive waste management' means all activities that relate to handling, pretreatment, treatment, conditioning, storage, or disposal of radioactive waste, excluding off-site transportation;

(9) 'radioactive waste management facility' means any facility or installation the primary purpose of which is radioactive waste management;

(10) 'reprocessing' means a process or operation, the purpose of which is to extract fissile and fertile materials from spent fuel for further use;

(11) 'spent fuel' means nuclear fuel that has been irradiated in and permanently removed from a reactor core; spent fuel may either be considered as a usable

resource that can be reprocessed or be destined for disposal if regarded as radioactive waste;

(12) 'spent fuel management' means all activities that relate to the handling, storage, reprocessing, or disposal of spent fuel, excluding off-site transportation;

(13) 'spent fuel management facility' means any facility or installation the primary purpose of which is spent fuel management;

(14) 'storage' means the holding of spent fuel or of radioactive waste in a facility with the intention of retrieval.

Article 4. General principles

1. Member States shall establish and maintain national policies on spent fuel and radioactive waste management. Without prejudice to Article 2(3), each Member State shall have ultimate responsibility for management of the spent fuel and radioactive waste generated in it.

2. Where radioactive waste or spent fuel is shipped for processing or reprocessing to a Member State or a third country, the ultimate responsibility for the safe and responsible disposal of those materials, including any waste as a by-product, shall remain with the Member State or third country from which the radioactive material was shipped.

3. National policies shall be based on all of the following principles:

a) the generation of radioactive waste shall be kept to the minimum which is reasonably practicable, both in terms of activity and volume, by means of appropriate design measures and of operating and decommissioning practices, including the recycling and reuse of materials;

b) the interdependencies between all steps in spent fuel and radioactive waste generation and management shall be taken into account;

c) spent fuel and radioactive waste shall be safely managed, including in the long term with passive safety features;

d) implementation of measures shall follow a graded approach;

e) the costs for the management of spent fuel and radioactive waste shall be borne by those who generated those materials;

f) an evidence-based and documented decision-making process shall be applied with regard to all stages of the management of spent fuel and radioactive waste.

4. Radioactive waste shall be disposed of in the Member State in which it was generated, unless at the time of shipment an agreement, taking into account the criteria established by the Commission in accordance with Article 16(2) of Directive 2006/117/Euratom, has entered into force between the Member State concerned and another Member State or a third country to use a disposal facility in one of them.

Prior to a shipment to a third country, the exporting Member State shall inform the Commission of the content of any such agreement and take reasonable measures to be assured that:

a) the country of destination has concluded an agreement with the Community covering spent fuel and radioactive waste management or is a party to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management ('the Joint Convention');

b) the country of destination has radioactive waste management and disposal programmes with objectives representing a high level of safety equivalent to those established by this Directive; and

c) the disposal facility in the country of destination is authorised for the radioactive waste to be shipped, is operating prior to the shipment, and is managed in accordance with the requirements set down in the radioactive waste management and disposal programme of that country of destination.

Chapter 2. Obligations

Article 5. National framework

1. Member States shall establish and maintain a national legislative, regulatory and organisational framework ('national framework') for spent fuel and radioactive waste management that allocates responsibility and provides for coordination between relevant competent bodies. The national framework shall provide for all of the following:

a) a national programme for the implementation of spent fuel and radioactive waste management policy;

b) national arrangements for the safety of spent fuel and radioactive waste management. The determination of how those arrangements are to be adopted and through which instrument they are to be applied rests within the competence of the Member States;

c) a system of licensing of spent fuel and radioactive waste management activities, facilities or both, including the prohibition of spent fuel or radioactive waste management activities, of the operation of a spent fuel or radioactive waste management facility without a licence or both and, if appropriate, prescribing conditions for further management of the activity, facility or both;

d) a system of appropriate control, a management system, regulatory inspections, documentation and reporting obligations for radioactive waste and spent fuel management activities, facilities or both, including appropriate measures for the post-closure periods of disposal facilities;

e) enforcement actions, including the suspension of activities and the modification, expiration or revocation of a licence together with requirements, if appropriate, for alternative solutions that lead to improved safety;

f) the allocation of responsibility to the bodies involved in the different steps of spent fuel and radioactive waste management; in particular, the national framework shall give primary responsibility for the spent fuel and radioactive waste to their generators or, under specific circumstances, to a licence holder to whom this responsibility has been entrusted by competent bodies;

g) national requirements for public information and participation;

h) the financing scheme(s) for spent fuel and radioactive waste management in accordance with Article 9.

2. Member States shall ensure that the national framework is improved where appropriate, taking into account operating experience, insights gained from the decision-making process referred to in Article 4(3)(f), and the development of relevant technology and research.

Article 6. Competent regulatory authority

1. Each Member State shall establish and maintain a competent regulatory authority in the field of safety of spent fuel and radioactive waste management.

2. Member States shall ensure that the competent regulatory authority is functionally separate from any other body or organisation concerned with the promotion or utilisation of nuclear energy or radioactive material, including electricity production and radioisotope applications, or with the management of spent fuel and radioactive waste, in order to ensure effective independence from undue influence on its regulatory function.

3. Member States shall ensure that the competent regulatory authority is given the legal powers and human and financial resources necessary to fulfil its obligations in connection with the national framework as described in Article 5(1)(b), (c), (d) and (e).

Article 7. Licence holders

1. Member States shall ensure that the prime responsibility for the safety of spent fuel and radioactive waste management facilities and/or activities rest with the licence holder. That responsibility can not be delegated.

2. Member States shall ensure that the national framework in place require licence holders, under the regulatory control of the competent regulatory authority, to regularly assess, verify and continuously improve, as far as is reasonably achievable, the safety of the radioactive waste and spent fuel management facility or activity in a systematic and verifiable manner. This shall be achieved through an appropriate safety assessment, other arguments and evidence.

3. As part of the licensing of a facility or activity the safety demonstration shall cover the development and operation of an activity and the development, operation and decommissioning of a facility or closure of a disposal facility as well as the post-closure phase of a disposal facility. The extent of the safety demonstration shall be commensurate with the complexity of the operation and the magnitude of the hazards associated with the radioactive waste and spent fuel, and the facility or activity. The licensing process shall contribute to safety in the facility or activity during normal operating conditions, anticipated operational occurrences and design basis accidents. It shall provide the required assurance of safety in the facility or activity. Measures shall be in place to prevent accidents and mitigate the consequences of accidents, including verification of physical barriers and the licence holder's administrative protection procedures that would have to fail before workers and the general public would be significantly affected by ionising radiation. That approach shall identify and reduce uncertainties.

4. Member States shall ensure that the national framework require licence holders to establish and implement integrated management systems, including quality assurance, which give due priority for overall management of spent fuel and radioactive waste to safety and are regularly verified by the competent regulatory authority.

5. Member States shall ensure that the national framework require licence holders to provide for and maintain adequate financial and human resources to fulfil their obligations with respect to the safety of spent fuel and radioactive waste management as laid down in paragraphs 1 to 4.

Article 8. Expertise and skills

Member States shall ensure that the national framework require all parties to make arrangements for education and training for their staff, as well as research and development activities to cover the needs of the national programme for spent fuel and radioactive waste management in order to obtain, maintain and to further develop necessary expertise and skills.

Article 9. Financial resources

Member States shall ensure that the national framework require that adequate financial resources be available when needed for the implementation of national programmes referred to in Article 11, especially for the management of spent fuel and radioactive waste, taking due account of the responsibility of spent fuel and radioactive waste generators.

Article 10. Transparency

1. Member States shall ensure that necessary information on the management of spent fuel and radioactive waste be made available to workers and the general public. This obligation includes ensuring that the competent regulatory authority inform the public in the fields of its competence. Information shall be made available to the public in accordance with national legislation and international obligations, provided that this does not jeopardise other interests such as, inter alia, security, recognised in national legislation or international obligations.

2. Member States shall ensure that the public be given the necessary opportunities to participate effectively in the decision-making process regarding spent fuel and radioactive waste management in accordance with national legislation and international obligations.

Article 11. National programmes

1. Each Member State shall ensure the implementation of its national programme for the management of spent fuel and radioactive waste ('national programme'), covering all types of spent fuel and radioactive waste under its jurisdiction and all stages of spent fuel and radioactive waste management from generation to disposal.

2. Each Member State shall regularly review and update its national programme, taking into account technical and scientific progress as appropriate as well as recommendations, lessons learned and good practices from peer reviews.

Article 12. Contents of national programmes

1. The national programmes shall set out how the Member States intend to implement their national policies referred to in Article 4 for the responsible and safe management of spent fuel and radioactive waste to secure the aims of this Directive, and shall include all of the following:

a) the overall objectives of the Member State's national policy in respect of spent fuel and radioactive waste management;

b) the significant milestones and clear timeframes for the achievement of those milestones in light of the over-arching objectives of the national programme;

c) an inventory of all spent fuel and radioactive waste and estimates for future quantities, including those from decommissioning, clearly indicating the location and amount of the radioactive waste and spent fuel in accordance with appropriate classification of the radioactive waste;

d) the concepts or plans and technical solutions for spent fuel and radioactive waste management from generation to disposal;

e) the concepts or plans for the post-closure period of a disposal facility's lifetime, including the period during which appropriate controls are retained and the means to be employed to preserve knowledge of that facility in the longer term;

f) the research, development and demonstration activities that are needed in order to implement solutions for the management of spent fuel and radioactive waste;

g) the responsibility for the implementation of the national programme and the key performance indicators to monitor progress towards implementation;

h) an assessment of the national programme costs and the underlying basis and hypotheses for that assessment, which must include a profile over time;

i) the financing scheme(s) in force;

j) a transparency policy or process as referred to in Article 10;

k) if any, the agreement(s) concluded with a Member State or a third country on management of spent fuel or radioactive waste, including on the use of disposal facilities.

2. The national programme together with the national policy may be contained in a single document or in a number of documents.

Article 13. Notification

1. Member States shall notify to the Commission their national programmes and any subsequent significant changes.

2. Within 6 months of the date of notification, the Commission may request clarification and/or express its opinion on whether the content of the national programme is in accordance with Article 12.

3. Within 6 months of receiving the Commission's reaction Member States shall provide the requested clarification and/or inform the Commission of any revision of the national programmes.

4. The Commission, when deciding on the provision of Community financial or technical assistance for spent fuel and radioactive waste management facilities or activities, shall take into account the Member States' clarifications and progress regarding the national programmes.

Article 14. Reporting

1. Member States shall submit a report to the Commission on the implementation of this Directive for the first time by 23 August 2015, and every 3 years thereafter, taking advantage of the review and reporting under the Joint Convention.

2. On the basis of the Member States' reports, the Commission shall submit to the European Parliament and the Council the following:

a) a report on progress made with the implementation of this Directive; and

b) an inventory of radioactive waste and spent fuel present in the Community's territory and the future prospects.

3. Member States shall periodically, and at least every 10 years, arrange for self-assessments of their national framework, competent regulatory authority, national

programme and its implementation, and invite international peer review of their national framework, competent regulatory authority and/or national programme with the aim of ensuring that high safety standards are achieved in the safe management of spent fuel and radioactive waste. The outcomes of any peer review shall be reported to the Commission and the other Member States, and may be made available to the public where there is no conflict with security and proprietary information.

Chapter 3. Final provisions

Article 15. Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 23 August 2013. They shall forthwith inform the Commission thereof.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

2. The obligations for transposition and implementation of provisions related to spent fuel of this Directive shall not apply to Cyprus, Denmark, Estonia, Ireland, Latvia, Luxembourg and Malta for as long as they decide not to develop any activity related to nuclear fuel.

3. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive and of any subsequent amendments to those provisions.

4. Member States shall for the first time notify to the Commission the content of their national programme covering all the items provided for in Article 12 as soon as possible, but not later than 23 August 2015.

Article 16. Entry into force

This Directive shall enter into force on the 20th day following its publication in the Official Journal of the European Union.

Article 17. Addressees

This Directive is addressed to the Member States.

Done at Brussels, 19 July 2011.

For the Council

The President

M. SAWICKI

India

The Civil Liability for Nuclear Damage Act, 2010

Bill No. 19-C of 2010

As passed by Lok Sabha on 25th August 2010

Arrangement of Clauses

An act "to provide for civil liability for Nuclear Damage and prompt compensation to the victims of a Nuclear accident through a No Fault Liability Regime channelling liability to the operator, appointment of Claims Commissioner, establishment of Nuclear Damage Claims commission and for matters connected therewith or incidental thereto" be it enacted by Parliament in the 61st Year of the Republic of India as follows:

I. Preliminary

1. Short title, extent, application and commencement

1. This act may be called the Civil Liability for Nuclear Damage Act, 2010.

2. It extends to the whole of India.

3. It also applies to nuclear damage suffered:

a) in or over the maritime areas beyond the territorial waters of India;

b) in or over the exclusive economic zone of India as referred to in section 7 of the Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Act, 1976;

c) on board or by a ship registered in India under section 22 of the Merchant Shipping Act, 1958 or under any other law for the time being in force;

d) on board or by an aircraft registered in India under clause d of sub-section 2 of section 5 of the Aircraft Act, 1934 or under any other law for the time being in force;

e) on or by an artificial island, installation or structure under the jurisdiction of India.

3A. It applies only to the Nuclear Installation owned or controlled by the Central Government either by itself or through any authority or corporation established by it or a Government company.

Explanation - For the purposes of this sub-section, "Government" shall have the same meaning as assigned to it in clause bb of sub-section I of section 2 of the Atomic Energy Act, 1962.

4. It shall come into force on such date as the Central Government may, by notification, appoint; and different dates may be appointed for different provisions of this act, and any reference in any such provision to the commencement of this act shall be construed as a reference to the coming into force of that provision.

2. Definitions

In this act, unless the context otherwise requires:

a) "Chairperson" means the Chairperson of the Commission appointed under subsection 1 of section 20;

b) "Claims Commissioner" means the Claims Commissioner appointed under subsection 2 of section 9;

c) "Commission" means the Nuclear Damage Claims Commission established under section 19;

ca) "Environment" will have the same meanings assigned to it in clause a of Section 2 of the Environment (Protection) Act,1986

d) "Member" means a member of the Commission appointed under sub-section 1 of section 20;

e) "Notification" means a notification published in the Official Gazette and the term "notify" shall be construed accordingly;

f) "Nuclear damage" means:

i) loss of life or personal injury (including immediate and long term health impact) to a person; or

ii) loss of, or damage to, property, caused by or arising out of a nuclear incident, and includes each of the following to the extent notified by the Central Government;

iii) any economic loss, arising from the loss or damage referred to in clauses i or ii and not included in the claims made under those clauses, if incurred by a person entitled to claim such loss or damage;

iv) costs of measures of reinstatement of impaired environment caused by a nuclear incident, unless such impairment is insignificant, if such measures

are actually taken or to be taken and not included in the claims made under clause ii;

v) loss of income deriving from an economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment caused by a nuclear incident, and not included in the claims under clause ii;

vi) the costs of preventive measures, and further loss or damage caused by such measures;

vii) any other economic loss, other than the one caused by impairment of the environment referred to in clauses iv and v, in so far as it is permitted by the general law on civil liability in force in India and not claimed under any such law, in the case of sub-clauses i to v and vii above, to the extent the loss or damage arises out of, or results from, ionizing radiation emitted by any source of radiation inside a nuclear installation, or emitted from nuclear fuel or radioactive products or waste in, or of, nuclear material coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter;

g) "Nuclear fuel" means any material which is capable of producing energy by a self-sustaining chain process of nuclear fission;

h) "Nuclear incident" means any occurrence or series of occurrences having the same origin which causes nuclear damage or, but only with respect to preventive measures, creates a grave and imminent threat of causing such damage;

i) "Nuclear installation" means:

(A) any nuclear reactor other than one with which a means of transport is equipped for use as a source of power, whether for propulsion thereof or for any other purpose;

(B) any facility using nuclear fuel for the production of nuclear material, or any facility for the processing of nuclear material, including re-processing of irradiated nuclear fuel; and

(C) any facility where nuclear material is stored (other than storage incidental to the carriage of such material).

Explanation — For the purpose of this clause, several nuclear installations of one operator which are located at the same site shall be considered as a single nuclear installation;

j) "Nuclear material" means and includes:

i) nuclear fuel (other than natural uranium or depleted uranium) capable of producing energy by a self-sustaining chain process of nuclear fission outside a nuclear reactor, either by itself or in combination with some other material; and

ii) radioactive products or waste;

k) "Nuclear reactor" means any structure containing nuclear fuel in such an arrangement that a self-sustaining chain process of nuclear fission can occur therein without an additional source of neutrons;

l) "Operator", in relation to a nuclear installation, means the Central Government or any authority or corporation established by it or a Government company

who has been granted a licence pursuant to the Atomic Energy Act, 1962 for the operation of that installation;

m) "Prescribed" means prescribed by rules made under this act;

n) "Preventive measures" means any reasonable measures taken by a person after a nuclear incident has occurred to prevent or minimise damage referred to in sub-clauses i to v and vii of clause f, subject to the approval of the Central Government;

o) "Radioactive products or waste" means any radioactive material produced in, or any material made radioactive by exposure to, the radiation incidental to the production or utilisation of nuclear fuel, but does not include radioisotopes which have reached the final stage of fabrication so as to be usable for any scientific, medical, agricultural, commercial or industrial purpose;

p) "Special Drawing Rights" means Special Drawing Rights as determined by the International Monetary Fund.

II. Liability for nuclear damage

3. Atomic Energy Regulatory Board to notify nuclear incident

1. The Atomic Energy Regulatory Board constituted under the Atomic Energy Act, 1962 shall, within a period of 15 days from the date of occurrence of a nuclear incident, notify such nuclear incident:

Provided that where the Atomic Energy Regulatory Board is satisfied that the gravity of threat and risk involved in a nuclear incident is insignificant, it shall not be required to notify such nuclear incident.

2. The Atomic Energy Regulatory Board shall, immediately after the notification under sub-section 1 is issued, cause wide publicity to be given to the occurrence of such nuclear incident, in such manner as it may deem fit.

4. Liability of operator

1. The operator of the nuclear installation shall be liable for nuclear damage caused by a nuclear incident:

a) in that nuclear installation; or

b) involving nuclear material coming from, or originating in, that nuclear installation and occurring before:

   i) the liability for nuclear incident involving such nuclear material has been assumed, pursuant to a written agreement, by another operator; or

   ii) another operator has taken charge of such nuclear material; or

   iii) the person duly authorised to operate a nuclear reactor has taken charge of the nuclear material intended to be used in that reactor with which means of transport is equipped for use as a source of power, whether for propulsion thereof or for any other purpose; or

   iv) such nuclear material has been unloaded from the means of transport by which it was sent to a person within the territory of a foreign state; or

c) involving nuclear material sent to that nuclear installation and occurring after:

i) the liability for nuclear incident involving such nuclear material has been transferred to that operator, pursuant to a written agreement, by the operator of another nuclear installation; or

ii) that operator has taken charge of such nuclear material; or

iii) that operator has taken charge of such nuclear material from a person operating a nuclear reactor with which a means of transport is equipped for use as a source of power, whether for propulsion thereof or for any other purpose; or

iv) such nuclear material has been loaded, with the written consent of that operator, on the means of transport by which it is to be carried from the territory of a foreign state.

2. Where more than one operator is liable for nuclear damage, the liability of the operators so involved shall, in so far as the damage attributable to each operator is not separable, be joint and several:

3. Provided that the total liability of such operators shall not exceed the extent of liability specified under sub-section 2 of section 6.

4. Where several nuclear installations of one and the same operator are involved in a nuclear incident, such operator shall, in respect of each such nuclear installation, be liable to the extent of liability specified under sub-section 2 of section 6.

The liability of the operator of the Nuclear Installation shall be strict and shall be based on the principle of No Fault Liability.

Explanation — For the purposes of this section:

a) where nuclear damage is caused by a nuclear incident occurring in a nuclear installation on account of temporary storage of material-in-transit in such installation, the person responsible for transit of such material shall be deemed to be the operator;

b) where a nuclear damage is caused as a result of nuclear incident during the transportation of nuclear material, the consignor shall be deemed to be the operator;

c) where any written agreement has been entered into between the consignor and the consignee or, as the case may be, the consignor and the carrier of nuclear material, the person liable for any nuclear damage under such agreement shall be deemed to be the operator;

d) where both nuclear damage and damage other than nuclear damage have been caused by a nuclear incident or, jointly by a nuclear incident and one or more other occurrences, such other damage shall, to the extent it is not separable from the nuclear damage, be deemed to be a nuclear damage caused by such nuclear incident.

5. *Operator not liable in certain circumstances*

1. An operator shall not be liable for any nuclear damage where such damage is caused by a nuclear incident directly due to:

i) a grave natural disaster of an exceptional character; or

ii) an act of armed conflict, hostility, civil war, insurrection or terrorism.

2. An operator shall not be liable for any nuclear damage caused to:

i) the nuclear installation itself and any other nuclear installation including a nuclear installation under construction, on the site where such installation is located; and

ii) to any property on the same site which is used or to be used in connection with any such installation; or

iii) to the means of transport upon which the nuclear material involved was carried at the time of nuclear incident:

Provided that any compensation liable to be paid by an operator for a nuclear damage shall not have the effect of reducing the amount of his liability in respect of any other claim for damage under any other law for the time being in force.

3. Where any nuclear damage is suffered by a person on account of his own negligence or from his own acts of commission or omission, the operator shall not be liable to such person.

6. Limits of liability

1. The maximum amount of liability in respect of each nuclear incident shall be the INR equivalent of SDRs 300 million or such higher amount as the Central Government may specify by notification:

Provided that the Central Government might take additional measures, where necessary, if the compensation to be awarded under this act exceeds the amount specified under this sub section.

2. The Liability of the operator in each nuclear incident shall be:

a) In respect of nuclear reactors having thermal power equal to or above 10 MW, INR 1.5 billion;

b) In respect of spent fuel reprocessing plant INR 300 million;

c) In respect of research reactors having thermal power below 10 MW, Fuel cycle facilities other than spent fuel reprocessing plants and transportation of Nuclear Materials, INR 100 million; Provided that the Central Government may review the amount of Operator's liability from time to time, and specify, by notification, a higher amount in this sub section;

d) Provided further that the amount of liability shall not include any interest or cost of proceedings.

7. Liability of Central Government

1. The Central Government shall be liable for nuclear damage in respect of a nuclear incident:

a) where the liability exceeds the amount of liability of an operator specified under sub-section 2 of section 6, to the extent such liability exceeds such liability of the operator;

b) occurring in a nuclear installation owned by it; and

c) occurring on account of causes specified in clauses i and ii of sub-section 1 of section 5.

Provided that the Central Government may, by notification, assume full liability for a nuclear installation not operated by it, if it is of the opinion that it is necessary in public interest.

2. For the purpose of it meeting part of its liability under clause a or clause c of sub-section 1, the Central Government may establish a fund to be called the Nuclear Liability fund by charging such amount of levy from the operators, in such manner, as may be prescribed.

8. Operator to maintain insurance or financial securities

1. The operator shall, before he begins operation of his nuclear installation, take out insurance policy or such other financial security or combination of both, covering his liability under subsection 2 of section 6, in such manner as may be prescribed.

2. The operator shall from time to time renew the insurance policy or other financial security referred to in sub-section 1, before the expiry of the period of validity thereof.

3. The provisions of sub-sections 1 and 2 shall not apply to a nuclear installation owned by the Central Government.

Explanation - For the purposes of this section, "financial security" means a contract of indemnity or guarantee, or shares, or bonds or such instrument as may be prescribed or any combination thereof.

III. Claims Commissioner

9. Compensation for nuclear damage and its adjudication

1. Whoever suffers nuclear damage shall be entitled to claim compensation in accordance with the provisions of this act.

2. For the purposes of adjudicating upon claims for compensation in respect of nuclear damage, the Central Government shall, by notification, appoint one or more Claims Commissioners for such area, as may be specified in that notification.

10. Qualifications for appointment as Claims Commissioner

A person shall not be qualified for appointment as a Claims Commissioner unless he:

a) is or has been a District Judge; or

b) in the service of the Central Government and has held the post not below the rank of Additional Secretary to the Government of India or any other equivalent post in the Central Government.

11. Salary, allowances and other terms and conditions of service of Claims Commissioner

The salary and allowances payable to and other terms and conditions of service of Claims Commissioner shall be such as may be prescribed.

12. Adjudication procedure and powers of Claims Commissioner

1. For the purposes of adjudication of claims under this act, the Claims Commissioner shall follow such procedure as may be prescribed.

2. For the purpose of holding inquiry, the Claims Commissioner may associate with him such persons having expertise in the nuclear field or such other persons and in such manner as may be prescribed.

3. Where any person is associated under sub-section 2, he shall be paid such remuneration, fee or allowance, as may be prescribed.

4. The Claims Commissioner shall, for the purposes of discharging his functions under this act, have the same powers as are vested in a civil court under the Code of Civil Procedure, 1908, while trying a suit, in respect of the following matters, namely:

a) summoning and enforcing the attendance of any person and examining him on oath;

b) the discovery and production of documents;

c) receiving evidence on affidavits;

d) requisitioning any public record or copies thereof from any court or office;

e) issuing of commission for the examination of any witness; f any other matter which may be prescribed.

5. The Claims Commissioner shall be deemed to be a civil court for the purposes of section 195 and Chapter XXVI of the Code of Criminal Procedure, 1973.

IV. Claims and awards

13. Inviting application for claims by Claims Commissioner

After the notification of nuclear incident under sub-section 1 of section 3, the Claims Commissioner, having jurisdiction over the area, shall cause wide publicity to be given, in such manner as he deems fit, for inviting applications for claiming compensation for nuclear damage.

14. Persons entitled to make application for nuclear damage

An application for compensation before the Claims Commissioner or the Commission, as the case may be, in respect of nuclear damage may be made by:

a) a person who has sustained injury; or

b) the owner of the property to which damage has been caused; or

c) the legal representatives of the deceased; or

d) any agent duly authorised by such person or owner or legal representatives.

15. Procedure for making application before Claims Commissioner

1. Every application for compensation before the Claims Commissioner for nuclear damage shall be made in such form, containing such particulars and accompanied by such documents, as may be prescribed.

2. Subject to the provisions of section 18, every application under sub-section 1 shall be made within a period of three years from the date of knowledge of nuclear damage by the person suffering such damage.

16. Award by Claims Commissioner

1. On receipt of an application under sub-section 1 of section 15, the Claims Commissioner shall, after giving notice of such application to the operator and affording an opportunity of being heard to the parties, dispose of the application within a period of three months from the date of such receipt and make an award accordingly.

2. While making an award under this section, the Claims Commissioner shall not take into consideration any benefit, reimbursement or amount received by the applicant in pursuance of contract of insurance taken by him or for members of his family or otherwise.

3. Where an operator is likely to remove or dispose of his property with the object of evading payment by him of the amount of the award, the Claims Commissioner may, in accordance with the provisions of rules 1 to 4 of Order XXXIX of the First Schedule to the Code of Civil Procedure, 1908, grant a temporary injunction to restrain such act.

4. The Claims Commissioner shall arrange to deliver copies of the award to the parties within a period of 15 days from the date of the award.

5. Every award made under sub-section 1 shall be final.

17. Operator's right of recourse

The Operator of the Nuclear Installation after paying the compensation for nuclear damage in accordance with Section 6, shall have a right to recourse where:

a) Such right is expressly provided for in a contract in writing;

b) The nuclear incident has resulted as a consequence of an act of suppliers or his employees, which includes supply of equipment or material or patent or latent defects or sub standard services;

c) The nuclear incident has resulted from the act of commission or omission of an individual done with the intent to cause nuclear damage.

18. Extinction of right to claim

The Right to Claim compensation for nuclear damage shall extinguish, if such claim was not made within a period of:

a) 10 years in the case of damage of property;

b) 20 years in the case of personal injury to any person from the date of occurrence of the incident notified under sub-section 1 of section 2

Provided that where a nuclear damage is caused by a nuclear incident involving nuclear material which, prior to such nuclear incident, had been stolen, lost, jettisoned or abandoned, the said period of 10 years shall be computed from the date of such nuclear incident, but, in no case, it shall exceed a period of 20 years from the date of such theft, loss, jettison or abandonment.

V. Nuclear damage Claims Commission

19. Establishment of Nuclear Damage Claims Commission

Where the Central Government, having regard to the injury or damage caused by a nuclear incident, is of the opinion that it is expedient in public interest that such claims for damages be adjudicated by the commission instead of a Claims Commissioner, it may, by notification, establish Commission for the purpose of this Act.

20. Composition of Commission

1. The Commission shall consist of a Chairperson and such other members, not exceeding six, as the Central Government may, by notification, appoint.

2. The Chairperson and other members of the commission shall be appointed on the recommendation of a selection committee consisting of three experts from amongst the persons having at least 30 years of experience in nuclear science and a retired Supreme Court judge.

3. A person shall not be qualified for appointment as the Chairperson of the Commission unless he has attained the age of fifty-five years and is or has been or qualified to be a Judge of a High Court:

Provided that no appointment of a sitting judge shall be made except after consultation with the Chief Justice of India.

4. A person shall not be qualified for appointment as a member unless he has attained the age of fifty-five years and:

a) has held or is holding or qualified to hold, the post of Additional Secretary to the Government of India or any other equivalent post in the Central Government and possesses special knowledge in law relating to nuclear liability arising out of nuclear incident; or

b) has been a Claims Commissioner for five years.

21. Term of office

The Chairperson or a member, as the case may be, shall hold office as such for a term of three years from the date on which he enters upon his office and shall be eligible for re-appointment for another term of three years:

Provided that no person shall hold office as such Chairperson or member after he has attained the age of sixty-seven years.

22. Salary and allowances and other terms and conditions of service of Chairperson and Members

The salary and allowances payable to and other terms and conditions of service, including pension, gratuity and other retirement benefits, of the Chairperson and other members shall be such as may be prescribed:

Provided that no salary, allowances and other terms and conditions of service of the Chairperson or other members shall be varied to his disadvantage after his appointment.

23. Filling up of vacancies

If, for reasons other than temporary absence, any vacancy occurs in the office of the Chairperson or member, as the case may be, the Central Government shall appoint another person in accordance with the provisions of this act to fill such vacancy and the proceedings may be continued before the Commission from the stage at which it was, before the vacancy is filled.

24. Resignation and removal

1. The Chairperson or a member may, by a notice in writing under his hand addressed to the Central Government, resign his office:

Provided that the Chairperson or the member shall, unless he is permitted by the Central Government to relinquish his office sooner, continue to hold office until the expiry of three months from the date of receipt of such notice or until a person duly appointed as his successor enters upon his office or until the expiry of his term of office, whichever is earlier.

2. The Central Government shall remove from office the Chairperson or a member who:

a) has been adjudged an insolvent; or

b) has been convicted of an offence which, in the opinion of the Central Government, involves moral turpitude; or

c) has become physically or mentally incapable of acting as a member; or

d) has acquired such financial or other interest as is likely to affect prejudicially his functions as a member; or

e) has so abused his position as to render his continuance in office detrimental to the public interest:

Provided that no member shall be removed under clause d or clause e unless he has been given an opportunity of being heard in the matter.

25. Chairperson or Member deemed to retire from service

A person who, immediately before the date of assuming office as a Chairperson or a member, was in service of the Government, shall be deemed to have retired from service on the date on which he enters upon office as such, but his subsequent service as the Chairperson or a member shall be reckoned as continuing approved service counting for pension in service to which he belonged.

26. Suspension of pension

If a person who, immediately before the date of assuming office as the Chairperson or a member was in receipt of or being eligible so to do, has opted to draw, a pension, other than a disability or wound pension, in respect of any previous service under the Central Government, his salary in respect of service as the Chairperson or a member shall be reduced:

a) by the amount of that pension; and

b) if he had, before assuming office, received, in lieu of a portion of the pension due to him in respect of such previous service, the commuted value thereof, by the amount of that portion of the pension.

27. Prohibition of acting as Arbitrator

No person shall, while holding office as a Chairperson or a member, act as an arbitrator in any matter.

28. Prohibition of practice

On ceasing to hold office, the Chairperson or a member shall not appear, act or plead before the Commission.

29. Powers of Chairperson

The Chairperson shall have the power of superintendence in the general administration of the Commission and exercise such powers as may be prescribed.

30. Officers and other employees of Commission

1. The Central Government shall provide the Commission with such officers and other employees as it may deem fit.

2. The salary and allowances payable to and the terms and other conditions of service of officers and other employees of the Commission shall be such as may be prescribed.

31. Application for compensation before Commission

1. Every application for compensation before the Commission for nuclear damage shall be made in such form, containing such particulars and accompanied by such documents, as may be prescribed.

2. Subject to the provisions of section 18, every application under sub-section 1 shall be made within a period of three years from the date of knowledge of nuclear damage by the person suffering such damage.

32. Adjudication procedure and powers of Commission

1. The Commission shall have original jurisdiction to adjudicate upon every application for compensation filed before it under sub-section 1 of section 31 or transferred to it under section 33, as the case may be.

2. Upon transfer of cases to the Commission under section 33, the Commission shall hear such applications from the stage at which it was before such transfer.

3. The Chairperson may constitute benches comprising of not more than three members of the Commission for the purpose of hearing of claims and any decision thereon shall be rendered by a majority of the members hearing such claims.

4. The Commission shall not be bound by the procedure laid down in the Code of Civil Procedure, 1908 but shall be guided by the principles of natural justice and subject to the other provisions of this act and of any rules made thereunder, the Commission shall have the power to regulate its own procedure including the places and the times at which it shall have its sittings.

5. The Commission shall have, for the purposes of discharging its functions under this act, the same powers as are vested in a civil court under the Code of Civil Procedure, 1908, while trying a suit, in respect of the following matters, namely:

a) summoning and enforcing the attendance of any person and examining him on oath;

b) the discovery and production of documents;

c) receiving evidence on affidavits;

d) requisitioning any public record or copies thereof from any court or office;

e) issuing of commission for the examination of any witness;

f) any other matter which may be prescribed.

6. The Commission shall, after giving notice of application to the operator and after affording an opportunity of being heard to the parties, dispose of such application within a period of three months from the date of such receipt and make an award accordingly.

7. While making an award under this section, the Commission shall not take into consideration any benefit, reimbursement or amount received by the applicant in pursuance of any contract of insurance or otherwise.

8. Where an operator is likely to remove or dispose of his property with the object of evading payment by him of the amount of the award, the Commission may, in accordance with the provisions of rules 1 to 4 of Order XXXIX of the First Schedule to the Code of Civil Procedure, 1908, grant a temporary injunction to restrain such act.

9. The Commission shall arrange to deliver copies of the award to the parties concerned within a period of fifteen days from the date of such award.

10. Every award made under sub-section 6 shall be final.

33. Transfer of pending cases to Commission

Every application for compensation pending before the Claims Commissioner immediately before the date of establishment of the Commission under section 19 shall stand transferred on that date to the Commission.

34. Proceedings before Claims Commissioner or Commission to be judicial proceedings

Every proceeding before the Claims Commissioner or the Commission under this act shall be deemed to be judicial proceeding within the meaning of sections 193, 219 and 228 of, and for the purposes of section 196 of, the Indian Penal Code.

35. Exclusion of jurisdiction of civil courts

Save as otherwise provided in Section 46, no Civil Court (except the Supreme Court and a High Court exercising jurisdiction under articles 226 and 227 of the Constitution) shall have jurisdiction to entertain any suit or proceedings in respect of any matter which the Claims Commissioner or the Commission, as the case may be, is empowered to adjudicate under this act and no injunction shall be granted by any court or other authority in respect of any action taken or to be taken in pursuance of any power conferred by or under this act.

36. Enforcement of awards

1. When an award is made under sub-section 1 of section 16 or under sub-section 6 of section 32:

a) the insurer or any person, as the case may be, who under the contract of insurance or financial security under section 8 is required to pay any amount in terms of such award and to the extent of his liability under such contract, shall deposit that amount within such time and in such manner as the Claims Commissioner or the Commission, as the case may be, may direct; and

b) the operator shall, subject to the maximum liability specified under sub-section 2 of section 6, deposit the remaining amount by which such award exceeds the amount deposited under clause a.

2. Where any person referred to in sub-section 1 fails to deposit the amount of award within the period specified in the award, such amount shall be recoverable from such person as arrears of land revenue.

3. The amount deposited under sub-section 1 shall be disbursed to such person as may be specified in the award within a period of fifteen days from the date of such deposit.

37. Annual report

The Commission shall prepare, in such form and at such time in each financial year, as may be prescribed, an annual report giving full account of its activities during that financial year and submit a copy thereof to the Central Government which shall cause the same to be laid before each House of Parliament.

38. Dissolution of Commission in certain circumstances

1. Where the Central Government is satisfied that the purpose for which the Commission established under section 19 has served its purpose, or where the number of cases pending before such Commission is so less that it would not justify the cost of its continued function, or where it considers necessary or expedient so to do, the Central Government may, by notification, dissolve the Commission.

2. With effect from the date of notification of dissolution of Commission under sub-section 1:

a) the proceeding, if any, pending before the Commission as on the date of such notification shall be transferred to the Claims Commissioner to be appointed by the Central Government under sub-section 2 of section 9;

b) the Chairperson and all members of the Commission shall be deemed to have vacated their offices as such and they shall not be entitled to any compensation for premature termination of their office;

c) officers and other employees of the Commission shall be transferred to such other authority or offices of the Central Government, in such manner, as may be prescribed; Provided that the officers and other employees so transferred, shall be entitled to the same terms and conditions of service as would have been held by them in the Commission;

Provided further that where an officer or an employee of the Commission refuses to join the services in such other authority or office, he shall be deemed to have resigned and shall not be entitled to any compensation for premature termination of contract of service;

d) all assets and liabilities of the Commission shall vest in the Central Government.

3. Notwithstanding the dissolution of the Commission under sub-section 1, anything done or any action taken or purported to have been done or taken including any order made or notice issued or any appointment, confirmation or declaration made or any document or instrument executed or any direction given by the Commission before such dissolution, shall be deemed to have been validly done or taken.

4. Nothing in this section shall be construed to prevent the Central Government to establish the Commission subsequent to the dissolution of the Commission in accordance with the provisions of this act.

VI. Offences and penalties

39. Offences and penalties

1. Whoever:

a) contravenes any rule made or any direction issued under this act; or

b) fails to comply with the provisions of section 8; or

c) fails to deposit the amount under section 36, shall be punishable with imprisonment for a term which may extend to five years or with fine or with both.

2. Whoever fails to comply with any direction issued under section 43 or obstructs any authority or person in the exercise of his powers under this act shall be punishable with imprisonment for a term which may extend to one year or with fine or with both.

40. Offences by companies

1. Where an offence under this act has been committed by a company, every person who at the time the offence was committed, was directly in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly.

Provided that nothing contained in this sub-section shall render any such person liable to any punishment under this act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

2. Notwithstanding anything contained in sub-section 1, where any offence under this act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

3. Explanation — For the purposes of this section:

a) "Company" means anybody corporate and includes a firm or other association of individuals;

b) "Director", in relation to a firm, means a partner in the firm.

41. Offences by Government Departments

Where an offence under this act has been committed by any Department of the Government, the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly.

Provided that nothing contained in this section shall render such Head of the Department liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

42. Cognizance of offences

No court inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of the first class shall try any offence under this act.

Provided that cognizance of such offence shall not be taken except on a complaint made by the Central Government or any authority or officer authorised in this behalf by that Government.

VII. Miscellaneous

43. Power to give directions

The Central Government may, in exercise of its powers and performance of its functions under this act, issue such directions, as it may deem fit, for the purposes of this act, to any operator, person, officer, authority or body and such operator, person, officer, authority or body shall be bound to comply with such directions.

44. Power to call for information

The Central Government may call for such information from an operator as it may deem necessary.

45. Exemption from application of this Act

The Central Government may, by notification, exempt any nuclear installation from the application of this act where, having regard to small quantity of nuclear material, it is of the opinion that the risk involved is insignificant.

46. Act to be in addition to any other law

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.

47. Protection of action taken in good faith

No suit, prosecution or other legal proceedings shall lie against the Central Government or the person, officer or authority in respect of anything done by it or him in good faith in pursuance of this act or of any rule or order made, or direction issued, thereunder.

48. Power to make rules

1. The Central Government may, by notification, make rules for carrying out the purposes of this act.

2. In particular, and without prejudice to the generality of the foregoing powers such rules may provide for:

a) the other financial security and the manner thereof under sub-section 1 of section 8;

b) the salary and allowances payable to and the other terms and conditions of service of Claims Commissioner under section 11;

c) the procedure to be followed by Claims Commissioner under sub-section 1 of section 12;

d) the person to be associated by Claims Commissioner and the manner thereof, under sub-section 2 of section 12;

e) the remuneration, fee or allowances of associated person under sub-section 3 of section 12;

f) any other matter under clause f of sub-section 4 of section 12;

g) the form of application, the particulars it shall contain and the documents it shall accompany, under sub-section 1 of section 15;

h) the salary and allowances payable to and other terms and conditions of service of Chairperson and other members, under section 22;

i) the powers of Chairperson under section 29;

j) the salary and allowances payable to and the terms and other conditions of service of officers and other employees of the Commission, under sub-section 2 of section 30;

k) the form of application, the particulars it shall contain and the documents it shall accompany, under sub-section 1 of section 31;

l) any other matter under clause f of sub-section 5 of section 32;

m) the form and the time for preparing annual report by Commission under section 37;

n) the manner of transfer of officers and other employees of the Commission under clause c of sub-section 2 of section 38.

3. Every rule made under this act by the Central Government shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of 30 days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; however, any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

49. Power to remove difficulties

1. If any difficulty arises in giving effect to the provisions of this act, the Central Government may, by order published in the Official Gazette, make such provisions, not inconsistent with the provisions of this act, as appear to it to be necessary or expedient for removing the difficulty.

Provided that no order shall be made under this section after the expiry of three years from the commencement of this act.

2. Every order made under this section shall, as soon as may be after it is made, be laid before each House of Parliament.

India

Civil Liability for Nuclear Damage Rules, 2011

Department of Atomic Energy
Notification
New Delhi, the 11th November, 2011

G.S.R. 804 (E) – In exercise of the powers conferred by Section 48 of the Civil Liability for Nuclear damage Act 2010 (38 of 2010), the Central Government hereby makes the following rules, namely:

Chapter I. Preliminary

1. Short title commencement

(1) These rules may be called the Civil Liability for Nuclear Damage Rules, 2011.

(2) They shall come into force on the date of their publication in the Official gazette.

2. Definitions

(1) In these rules, unless the context otherwise requires,

a) "Act" means the Civil Liability for Nuclear Damage Act, 2010 (38 of 2010);

b) "Form" means a form appended to these rule;

c) "insurer" means the insurance company with which a nuclear installation involved in a nuclear incident was insured at the time of the occurrence of such incident and includes the person who has provided financial security to cover the operator's liability under the Act;

d) "legal representative" shall have the same meaning as assigned to it in clause (11) of section 2 of the Code of Civil Procedure, 1908 (5 of 1908);

e) "claims adjudication authority" means the Claims Commissioner or the Commission having jurisdiction under the Act over the nuclear incident.

(2) Words and expressions used herein and not defined but defined in the act shall have the meanings respectively assigned to them in the Act.

Chapter II. Insurance and financial security

3. Insurance policy and financial security

(1) The operator shall take out an insurance policy or financial security or a combination of both in accordance with section 8 of the Act.

(2) The financial security referred to in sub-rule (1) shall be irrevocable and shall continue till removal of all spent fuel storage pool of the nuclear installation after removal thereof from the reactor core.

(3) Shares or bonds or instruments constituting financial security shall be pledged to the Central Government and remain so pledged till decommissioning of the plant and a security margin of 1:1:33 be maintained during pledge and in the event of any shortfall in security so calculated shall be immediately made good by the operator by providing insurance or additional financial security to the extent of shortfall.

(4) Nothing in this rule shall prevent a group of operators to enter into a joint arrangement of financial security providing for contribution towards such security in proportion to their individual installed capacity in thermal megawatts.

(5) The provisions of this rule shall not apply to a nuclear installation owned by the Central Government.

Chapter III. Report of nuclear incident

4. Report of nuclear incident

(1) The operator shall report immediately the occurrence of a nuclear incident in his nuclear installation or during transportation of nuclear material

i) the Central Government;

ii) the insurer where the nuclear installation is insured under section 8 if the Act; and

iii) the Atomic Energy Regulatory Board where such nuclear installation is insured under its jurisdiction, in the manner as the Board may, by order, specify in this behalf.

(2) The Central Government shall, on receipt of the report under sub-rule (1) from the operator of a nuclear installation, which is not under the jurisdiction of the Atomic Energy Regulatory board, make a review of the report and forward its observations and report to the Atomic Energy Regulatory Board.

(3) The Atomic Energy Regulatory Board shall review the report received under this rule and notify the nuclear incident in accordance with section 3 of the Act.

5. Report of licensing authority

(1) The claims adjudication authority shall, as soon as a claim arising out of a nuclear incident notified under section 3 of the Act is filed, issue direction in Form A to the licensing authorities as applicable under sections 14, 16 and 17 of the Atomic Energy Act, 1962 (33 of 1962).

(2) The licensing authorities to whom a direction under sub-rule (1) is issued, shall within a period of ten days of the receipt of direction, submit to the claims adjudication authority a detailed report in Form B regarding a licence of the operator.

Chapter IV. Adjudication of claims

6. Application for compensation

(1) An application for claim for compensation for nuclear damage shall be made in form C by:

a) the person who has sustained injury; or

b) the owner of the property to which the damage has been caused; or

c) the representative of the deceased; or

d) any agent duly authorise d by such person or owner or legal representatives:

Provided that where all legal representatives of the deceased have not joined in any such application for compensation, the application shall be made on behalf of or for the benefit of all the legal representatives of the deceased and the legal heirs who have not so joined shall be impleaded as respondents to the application.

(2) Every application for compensation for nuclear damage shall be accompanied by as many copies equal to the number of the respondents, as may be required, to the claims adjudication authority having jurisdiction to adjudicate upon it.

(3) There shall be appended to every such application:

a) an affidavit of the applicant to the effect that the statement of facts contained in the application is true to the best of his knowledge or belief and further if the applicant has earlier preferred any claim application with regard to the same cause of action, and if so, what was the result thereof;

b) all the documents and affidavits for the proof thereof, and affidavits in support of all facts on which the applicant relies in the context of his claim, entered in a lists of documents and affidavits prepared in that behalf.

Provided that the claims adjudication authority may not allow the applicant to rely in support of his claim, on any document or affidavit not filed with the application unless it is satisfied that for good and sufficient cause, he was prevented from filing such document or affidavit earlier;

c) the proof of identity of the applicant to the satisfaction of the claims adjudication authority, unless exempted from doing so for reasons to be recorded in writing by it;

d) passport size photograph of the applicant duly attested by the advocate;

e) medical certificates of injuries, or the effect thereof.

(4) The claims adjudication authority may also require the applicant to furnish the following information to satisfy itself that spurious or a collusive claim has not been preferred, namely:

a) full particulars of all earlier nuclear incidents in which the application or the deceased person, as the case may be, has been involved;

b) the amount of compensation paid in such earlier nuclear incidents, name and particulars of the victim, and of the person who paid the damages; and

c) relation of persons mentioned in clause (b), if any with the applicant.

(5) The claims adjudication authority may return any application, which is found defective on scrutiny, to the applicant for re-submission after removing defects within a specified period not exceeding fifteen days.

(6) The claims adjudication authority shall register every application for compensation separately in appropriate register maintained for this purpose.

7. Notice to Opposite Parties – The claims adjudication authority shall on receipt of an application under rule 6 unless it has been found defective under sub-rule (5) of that rule, send to the opposite parties, a notice of the date on which it will hear the application and call them upon to file on that date a written statement.

8. Supply of copies of documents – The claims adjudication authority shall along with the notice of hearing furnish the opposite parties, free of cost, a copy of each of the following, namely:

i) the application for compensation

ii) the documents and affidavits filed by the applicant under rule 6; and

iii) all the documents produced before it on which the applicant is relying:

Provided that if the claims adjudication authority is satisfied that any such document is voluminous, it shall instead of furnishing the opposite parties a copy thereof, make an endorsement on the bottom of the notice that they only be allowed to inspect it either personally or through their authorised person.

9. Examination of applicant – The claims adjudication authority may, on receipt of an application under rule 6, examine the applicant on oath, and the substance of such examination, if any, shall be recorded in writing.

10. Appearance and examination of the parties

(1) The opposite party shall at or before the first hearing, or within such further time as the claims adjudication authority may allow, file a written statement in reply to the claim raised in the application, and any such written statement shall form part of the record.

(2) The opposite party shall file along with his written statement, all the documents and affidavits for the proof thereof and also affidavits in support of all facts on which he relies in the context of his defence, duly entered in a properly prepared list of documents and affidavits and shall give to the applicant copies of the written statement, documents and affidavits.

(3) The claims adjudication authority shall not allow the opposite party to rely in support of his defence on any document or affidavit not filed along with the written statement, unless it is satisfied that, for good and sufficient cause, he was prevented from filing such document or affidavit earlier.

(4) The claims adjudication authority may, if the opposite party contents the claim or if no written statement has been filed, it shall, proceed to examine him upon the claim and shall reduce the substance of the examination in writing.

(5) The claims adjudication authority may require the opposite parties to furnish the following information, namely:

a) full particulars of all earlier nuclear incidents in which such party may have been involved, and in which the claims have been awarded in full or in part;

b) the amount of compensation paid in such earlier accidents, the name and addresses of the victims and of the person who paid the damages; and

c) relation of persons mentioned in clause (b), if any, with the opposite party.

11. Summary procedure by claims adjudication authority – The claims adjudication authority, in a case pending before it, may adopt the procedure relating to summary trial of the cases s laid down in Order XXXVII of the Code of Civil Procedure, 1908 (5 of 1908) while trying a claim for compensation.

12. Power to direct for medical examination – The claims adjudication authority may, if it considers necessary, direct, in Form D, any medical officer or any board of medical officers in Government or Municipal hospital to examine the injured person and issue certificate indicating the degree and extent of the disability, if any, suffered as a result of the nuclear incident, and it shall be the duty of such medical officer or board to submit the report within a period of seven days of receipt of direction.

13. Framing of issues – The claims adjudication authority shall, after considering the application, the written statements, the examination of the parties, if any, and the result of any local inspection, if made, proceed to frame and record issues at the first

hearing of the application upon which the decision of the case appears to it to depend.

14. Determination of issues

(1) The claims adjudication authority shall proceed to decide the application after framing and issue if it is triable and allow both parties to cross examine each other and the deponents whose affidavits have been filed by the parties, on such affidavits filed with the application and the written statement and in doing do, it shall follow provisions of Order XIX of the Code of Civil Procedure, 1908 (5 of 1908).

(2) The claims adjudication authority may, if it appears to it to be necessary for just decision of the case, allow the parties to adduce such further evidence as each of them may desire to produce.

Provided that no such further opportunity shall be permitted unless it is shown that the affidavit of the witness sought to be examined at such stage could not be obtained and filed earlier, despite exercise of due diligence by, or that such evidence was not within the knowledge of the party relying on it.

15. Expenses for attendance of witnesses – The claims adjudication authority shall direct the operator to bear the expenses of the witnesses summoned;

16. Method of recording evidence – The claims adjudication authority shall, as examination of witnesses proceeds, make brief memorandum of the substance of the evidence of each witness and such memorandum shall be written and signed by the claims adjudication authority and shall form part of the evidence.

Provided that evidence of any expert witness shall be taken down word by word.

17. Obtaining of supplementary information and documents – The claims adjudication authority shall obtain whatever supplementary information and documents, which may be found necessary from the medical and other authorities and proceed to adjudicate upon the claim whether the parties who were given notice appear or not on the appointed date.

18. Award of compensation

(1) The claims adjudication authority, in passing orders, shall record concisely in a judgement, the findings on each of the issues framed the reasons for such findings and make an award specifying the amount of compensation to be paid by the opposite party or parties and also the person or persons to whom compensation shall be paid.

(2) The procedure of adjudicating the liability and award of compensation may be set apart from the procedure of disbursement of compensation to the legal heirs in a case of death, and where the claims adjudication authority feels that the actual payment to the claimant is likely to take some time because of the identification and determination of legal heirs of the deceased, the claims adjudication authority may call for the amount of compensation awarded to be deposited with it, and, then, proceed with the identification of the legal heirs for distributing payment of compensation to each of the legal heirs equitably.

19. Securing interest of claimants

(1) Where any lump-sum amount deposited with the claims adjudication authority is payable to a woman, such sum may be invested, applied or otherwise dealt with for the benefit of the woman in such manner as the claims adjudication authority may direct to be paid to any dependent or the heirs of such woman whom the claims adjudication authority thinks best fitted to provide for the welfare of the woman or the heirs of such woman.

(2) Where any lump-sum amount deposit with the claims adjudication authority is payable to a person under legal disability, such sum may be invested, applied or otherwise dealt with for the benefit of the person under legal disability in such manner as the claims adjudication authority may direct to be paid to any dependent or the heirs of such person under legal disability whom the claims adjudication authority thinks best fitted to provide for the welfare of the person under legal disability or the heirs of such person.

(3) Where the claims adjudication authority, on an application made to it in this behalf or otherwise, is satisfied that an account of neglect of the children on the part of the parents, or on account of neglect of the children on the part of the parents, or on an account of the variation of the circumstances of any dependent, or for any other sufficient cause, an order of the claims adjudication authority as to the distribution of any sum paid as compensation or as to the manner in which any sum payable to any such dependent is to be invested, applied or dealt with, ought to be varied, the claims adjudication authority may make such further orders for the variation of the former order as it thinks just in circumstances of the case.

(4) The claims adjudication authority shall, in the case of minor, order that amount of compensation awarded to such minor be invested in fixed deposits till such minor attains majority:

Provided that the expenses incurred by the guardian or the next friend may be allowed to be withdrawn by such guardian or the next friend from such amount before it is deposited.

(5) The claims adjudication authority shall, in the case of illiterate claimants, order that the amount of compensation awarded be invested in fixed deposits for a minimum period of three years, but if any amount is required for effecting purchase of any movable or immovable property for improving the income of the claimant, the claims adjudication authority may consider such a request after being satisfied that the amount would be actually spent for the said purpose.

(6) The claims adjudication authority shall, in the case of semi-literate person follow the procedure specified in sub-rule (4) for the deposit of award amounts unless it is satisfied, for reasons to be recorded in writing that the whole or part of the amount is required for the expansion of any existing business or for the purchase of some property referred to in that sub-rule in which case the claims adjudication authority shall ensure that the amount is invested for the purpose for which it is prayed for and paid.

(7) The claims adjudication authority may in the case of literate person follow the procedure specified in sub-rule (4) and (5) for deposit of awarded amount if having regard to the age, fiscal background and state of society to which the claimant belongs and such other consideration, the claims adjudication authority in the larger interest of the claimant and with a view to ensuring the safety of the compensation awarded, thinks it necessary to order.

(8) The claims adjudication authority, in case of personal injury, if satisfied that further treatment is necessary for which reasons to be recorded in writing, may permit the withdrawal of such amount as is necessary for the expenses of such treatment.

(9) The claims adjudication authority shall, in the matter of investment of money, have regard to a maximum return by way of periodical income to the claimant and make it deposited with public sector undertakings of the State or Central Government which offers higher rate of interest.

(10) The claims adjudication authority shall, in investing money, direct that the interest on the deposits be paid directly to the claimant or the guardian of the minor

claimant by the institutions holding the deposits under intimation to the claims adjudication authority.

20. Persons associated with adjudication of claims

(1) The claims adjudication authority may, for the purpose of deciding any claim filed before it, choose one or more persons having expertise in the nuclear field or such person possessing special knowledge of any matter relevant to the claim under inquiry to assist in holding such inquiry and adjudicating the claim.

(2) A person associated with the claims adjudication authority under sub-rule (1) shall be paid such remuneration as the claims adjudication authority may, by order, fix.

21. Appearance of legal practitioner

The claims adjudication authority may, in its discretion, allow any party to appear before it through a legal practitioner

22. Adjournment of hearing

If the claims adjudication authority finds that an application cannot be disposed of at one hearing, it shall record the reasons which necessitate the adjournment and also inform the parties present on the date of adjourned hearing

23. Receipt of compensation

The claims adjudication authority shall, obtain a receipt from the claimant in duplicate, one copy to be issued to the person who makes the payment and the other to be retained on the record while handing over the payment.

Chapter V. Right of recourse

24. Right of recourse

(1) A contract referred to in clause (a) of section 17 of the Act shall include a provision for right of recourse for not less than the extent of the operator's liability under sub-section (2) of section 6 of the Act or the value of the contract itself, whichever is less.

(2) The provision for right of recourse referred to in sub-rule (1) shall be for the duration of initial license issued under the Atomic Energy (Radiation Protection) Rules 2004 or the product liability period, whichever is longer.

Explanation 1 – For the purposes of this rule, the expressions,

a) "product liability period" means the period for which the supplier has undertaken liability for patent or latent defects or sub-standard services under a contract.

b) "supplier" shall include a person who

   i) manufactures and supplies, either directly or through an agent, a system, equipment or component or builds a structure on the basis of functional specification, or

   ii) provides build to print or detailed design specifications to a vendor for manufacturing a system, equipment or component or building a structure and is responsible to the operator for design and quality assurance; or

   iii) provides quality assurance or design services

Explanation 2 – For the removal of doubts it is clarified that an operator's claim under this rule shall in no case exceed the actual amount of compensation paid by him up to the date of filing such claim

Chapter VI. Miscellaneous

25. Registers

(1) The claims adjudication authority shall maintain the following registers namely:

a) register of applications for claim for compensation for nuclear damage;

b) register for notices to be issued to the parties by the claims adjudication authority;

c) register for applications for interim award;

d) register for deposit of payments in the claims adjudication authority; and

e) diary of day to day proceedings to be called as "A Diary".

(2) Applications for compensation on the ground of death, permanent disability, injury and damage to property shall be entered in a separate register to be called the "register for applications for compensation on death, disability, etc".

26. Custody and preservation of records

The documents and records relating to the applications for compensation cases shall be preserved in the record room for a period of thirty five years from the date of occurrence of the nuclear incident.

27. Staff

The claims adjudication authority shall be provided with staff similar to that provided to the court of an Additional District Judge.

28. Conditions of service and salary allowances of officers and other employees of claims adjudication authority

(1) The chairperson of the Commission appointed under sub section (2) of section 20 of the Act shall be entitled to the pay and allowances in the scale of pay equivalent to that of a Judge of a high Court during his service as such member of the Commission.

(2) The Members of the Commission appointed under sub section (2) of section 20 of the Act shall be entitled to pay and allowances in the scale of pay equivalent to that of the Additional Secretary to the Government of India during his service as such Member of the Commission.

(3) The Claims Commissioner appointed under sub section (2) of section 9 of the Act shall be entitled to the pay and allowances in the scale of pay equivalent to that of the Additional Secretary to the Government of India.

(4) The other officers and employees shall be entitled to pay and allowances in the scale of pay equivalent to that of the officers and employees of the Central Government holding equivalent posts in their respective cadres during their service under the claims adjudication authority.

(5) The other conditions of service of the officers and employees of the claims adjudication authority in the matters of age of retirement, post-retirement benefits and entitlements and disciplinary matters, shall be the same as are for the time being applicable to the officers and employees of the Central government holding equivalent posts.

(6) The officers and other employees of the claims adjudication authority shall be entitled to such other facilities allowances or benefits as may be specified by the Central government from time to time.

29. Repatriation or transfer of officers and other employees on dissolution of Commission

(1) On dissolution of the Commission by the Central government under section 38 of the Act, the officers and other employees who are on deputation to the Commission from any authority or office of the Central Government or a State Government, the deputation of such officers and other employees shall be deemed to be terminated immediately on such dissolution and they shall be repatriated to their parent organisation.

(2) The officers and other employees other than those referred to in sub-rule (1) may be transferred by the Central Government to any other authority or office of the Central Government, as the Central government may, by order decide.

30. Annual Report – The claims adjudication authority shall prepare and submit an annual report in Form E to the central government on the duties carried out by it at the end of each financial year giving full account of its activities during that financial year containing details of its accounts, the claims pending before it, the claims disposed of during the year under report and the claims pending at the end of such year.

Republic of Korea

Act on Establishment and Operation of Nuclear Safety Commission

26 October 2011

Chapter 1. General

Article 1 (Purpose)

The purpose of this Act is to protect the people from radioactive accidents resulting from the production and use of atomic energy by establishing the Nuclear Safety Commission and to contribute to public safety and environment preservation.

Article 2 (Operating Principle)

The Nuclear Safety Commission shall maintain independence and impartiality and establish – and strive to implement – measures required for safety management (hereinafter referred to as "Nuclear Safety Management") related to the research, development, production, and utilisation of atomic energy (hereinafter referred to as "Utilization of Atomic Energy").

Chapter 2. Establishment of the Nuclear Safety Commission

Article 3 (Establishment of the Commission)

1. The Nuclear Safety Commission (hereinafter referred to as "Commission") shall be established under the control of the President to perform business related to nuclear safety.

2. The Commission shall be regarded as a central administrative agency as specified in Article 2 of the Government Organization Act. Note, however, that the following matters shall not be governed by the provision of Article 16 of the Government Organization Act:

- Matters related to the permission, re-permission, licence, approval, registration, or cancellation of atomic energy users as stipulated in Item 5, Article 12.
- Matters related to the selection and appointment of officers of the Korea Institute of Nuclear Safety pursuant to Clause 4, Article 9 and Clause 2, Article 11 of the Korea Institute of Nuclear Safety Act.
- Matters related to the approval of officers of the Korea Institute of Nuclear Non-proliferation and Control pursuant to Clause 5, Article 6 of the Nuclear Safety Act.
- Matters decided by the Presidential Decrees and needed to guarantee the independence of nuclear safety management.

Article 4 (Composition of the Commission)

1. The Commission shall consist of not less than seven but not more than nine members including one Chairman of the Commission (hereinafter referred to as "Chairman") and one Vice Chairman. The Chairman and the Vice Chairman shall be standing members.

2. The Chairman and the Vice Chairman shall be political appointees.

3. The Chairman and the Vice Chairman shall be political appointees, notwithstanding the provisions of Article 10 of the Government Organization Act.

Article 5 (Appointments)

1. The Chairman and the Vice Chairman shall be appointed by the President at the recommendation of the Prime Minister; other members shall be appointed by the President at the recommendation of the Chairman from among persons who possess knowledge and extensive experience in nuclear safety. In such case, members shall evenly include persons in related fields who can contribute to atomic energy safety, e.g. atomic energy, environment, health and medical service, scientific technology, public safety, laws, and humanities and social science.

2. Matters related to the appointment of members and composition of the Commission shall be decided by the Presidential Decrees.

Article 6 (Chairman)

1. The Chairman shall represent the Commission, preside over Commission meetings, and oversee overall business.

2. If necessary, the Chairman may attend state councils to make statements and recommend to the Prime Minister the submission of bills regarding the competent business.

3. The Chairman shall attend the National Assembly and present opinions regarding the business of the Commission and report or reply if requested by the National Assembly.

4. If the Chairman is unable to perform business for unavoidable reasons, the Vice Chairman or any of the members shall act on the Chairman's behalf in the order predesignated by the Commission.

5. If the Commission violates the Constitution or laws while performing its duties, the National Assembly may decide a motion for impeachment.

Article 7 (Term of Members)

The term of members shall be 3 years; note, however, that members may be reappointed only once.

Article 8 (Guarantee of Social Status)

1. Except under any of the following cases, members shall not be dismissed against their will:

- Members are unable to perform their duties due to long-term mental/physical disorder.
- Members are disqualified pursuant to Article 10.
- Members have violated their obligations in the line of duty pursuant to this Act or other laws.

- Members have acquired unjust profits in relation to the competent duties of the Commission as prescribed pursuant to this Act or other laws.

2. Members shall not receive unfair instructions or interference while performing their duties.

Article 9 (Prohibition on Holding Concurrent Position)

1. Standing members shall neither engage in businesses designed for profit-making other than official business nor hold concurrent jobs.

2. Members shall not participate in political activities.

3. Matters related to the limits of the business designed for profit-making as specified in Clause 1 shall be decided by the Presidential Decrees.

Article 10 (Disqualifications)

1. The following persons shall not be eligible as members:

- Persons falling under any item of Article 33 of the State Public Officials Act.
- Persons dismissed as a result of impeachment.
- Party members stipulated in Article 22 of the Political Parties Act.
- Persons who have worked during the past 3 years – or are currently working – as atomic energy users or as head or one of the employees of atomic energy-using organisations.
- Persons who, during the past 3 years, have participated – or are currently participating – in the project implemented by atomic energy users or atomic energy-using organisations including the acceptance of R&D projects from atomic energy users or atomic energy-using organisations.

2. Any member falling under any item of Clause shall retire as a matter of course.

Chapter 3. Business of the Commission

Article 11 (Business of the Commission)

1. The business of the Commission shall be as follows:

- Matters related to nuclear safety management.
- Matters related to R&D activities related to nuclear safety management.
- Businesses decided as the business of the Commission by this Act or other laws.

2. Detailed matters related to the business of the Commission specified in Clause 1 shall be decided by the Presidential Decrees.

Article 12 (Matters to be Examined and Decided by the Commission)

The Commission shall examine and decide the following matters:

- Consolidation and adjustment of matters related to nuclear safety management.
- Matters related to the establishment of general atomic energy safety programs.
- Matters related to the regulation of nuclear materials and reactors.

- Matters related to defending against disorders resulting from the radiation exposure suffered while using atomic energy.
- Matters related to the permission, re-permission, licence, approval, registration, or cancellation of atomic energy users.
- Matters related to the disposition taken against the prohibited acts of atomic energy users and the imposition of surcharges.
- Matters related to the estimation of the expenses needed in relation to nuclear safety management and the expense allocation plans.
- Matters related to the surveys, tests, research, and development in relation to nuclear safety management.
- Matters related to the fostering and training of researchers and engineers in relation to nuclear safety management.
- Matters related to the safety management of radioactive waste.
- Matters related to radiation hazard prevention measures.
- Matters related to international co-operation on the safety of atomic energy.
- Matters related to the compilation and execution of budgets for the Commission.
- Matters related to the establishment, amendment, and abolishment of competent laws and Commission regulations.
- Matters designated as being subject to the deliberation and resolutions of the Commission pursuant to this Act or other laws.

Chapter 4. Operation of the Commission

Article 13 (Meeting)

1. Meetings of the Commission shall be convened by the Chairman at the request of two or more members. Note, however, that the Chairman may convene a meeting independently.

2. The Commission meeting shall pass a resolution based on the majority vote of the registered members.

3. Members may present items of the agenda.

4. In principle, the Commission meetings shall be open to the public.

5. The Commission shall prepare and keep the minutes according to the rules prescribed by the Commission regulations.

6. Other matters needed in connection with the operation of the Commission meetings shall be decided by the Commission regulations.

Article 14 (Exclusion, Challenge, and Inhibition of Members)

1. Members falling under any of the following shall be excluded from performing their duties:

- A member, his spouse, or his ex-spouse becomes the party concerned for the relevant matter or becomes a co-creditor or co-debtor covering the relevant matter.
- The member is, or used to be, a relative of the parties concerned covering the relevant matter.
- The member has testified to or appraised the relevant matter.

- The member participates – or has participated – in the relevant matter as a proxy of the party concerned.
- The member has participated in the disposition or nonfeasance of the relevant matter.

2. The Commission shall make decisions on the exclusion ex officio or at the request of the party concerned.

3. If there is a situation that makes it difficult to expect impartiality in deliberation and decisions from the member, the party concerned may request for challenge, in which case the Commission shall make decisions by means of resolution.

4. If there are reasons specified in Clause 1 or 3, the relevant member may inhibit himself/herself from the relevant matter.

Article 15 (Establishing a Technical Committee)

1. If necessary, the Commission may establish a technical committee under the control of the Commission to provide practical consulting services related to its business, conduct prior examination of the deliberations and resolutions, and perform effectively the duties delegated by the Commission.

2. Matters related to the composition and operation of the committee as specified in Clause 1 shall be decided by the Presidential Decrees.

Article 16 (Annual Report)

1. The Commission shall – within three months of closing of each FY – submit to the National Assembly a report on the performance of the Commission covering the relevant FY.

2. The Commission shall public announce the report specified in Clause 1. If there are justifiable reasons that make disclosing the report inappropriate, however, the Commission may not announce the report through a resolution of the Commission.

Article 17 (Secretariat)

1. To handle business effectively, the Commission may have a secretariat.

2. The secretariat will have one secretary-general and other needed staff appointed by the Chairman.

3. Employees of the secretariat shall be general public officials of the related grade group; note, however, that government employees other than those of the grade group may also be selected according to the rules decided by the Presidential Decrees.

4. Other matters related to the organisation and operation of the secretariat shall be prescribed by the Presidential Decrees.

Article 18 (Duty to Maintain Integrity)

Members of the technical committee specified in Article 15 shall not accept money or goods or other profits from persons who are engaged in business related to the atomic energy deliberated on or otherwise regulated pursuant to this Act.

Article 19 (Penal Provisions)

Persons who violate Article 18 shall be sentenced to imprisonment or penal servitude for a period of not more than 10 years.

Addenda

Article 1 (Enforcement Date)

This Act shall enter into force as of the day when three months have elapsed from the date of promulgation.

Article 2 (Transitional Measures Concerning the Competent Business)

Of the business of the Nuclear Safety Commission operating under the control of the Minister of Education, Science, and Technology pursuant to the Atomic Energy Act at the time this Act enters into force, businesses specified in Clause 1, Article 11 of this Act shall be succeeded to the Nuclear Safety Commission under this Act.

Article 3 (Transitional Measures Concerning Acts Including the Issuance of Permits)

Acts carried out by the Nuclear Safety Commission under the control of the Minister of Education, Science, and Technology and acts committed to the Nuclear Safety Commission under the control of the Minister of Education, Science, and Technology pursuant to previous regulations at the time this Act enters into force shall be deemed to have been committed by the Nuclear Safety Commission or to the Nuclear Safety Commission pursuant to this Act.

Article 4 (Amendment of Other Laws)

1. Part of the Government Organization Act shall be amended as follows: Of the contents of Clause 1, Article 24, "Nuclear energy" shall be amended as "R&D, production, and utilisation of nuclear energy".

2. Part of the Nuclear Damage Compensation Act shall be amended as follows:

- The "Minister of Education, Science, and Technology" specified in Clause 2, Article 6, Clause 2, Article 13, Clause 1, Article 16, Article 17, and Clause 4, Article 20 shall be amended as "Nuclear Safety Commission" accordingly.
- The "Minister of Education, Science, and Technology" specified in Clause 2, Article 7 and Clause 1, Article 13 shall be amended as "Nuclear Safety Commission".
- The "Ministry of Education, Science, and Technology" specified in Clause 1, Article 15 shall be amended as "Nuclear Safety Commission".
- The "Minister of Education, Science, and Technology shall" specified in Clause 2, Article 20 shall be amended as "Nuclear Safety Commission shall".
- "To the Minister of Education, Science, and Technology" specified in Clause 3, Article 20 shall be amended as To the Nuclear Safety Commission".

3. Part of the Act on Government Contracts for Nuclear Damage Compensation shall be amended as follows: "The Minister of Education, Science, and Technology shall" specified in Article 18 shall be amended as "The Nuclear Safety Commission shall".

4. Part of the Electric Utility Act shall be amended as follows: "Minister of Education, Science, and Technology and" specified in Clause 4, Article 10 shall be amended as "Nuclear Safety Commission and".

Article 5 (Relations with Other Laws)

If "Nuclear Safety Commission," "Chairman of the Nuclear Safety Commission," "Ministry of Education, Science, and Technology," or "Minister of Education, Science, and Technology" is cited in other laws at the time this Act enters into force, "Nuclear Safety Commission" or "Chairman of the Nuclear Safety Commission" shall be deemed to have been cited in this Act depending on the business prescribed by such laws.

Russian Federation

Federal Law on the Management of Radioactive Wastes and amendments to certain legislative acts of the Russian Federation

Adopted by the State Duma on 29 June 2011

Approved by the Federation Council on 6 July 2011

Chapter 1. General provisions

Article 1. Scope of the present Federal Law

1. The present Federal Law regulates activities relating to the management of radioactive wastes.

2. The provisions of the present Federal Law do not apply to activities relating to the management of spent nuclear fuel.

Article 2. Legal regulation of activities relating to the management of radioactive wastes

1. Activities relating to the management of radioactive wastes are regulated by the present Federal Law, by Federal Law 170 of 21 November 1995 on the utilisation of nuclear energy, Federal Law 3 of 9 January 1996 on protection of the public against radiation, Federal Law 52 of 30 March 1999 on public health and community health, Federal Law 7 of 10 January 2002 on environmental protection, Federal Law 2395-1 of 21 February 1992 on underground resources, Federal Law 317 of 1 December 2007 on the state nuclear energy corporation Rosatom, the Water Code of the Russian Federation and other federal legislation, as well as the legislation of the constituent entities of the Russian Federation.

2. In accordance with the present Federal Law and other federal laws, acts regulating activities relating to the management of radioactive wastes may be adopted by the president of the Russian Federation, the Government of the Russian Federation, federal bodies of the executive branch, and those organisations that are responsible for the regulation of the utilisation of nuclear energy.

3. In cases where international agreements to which the Russian Federation is a party contain provisions governing the management of radioactive wastes that differ from those of the present Federal Law, the former shall prevail.

Article 3. Key concepts used in the present Federal Law

1. The following key concepts are used in the present Federal Law:

1) legacy radioactive wastes – radioactive wastes that were produced prior to the entry into force of the present Federal Law and registered in the radioactive waste directory in accordance with the procedure established by the present Federal Law;

2) radioactive waste management – the collection, sorting, reprocessing, conditioning, transporting, storage and disposal of radioactive wastes;

3) disused sealed radioactive source – a source of ionising radiation which will not be used further and whose construction prevents the contained radioactive material from entering the environment;

4) criteria for accepting radioactive wastes for disposal (also referred to herein as acceptance criteria) – mandatory requirements in terms of the physical and chemical properties that radioactive wastes and waste containers must meet, intended to ensure safe disposal of radioactive wastes;

5) reprocessing of radioactive wastes – technological procedures that are carried out in order to change the shape, physical state or other physical or chemical properties of radioactive wastes to prepare them for subsequent conditioning;

6) conditioning of radioactive wastes – technological procedures that are carried out in order to bring radioactive wastes into a shape and condition that are suitable for disposal and that meet the acceptance criteria;

7) interim storage of radioactive wastes – storage of radioactive wastes that have not been brought into compliance with the acceptance criteria for radioactive wastes;

8) disposal of radioactive wastes (also referred to herein as "disposal") – the safe holding of radioactive wastes in a radioactive waste disposal site not requiring any subsequent removal;

9) safety barrier for the protection of people and the environment (also referred to herein as "safety barrier") – the packaging of radioactive wastes and the engineering construction of a radioactive waste storage site and all parts thereof or a natural geological formation preventing the leakage of radionuclides or ionising radiation, or both, into the environment;

10) long-term radioactive waste storage site – a storage site for radioactive wastes which is designed to remain in operation for a specified period of time according to its operating plan, but without provision for a site decommissioning procedure and measures;

11) temporary radioactive waste storage site – a storage site for removable radioactive wastes which is designed to remain in operation for a specified period of time according to its operating plan, which also makes provision for the decommissioning procedures and measures;

12) radioactive waste disposal site – a site for holding radioactive wastes that is intended to hold such wastes without plans for subsequent removal and that protects site workers, the public and the environment against radiation throughout the potential hazard period for the radioactive wastes;

13) near-surface radioactive waste disposal site – a radioactive waste disposal site that has facilities at ground level or at a depth not exceeding one hundred meters below ground level;

14) deep underground disposal site for radioactive wastes – a radioactive waste disposal site that has facilities located at a depth of more than one hundred metres below ground level;

15) special radioactive waste site – a natural formation or man-made site containing special radioactive wastes which are not isolated from the environment, or one that contains special radioactive wastes for which the duration of isolation from the environment has not been determined;

16) special radioactive waste repository – a natural formation or man-made site containing special radioactive wastes, with safety barriers that isolate the radioactive wastes from the environment for the entire design lifetime of the formation or site;

17) decommissioning of radioactive waste storage site – the process by which such a site, once it has been emptied of radioactive wastes, is brought into such a state as to rule out its future use for the storage of radioactive wastes and protect the public and the environment;

18) closure of radioactive waste disposal site – the process by which a radioactive waste disposal site is brought into such a state as to protect the public and the environment for the duration of the potential hazard period for the radioactive wastes situated therein, and which is carried out upon completion of the technological operations by which the radioactive wastes are situated within the site;

19) conversion of a special radioactive waste site into a special radioactive waste repository – the change in the status of a radioactive waste storage site following the completion of engineered safety barriers in a special radioactive waste site;

20) conversion of a special radioactive waste repository into a radioactive waste disposal site – a change in the status of a special radioactive waste repository which may be approved if the facility has safety barriers that isolate the radioactive wastes from the environment for the duration of their potential hazard period;

21) potential hazard period for radioactive wastes – the duration of time required for the levels of radioactivity of the radioactive wastes to decrease to thresholds beyond which no further radiation monitoring is required;

22) specialised agency for the management of radioactive wastes (also referred to herein as "specialised agency" – a legal entity that performs work and provides services relating to the collection, separation, reprocessing, conditioning, transportation and storage of radioactive wastes and to the operation, decommissioning and closure of radioactive waste storage sites;

23) national operator for radioactive waste management (also referred to herein as "national operator") – a legal entity that is authorised under the present Federal Law to perform work relating to the disposal of radioactive wastes and other work relating to the management of radioactive wastes;

24) radioactive waste directory – a systematic compilation of the documentary information about radioactive wastes that is collected in the course of initial registration of such wastes and their locations, and about radioactive wastes that have been transferred to the national operator;

25) registry of radioactive waste storage sites – a systematic compilation of the documentary information about radioactive waste storage sites, the owners of such sites, and the radioactive wastes located in such sites;

26) special reserve fund of the state radioactive waste administrator (also referred to herein as the "special reserve fund") – a fund set up for the purpose of financing the expenditures of radioactive waste disposal of the organisation exercising the powers and performing the functions of the state radioactive waste administrator.

2. The term "radioactive wastes" is used in the sense in which it is used in article 3 of Federal Law 170 of 21 November 1995 on the utilisation of nuclear energy. For the purposes of the present Federal Law, the term may include materials with an

enhanced level of natural radionuclides produced as a result of the extraction and processing of mineral or organic raw materials with a high natural radionuclide content but not as part of the utilisation of nuclear energy that are not subject to further use.

3. The concept "radioactive waste storage site, radioactive waste repository" (also referred to herein as "radioactive waste storage sites") is used in the sense in which it is used in article 3 of Federal Law 170 of 21 November 1995 on the utilisation of nuclear energy. For the purposes of the present Federal Law, special radioactive waste sites and special radioactive waste repositories are also considered to be radioactive waste storage sites.

Article 4. Classification of radioactive wastes

1. For the purposes of the present Federal Law, radioactive wastes are divided into the following groups:

1) removable radioactive wastes – radioactive waste for which the radiation risks and other risks and the expenses associated with the removal of the wastes from the radioactive waste storage site and subsequent management, including disposal, do not exceed the risks and expenses associated with in situ disposal;

2) special radioactive waste – radioactive waste for which the radiation risks and other risks and the expenses associated with the removal of the wastes from the radioactive waste storage site and subsequent management, including disposal, exceed the risks and expenses associated with in situ disposal.

2. The criteria for considering radioactive wastes as special or removable wastes shall be determined by the Government of the Russian Federation.

3. For disposal purposes, removable radioactive wastes shall be further classified by the following criteria:

1) depending on the half-life of the radionuclides they contain: long-lived radioactive wastes and short-lived radioactive wastes;

2) depending on the specific activity: high-level radioactive wastes, intermediate-level radioactive wastes, low-level radioactive wastes and very-low-level radioactive wastes;

3) depending on their physical state: liquid radioactive wastes, solid radioactive wastes and gaseous radioactive wastes;

4) depending on their nuclear material content: radioactive wastes containing nuclear material and radioactive wastes not containing nuclear material;

5) disused sealed radioactive sources;

6) radioactive wastes produced in the process of extracting and processing uranium ore;

7) radioactive wastes produced as a result of the extraction and processing of mineral or organic raw materials with a high natural radionuclide content but not as part of the utilisation of nuclear energy.

The criteria by which removable radioactive wastes are classified shall be determined by the Government of the Russian Federation, taking into account the technological constraints of radioactive waste management.

The Government of the Russian Federation shall determine the criteria for classifying solid, liquid and gaseous wastes as radioactive wastes.

Article 5. Powers of the Government of the Russian Federation in the domain of radioactive waste management

The Government of the Russian Federation shall exercise the following powers in the domain of radioactive waste management:

1) on a recommendation from the state radioactive waste administrator, it appoints the national operator;
2) it takes decisions on the design, location, construction, operation, and the decommissioning or closure of federal or inter-regional radioactive waste storage sites;
3) on a recommendation from the state radioactive waste administrator, it classifies radioactive waste storage sites as radioactive waste disposal sites, long-term radioactive waste storage sites, special radioactive waste sites, or special radioactive waste repositories;
4) it establishes a state regulatory mechanism for fees to be charged for disposal of radioactive wastes, including the principles for price calculation and the system of state regulation and monitoring, and assigns the authority to set such fees to a federal executive-branch body;
5) it determines the procedure for transferring radioactive wastes for the purposes of disposal, including radioactive wastes produced as a result of work associated with the development, production, testing, operation and dismantling of nuclear weapons and nuclear power plants for military use;
6) it monitors the Russian Federation's compliance with international agreements to which the Federation is a party and coordinates international co-operation in the domain of radioactive waste management;
7) it determines the criteria for classifying solid, liquid and gaseous wastes as radioactive waste, the criteria for considering radioactive wastes as special radioactive wastes or removable radioactive wastes, and the criteria for classification of removable wastes;
8) other powers as may be determined by the legislation of the Russian Federation.

Article 6. Powers of federal executive bodies in the domain of radioactive waste management

Federal executive bodies shall exercise the following powers in the domain of radioactive waste management:

1) ensure safety in the management of radioactive wastes;
2) organise measures to ensure that radioactive waste storage sites are provided with physical protection;
3) other powers as may be determined by the legislation of the Russian Federation.

Article 7. Powers of the authorities of the constituent entities of the Russian Federation and of local government authorities in the domain of radioactive waste management

1. The authorities of the constituent entities of the Russian Federation shall exercise the following powers in the domain of radioactive waste management:

1) coordination of decisions regarding the location and construction of radioactive waste storage sites on the territory of the constituent entity of the Russian Federation in question in accordance with the procedure set out in the Urban Code of the Russian Federation and Federal Law 170 of 21 November 1995 on the utilisation of nuclear energy;

2) other powers in the domain of radioactive waste management as set out in the legislation of the Russian Federation.

2. Local government bodies shall exercise the following powers in the domain of radioactive waste management:

1) participate in decision-making regarding the location of radioactive waste storage sites on their territories as set out in chapter 3 of the Urban Code of the Russian Federation and Federal Law 170 of 21 November 1995 on the utilisation of nuclear energy;

2) other powers in the domain of radioactive waste management as set out in the legislation of the Russian Federation.

Article 8. Federal standards and rules regulating the management of radioactive wastes

1. Federal standards and rules regulating the management of radioactive wastes (also referred to herein as federal standards and rules) shall establish the safety requirements that apply to the management of radioactive wastes, including the following:

1) criteria for accepting radioactive wastes for disposal;

2) requirements concerning the interim storage of radioactive wastes;

3) safety requirements regarding the location, construction, operation, decommissioning and closure of radioactive waste storage sites;

4) requirements concerning the radioactive waste passport;

5) requirements concerning the collection, transportation, storage and disposal of disused sealed radioactive sources;

6) the categories of special radioactive waste sites and special radioactive waste repositories;

7) the safety requirements applying to special radioactive waste sites and special radioactive waste repositories, taking into account the specific nature of individual radioactive waste storage sites;

8) procedures for radioactive waste disposal;

9) requirements regarding methods of protecting the public and the environment against the radiation risks arising from radioactive wastes at every stage of the radioactive waste management process;

10) requirements concerning the planning of radioactive waste management facilities as regards the system-wide assessment of their safety and the assessment of the design plans produced;

11) requirements concerning the reporting obligations that shall apply to organisations managing radioactive wastes for incidents occurring in connection with such management;

12) requirements regarding the contents of decommissioning plans for radioactive waste management facilities and the procedures for submitting such plans;

13) requirements regarding the contents of plans for the closure of radioactive waste disposal sites and the procedures for submitting such plans.

2. The procedure for drafting, adopting and implementing federal standards and rules regulating the management of radioactive wastes is that set out in Federal Law 170 of 21 November 1995 on the utilisation of nuclear energy and in the provisions of the present Federal Law.

Article 9. Ownership of radioactive wastes and radioactive waste storage sites

1. Radioactive wastes containing nuclear materials of which only the Federation can be the owner, and other radioactive wastes that were produced prior to the entry into force of the present Federal Law, shall be federal property. Radioactive wastes that were produced after the entry into force of the present Federal Law (with the exception of radioactive wastes containing nuclear materials of which only the Federation can be the owner), shall be the property of the organisations whose activities lead to the production of such wastes [hereinafter: "producer organisation"].

2. Radioactive waste disposal sites shall be the property of the Russian Federation or the state nuclear energy corporation Rosatom.

3. Long-term radioactive waste storage sites, temporary radioactive waste storage sites, special radioactive waste sites and special radioactive waste repositories may be federal property or the property of a Russian legal entity.

4. The property considered as belonging to a radioactive waste storage site shall include all property necessary for its safe operation, including land, buildings, installations, equipment, and usage rights for underground minerals, bodies of water and other natural resources.

5. Owners of radioactive wastes or radioactive waste storage sites shall be responsible for ensuring the safe management of radioactive wastes and the safe operation, decommissioning and closure of radioactive waste storage sites.

Chapter 2. Central state system for the management of radioactive wastes

Article 10. Purpose, operating principles and composition of central state system for the management of radioactive wastes

1. A central state system for the management of radioactive wastes shall be created for the purpose of organising and ensuring the safe and cost-effective management of radioactive wastes, including their disposal.

2. The central state system for the management of radioactive wastes shall be constituted by the bodies that are active in the domain of radioactive waste management, the facilities of the radioactive waste management infrastructure, and the requirements applicable to the management of radioactive wastes set out in the present Federal Law or any other regulatory acts of the Russian Federation.

3. The following shall be the basic operating principles of the central state system for the management of radioactive wastes:

1) the priority accorded to protecting human life and health for the current generation and future generations, and protecting the environment from the negative effects of radioactive wastes;

2) a prohibition on importing and exporting radioactive wastes into and out of the Russian Federation for purposes of storage, reprocessing and disposal, with the exception of those cases for which provision is made in article 31 of the present Federal Law;

3) the responsibility of the producer organisations for ensuring the safe management of radioactive wastes until such time as they are transferred to the national operator;

4) funding of radioactive waste management activities, including the disposal of such waste, to be provided by the producer organisations;

5) the interdependence of the stage during which radioactive wastes are produced and the stage during which they need to be managed;

6) accessibility of information relating to safety and accident prevention in radioactive waste management, and to other information relating to radioactive waste management, for citizens and public-interest organisations, as long as such information does not contain elements constituting a state secret.

Article 11. Establishment of a central state system for the management of radioactive wastes

1. The establishment of the central state system for the management of radioactive wastes shall include the following stages:

1) development of the regulatory and institutional arrangements for such a system of radioactive waste management and initial registration of radioactive wastes and their locations;

2) creation of a system for disposing of low and medium-level radioactive wastes;

3) creation of a system for disposing of high-level radioactive wastes and the conversion of special radioactive waste sites into special radioactive waste repositories and special radioactive waste repositories into radioactive waste disposal sites.

2. The procedures and timeline for the creation of the central state system for the management of radioactive wastes shall be determined by the Government of the Russian Federation.

Article 12. Requirements applicable to the disposal of radioactive wastes

1. With the exception of short-lived radioactive wastes whose specific activity can be reduced through radionuclide decay to such an extent that they no longer constitute radioactive waste at the end of the storage period, all radioactive wastes must be disposed of in radioactive waste disposal sites.

2. High-level and medium-level long-lived radioactive wastes in solid form shall be disposed of in deep underground disposal sites for radioactive wastes providing accommodation for such wastes in accordance with Federal Law 2395-1 of 21 February 1992 on underground resources.

3. Low-level and short-lived medium-level radioactive wastes in solid form may be disposed of in near-surface radioactive waste disposal sites.

4. Radioactive wastes produced in the process of extracting and processing uranium ore and very-low-level radioactive wastes in solid form may be disposed of without conditioning in near-surface radioactive waste disposal sites.

Article 13. Safety requirements applicable to radioactive waste disposal sites

1. Radioactive waste disposal sites shall be considered as federal or inter-regional nuclear energy facilities.

2. All work to construct and operate deep underground radioactive waste disposal sites and to close such disposal sites requires a licence for utilisation of underground minerals, issued in accordance with the laws of the Russian Federation regarding such minerals, and authorisation (licensing) to perform work in the domain of the utilisation of nuclear energy, issued in accordance with the laws of the Russian Federation in the domain of the utilisation of nuclear energy.

3. The safety requirements applicable to the location, construction, operation and closure of radioactive waste disposal sites shall be determined by the relevant technical regulations, environmental protection legislation and federal standards and rules.

4. The plans for any radioactive waste disposal site must provide for periodic radiation checks to be performed on the site territory after the site has been closed.

5. Following closure of a radioactive waste disposal site and expiry of the potential hazard period for the radioactive wastes contained therein, the state radioactive waste administrator, in consultation with the national safety authorities, shall take a decision regarding discontinuation of the periodic radiation checks on the territory of the disposal site, with corresponding changes to the registry of radioactive waste storage sites.

Article 14. Requirements applicable to organisations involved in managing radioactive wastes

1. Radioactive wastes may be managed by organisations that are authorised (licenced) to conduct work in the domain of the utilisation of nuclear energy.

2. Specialised organisations shall provide the national operator with services for the storage of radioactive wastes that have been brought into conformance with acceptance criteria and services for the operation and closure of radioactive waste disposal sites.

3. The prices charged for the services provided by specialised organisations for the storage of radioactive wastes that have been brought into conformance with acceptance criteria shall be determined on the basis of fees established by the federal executive body authorised to establish fees for the disposal of radioactive wastes.

Article 15. Public accounting and monitoring of radioactive wastes

1. Public accounting and monitoring of radioactive wastes is part of the system of public accounting and monitoring of radioactive material and radioactive wastes.

2. The system of public accounting and monitoring of radioactive material and radioactive wastes shall provide for public accounting and monitoring of all radioactive wastes located on the territory of the Russian Federation, including the registration of radioactive wastes and radioactive waste storage sites.

3. Public accounting and monitoring of radioactive wastes, including the registration of radioactive wastes and radioactive waste storage sites, shall be performed by the

state radioactive waste administrator in accordance with procedures established by the Government of the Russian Federation.

Article 16. Requirements applicable to the registration of radioactive wastes and radioactive waste storage sites

1. Radioactive wastes and radioactive waste storage sites shall be registered for the purposes of collecting and preserving such information regarding radioactive wastes as is necessary for the operation of the central state system for the management of radioactive wastes, including quantities and characteristics of waste and information about radioactive waste storage sites and their owners.

2. The registration of radioactive wastes and radioactive waste storage sites includes the maintenance of a radioactive waste directory and a registry of radioactive waste storage sites.

3. The radioactive waste directory shall contain documentary information about the radioactive wastes that have been transferred to the national operator and information about radioactive wastes located in radioactive waste storage sites that has been received as a result of the initial registration of radioactive wastes and their locations.

4. The registry of radioactive waste storage sites shall contain documentary information about radioactive waste disposal sites, long-term radioactive waste storage sites, special radioactive waste sites, special radioactive waste repositories, the owners of such storage sites, and the characteristics of the radioactive wastes located therein.

5. A passport shall be established for all radioactive wastes that have been brought into conformance with the acceptance criteria for radioactive wastes. A radioactive waste passport shall be issued for every unit package of radioactive wastes by the organisation that carried out the conditioning of the wastes, with the exception of certain cases as specified in the present Federal Law. The requirements applicable to radioactive waste passports shall be those established by federal standards and regulations.

6. The radioactive waste directory, the registry of radioactive waste storage sites and all radioactive waste passports shall be kept indefinitely.

7. The radioactive waste directory, the registry of radioactive waste storage sites and radioactive waste passports shall be kept in accordance with the legislation of the Russian Federation concerning archival.

Article 17. Conduct of radiation monitoring in connection with the management of radioactive wastes

1. Radiation monitoring in connection with the management of radioactive wastes shall be conducted in accordance with the regulatory acts of the Russian Federation.

2. Any organisation that operates a radioactive waste disposal site shall conduct radiation monitoring in the protection zone and the observation zone set up for the disposal site, taking into account its ultimate closure and the need for periodic radiation measurements throughout the potential hazard period for the radioactive wastes located therein.

3. The requirements applicable to periodic radiation monitoring following closure of a radioactive waste disposal site and the procedures for its conduct shall be determined by the state radioactive waste administrator in consultation with the national safety authorities.

Chapter 3. Institutional arrangements of radioactive waste management

Article 18. Powers and functions of the state radioactive waste administrator

The state radioactive waste administrator appointed by legislation of the Russian Federation shall:

1) on behalf of the Russian Federation, exercise the powers of the owner of federally owned radioactive waste storage sites, excluding the right to alienate them;

2) carry out public accounting and monitoring of radioactive wastes, including the registration of radioactive wastes and radioactive waste storage sites;

3) approve forecasts of the expected volume of production of radioactive wastes for organisations that operate plants and other facilities that represent particular radiation hazards or nuclear hazards, based on actual production of radioactive wastes and their transfer for disposal in previous years;

4) keep account of the funds paid into the special reserve fund by organisations that operate plants and other facilities that represent particular radiation hazards or nuclear hazards, and of the volume of radioactive wastes transferred from them for disposal purposes;

5) keep account of the funds paid into the special reserve fund by the national operator, and the volume of radioactive wastes the national operator receives for disposal purposes from organisations other than those that operate facilities and installations that represent particular radiation hazards or nuclear hazards;

6) finance the disposal of radioactive wastes produced as the result of the activity of organisations that operate plants and other facilities that represent particular radiation hazards or nuclear hazards from the special reserve fund, on the basis of the volume of radioactive wastes accepted for disposal, the needs for development of the radioactive waste management infrastructure and radioactive waste management safety;

7) approve the permissible duration of interim storage of radioactive wastes and their volume for organisations that operate plants and other facilities that represent particular radiation hazards or nuclear hazards. For all such organisations that fall within the responsibility of a federal executive authority or another organisation, the authorised duration and volume shall be confirmed in consultation with the authority or organisation in question;

8) make a proposal to the Government of the Russian Federation regarding appointment of a candidate for national operator;

9) supervise the work of the national operator;

10) make fee proposals to the federal executive body authorised to establish fees to be charged for the disposal of radioactive wastes;

11) in consultation with the national safety authorities, determine the procedure for periodic radiation monitoring following the closure of radioactive waste disposal sites;

12) elaborate proposals on the following subjects and submit them to the Government of the Russian Federation:

    a) the design, location, construction, operation, decommissioning and closure of federal radioactive waste storage sites;

b) approval of lists of radioactive waste disposal sites, long-term radioactive waste storage sites, special radioactive waste sites and special radioactive waste repositories;

13) ensure safety in the management of radioactive wastes and organise physical protection of radioactive waste storage sites;

14) develop technical requirements applicable to radioactive waste disposal site and to radioactive waste reprocessing, conditioning and storage technologies;

15) request and collect from the state authorities, other state bodies, local government and other organisations the information needed to establish and maintain the radioactive waste directory and the registry of radioactive waste storage sites;

16) exercise other powers and perform other functions in the domain of radioactive waste management, as determined under the present Federal Law, other federal laws, or any other regulatory acts of the Russian Federation.

Article 19. Powers and functions of the national safety regulators in the regulation of radioactive waste management

The national safety regulators shall exercise the following powers and perform the following functions in the regulation of radioactive waste management:

1) develop, approve and implement federal standards and rules regulating the management of radioactive wastes;

2) issue authorisations (licences) to conduct work in the domain of the utilisation of nuclear energy to organisations that manage radioactive wastes or that operate, decommission or close radioactive waste storage sites, and determine the conditions for valid authorisation (licensing);

3) issue authorisations to conduct work in the domain of the utilisation of nuclear energy to the workers of organisations that manage radioactive wastes, in accordance with the list of positions established by the Government of the Russian Federation;

4) supervise the management of radioactive wastes;

5) monitor compliance with the international obligations of the Russian Federation in the domain of radioactive waste management;

6) exercise other powers and perform other functions as determined by the legislation of the Russian Federation.

Article 20. National operator for radioactive waste management

1. The national operator for radioactive waste management shall be appointed by a decision of the Government of the Russian Federation on a proposal from the state radioactive waste administrator.

2. The national operator shall perform the following activities:

1) ensure the safe management of radioactive wastes that have been accepted for disposal;

2) operate and close radioactive waste disposal sites;

3) perform the function of ordering agency for the design and construction of radioactive waste disposal sites;

4) prepare forecasts for the volume of disposal of radioactive wastes and the development of the radioactive waste management infrastructure and provide forecast information on the internet site of the national operator and that of the state radioactive waste administrator;

5) provide technical and information support for the public accounting and monitoring of radioactive materials and radioactive wastes;

6) perform other activities as determined by the legislation of the Russian Federation.

3. The national operator shall:

NB: Parts 1 and 2 of article 20.3 shall enter into force one year after official publication (see article 42.2 of the present document).

1) accept radioactive wastes for disposal. To be accepted for disposal, radioactive wastes must meet the acceptance criteria, and their disposal must be paid for. Upon acceptance, a radioactive waste receipt and transfer certificate shall be established;

2) if the radioactive wastes are being transferred from an organisation that is not considered as an organisation operating facilities and installations that represent particular radiation hazards or nuclear hazards, transfer a portion of the funds received from the organisation in payment for disposal of the radioactive wastes into the special reserve fund. The transfer of these funds shall be carried out in accordance with a procedure to be determined by the Government of the Russian Federation;

3) ensure nuclear, radiation, technical and fire safety, protection of the environment, and compliance with public health and community health legislation throughout the operation and closure of radioactive waste disposal sites and following such closure;

4) provide for radiation monitoring on the territory on which radioactive waste disposal sites are located, including periodic radiation checks following their closure;

5) on a request from a citizen or a legal entity, including any public-interest organisation, state authority or other state body, or a local government body, provide information regarding the activities of the national operator, in accordance with the legislation of the Russian Federation concerning state secrets;

6) inform the general public, the state authorities, other state bodies, and local government regarding safety issues relating to the management of radioactive wastes and the radiation situation on the territories on which radioactive waste storage sites operated by the national operator are located.

Article 21. General requirements applicable to producer organisations

1. Producer organisations shall be responsible for the safe management of radioactive wastes until they are transferred to the national operator.

2. Producer organisations shall:

1) perform an annual assessment of the continued fitness for use of all materials, substances, equipment and devices produced in the context of their work whose radionuclide content exceeds the levels established in accordance with the criteria established by the Government of the Russian Federation for classifying solid, liquid and gaseous wastes as radioactive

waste, and reclassify them as radioactive wastes in the event that they are not fit for further use;

2) ensure the safe management of radioactive wastes, including their safe storage within the time limits established under the present Federal Law for the interim storage of radioactive wastes;

NB: Parts 3 and 4 of article 21.2 shall enter into force one year after official publication (see article 42.2 of the present document).

3) before the time limit for interim storage of radioactive wastes is reached, ensure that radioactive wastes are brought into conformance with the acceptance criteria, either by the producer organisation's own means or by retaining a specialised organisation. For organisations that are not considered as organisations operating facilities and installations that represent particular radiation hazards or nuclear hazards, a standard time limit of five years shall apply to the interim storage or radioactive wastes;

4) by their own means or by retaining the services of a specialised organisation, transfer radioactive wastes to the radioactive waste storage site designated by the national operator and transfer the wastes and their passports to the national operator, establishing a receipt and transfer certificate to that effect.

NB: Article 21.3-21.5 shall enter into force one year after official publication (see article 42.2 of the present document).

3. Producer organisations shall make payment for their disposal prior to the time limit for interim storage of radioactive wastes.

4. Organisations operating facilities and installations that represent particular radiation hazards or nuclear hazards shall make payment for the disposal of radioactive wastes in the form of quarterly payments into the special reserve fund. The size of the payments shall be calculated on the basis of the radioactive waste disposal fees and the forecast volume of radioactive wastes to be produced in the current year, as approved by the state radioactive waste administrator, taking into account volumetric changes that may take place in the process of bringing the wastes into conformance with the acceptance criteria.

5. Organisations operating facilities and installations that represent particular radiation hazards or nuclear hazards may make their payments into the special reserve fund from reserves they have formed for the purpose of ensuring the safety of such installations throughout all phases of their lifecycle and development.

6. Organisations that are not considered as organisations operating facilities and installations that represent particular radiation hazards or nuclear hazards shall make payment for the disposal of radioactive wastes based on the actual volume of radioactive wastes transferred to the national operator and the applicable disposal fees. Payment for the disposal of radioactive wastes shall be made when they are transferred to the national operator.

Article 22. Funding of radioactive waste management

Radioactive waste management shall be funded from the federal budget, the budgets of the constituent entities of the Russian Federation, local budgets, the special reserve fund, resources belonging to or raised by legal entities, resources of physical persons, and other sources not prohibited under the legislation of the Russian Federation.

Chapter 4. Management of radioactive wastes produced prior to the entry into force of the present federal law

Article 23. Initial registration of radioactive wastes and their locations

1. The purpose of conducting the initial registration of radioactive wastes and their locations is to determine what radioactive wastes are located where, and in what quantities.

2. An initial registration procedure of radioactive wastes and their locations shall be conducted for every site on which radioactive wastes are stored.

3. The results of the initial registration of radioactive wastes and their locations shall be recorded in a certificate.

4. The procedure and deadlines for conducting the initial registration of radioactive wastes produced prior to the entry into force of the present Federal Law and their locations shall be conducted by the Government of the Russian Federation, which shall also formalise the initial registration certificate for those wastes.

5. For each radioactive waste disposal site, the volume of radioactive wastes contained therein shall be determined, along with other information required for entry in the registry of radioactive waste storage sites.

6. The volume and categories of all removable radioactive wastes and the conditions under which they are being kept (temporary radioactive waste storage site or long-term radioactive waste storage sites) shall be determined.

7. The volume of all special radioactive wastes and the conditions under which they are being kept (special radioactive waste site or special radioactive waste repository) shall be determined.

8. The decision as to whether the radioactive wastes located in a long-term radioactive waste storage site are to be considered as special radioactive wastes or removable radioactive wastes may be postponed until the end of the design operating life of the site.

9. On the basis of the certificates of initial registration of radioactive wastes and their locations, the state radioactive waste administrator shall decide whether or not a given radioactive waste storage site is to be considered as a federal or inter-regional site.

10. On the basis of the certificates of initial registration of radioactive wastes and their locations, the Government of the Russian Federation shall, on a recommendation from the state radioactive waste administrator, classify radioactive waste storage sites as radioactive waste disposal sites, long-term radioactive waste storage sites, special radioactive waste sites, or special radioactive waste repositories.

11. Legacy radioactive wastes and radioactive waste storage sites shall be registered on the basis of the certificates of initial registration of radioactive wastes and their locations and the classification by the Government of the Russian Federation of radioactive waste storage sites as radioactive waste disposal sites, long-term radioactive waste storage sites, special radioactive waste sites, and special radioactive waste repositories.

Article 24. Requirements applicable to the management of legacy radioactive wastes and sites where such wastes are stored

1. Legacy radioactive wastes that are considered as removable radioactive wastes shall be removed, reprocessed, conditioned and disposed.

2. In accordance with the requirements established by the laws of the Russian Federation and other regulatory acts of the Russian Federation, the safety of special radioactive waste sites must be ensured until their conversion into special radioactive waste repositories or radioactive waste disposal sites.

3. Special radioactive waste sites must be converted into special radioactive waste repositories or radioactive waste disposal sites. The decision on such conversion shall be taken by the Government of the Russian Federation on a submission from the state radioactive waste administrator.

4. Prior to the expiry of the design lifetime of a long-term radioactive waste storage site, the state radioactive waste administrator shall either take the decision to decommission the radioactive waste storage site or submit to the Government of the Russian Federation a proposal to amend the list of long-term radioactive waste storage sites and the list of special radioactive waste sites or the list of special radioactive waste repositories.

Chapter 5. Management of specific types of radioactive wastes and requirements applicable to specific activities in the management of radioactive wastes

Article 25. Management of removable radioactive wastes

1. Radioactive wastes that have been brought into conformance with acceptance criteria shall be disposed of or stored by the national operator until appropriate radioactive waste disposal sites can be brought into operation.

2. In the event that radioactive wastes received for disposal purposes are found not to conform to the acceptance criteria, the producer organisation shall ensure that they are brought into conformance with the criteria.

3. The procedure for determining whether radioactive wastes received for disposal purposes conform to the acceptance criteria shall be determined by the state radioactive waste administrator in consultation with the national safety authority.

Article 26. Management of special radioactive wastes and requirements applicable to sites where such wastes are stored

1. The management of special radioactive wastes (including those that are produced through the national weapons programme and defence procurement, the utilisation of nuclear explosives for peaceful purposes and other forms of utilisation of nuclear energy) shall take into account the state of the special radioactive waste sites and special radioactive waste repositories and the level of potential danger in the radioactive wastes therein.

2. It is prohibited to construct any commercial facility or create any commercial technology that may reasonably be expected to lead to the production of special radioactive wastes.

3. The categories of special radioactive waste site and special radioactive waste repository, along with the safety requirements applicable to such sites as regards the protection of the public and of the environment shall be defined in federal standards and regulations.

4. Additional safety requirements applicable to individual special radioactive waste sites and special radioactive waste repositories shall be defined in regulatory acts of the national safety authorities.

5. The lists of special radioactive waste sites and special radioactive waste repositories shall be reviewed at least once every ten years, taking into account the criteria for classifying radioactive wastes in the category of special radioactive wastes and technological advances in the domain of radioactive waste management.

Article 27. Management of radioactive wastes produced in the process of extracting and processing uranium ore and very-low-level radioactive wastes

1. Organisations whose work of extracting and processing uranium ore results in the production of radioactive wastes and organisations which operate facilities and installations that represent particular radiation hazards or nuclear hazards and which produce very-low-level radioactive wastes may, on a decision of the Government of the Russian Federation, dispose of such wastes in radioactive waste disposal sites situated on land that is being used by the organisations. For disposal of radioactive wastes produced in the process of extracting and processing uranium ore and very-low-level radioactive wastes, passport information for the wastes shall be entered annually throughout the lifetime of the radioactive waste disposal site and upon its closure. Radioactive waste passports that have been completed shall be transferred to the national operator.

2. When transferring radioactive wastes produced in the process of extracting and processing uranium ore and very-low-level radioactive wastes to the national operator, a single passport shall be prepared for the entire consignment of radioactive wastes to be transferred.

Article 28. Management of materials with an enhanced level of natural radionuclides produced as a result of the extraction and processing of mineral or organic raw materials with a high natural radionuclide content

1. Materials with an enhanced level of natural radionuclides produced as a result of the extraction and processing of mineral or organic raw materials with a high natural radionuclide content shall be managed in accordance with the requirements set out in the present Federal Law from the moment when they are classified as radioactive wastes.

2. Safety in the management of materials with an enhanced level of natural radionuclides produced as a result of the extraction and processing of mineral or organic raw materials with a high natural radionuclide content shall include a programme of preventive measures for the protection of public health and community health in accordance with the legislation of the Russian Federation in the domain of public health and community health and environmental protection legislation.

Article 29. Management of disused sealed radioactive sources

1. Disused sealed radioactive sources shall be transferred to the national operator for disposal or to the source manufacturer for reprocessing, in accordance with a procedure to be established by the state radioactive waste administrator in consultation with the national safety authorities. Once the manufacturer has accepted a sealed radioactive source for reprocessing, the manufacturer bears responsibility for its safe management and for the transfer to the national operator of any radioactive wastes produced during its reprocessing.

2. Disused sealed radioactive sources shall be accompanied by their passports, if they have them, when the sources are transferred for disposal or reprocessing. In the absence of a passport, the organisation which produced the disused sealed radioactive source shall ensure that its characteristics are determined, in accordance with a procedure to be established by the state radioactive waste administrator.

3. The categories that apply to disused sealed radioactive sources and the requirements governing their collection, transport, storage and disposal shall be determined by federal standards and regulations.

Article 30. Management of liquid and gaseous radioactive wastes

1. The technical resources and organisational support for the management of radioactive swastes in liquid form shall, except as otherwise provided for in this article, have the objective of ensuring that such wastes are converted into a solid form, brought into conformance with the acceptance criteria and disposed of.

2. Underground disposal of liquid low-level and medium-level radioactive wastes within a mining concession, where the wastes must be contained, is only permissible in existing deep underground radioactive waste disposal sites that were already in operation upon the entry into force of the present Federal Law. Liquid radioactive wastes must be brought into conformance with the acceptance criteria applicable to their disposal at those disposal sites. The disposal of radioactive wastes at those disposal sites shall be carried out in accordance with Law 2395-1 of the Russian Federation of 21 February 1992 on underground resources and federal standards and regulations.

3. Management of gaseous radioactive wastes shall have the objective of preventing the escape of radioactive substances into the environment in quantities exceeding the permitted emission standards.

4. The necessary technical resources and organisational support for the management of radioactive wastes in gaseous form shall be defined in accordance with federal standards and regulations.

Article 31. Special conditions for the import and export of radioactive wastes into and out of the Russian Federation

1. Importing radioactive wastes into the Russian Federation for the purposes of storage, reprocessing or disposal is prohibited except as otherwise provided for within this article.

2. Radioactive wastes produced in the course of reprocessing depleted nuclear fuel that was imported into the Russian Federation may be exported if provisions to that effect exist in san international agreement to which the Russian Federation is a party. No funds shall be transferred into the special reserve fund for the disposal of radioactive wastes produced in the course of reprocessing such depleted nuclear fuel.

3. Where a sealed radioactive source was imported into the Russian Federation, it is permitted to return the disused source to the supplier's country. The procedure for returning disused sealed radioactive sources to the supplier's country shall be determined by the Government of the Russian Federation.

4. Disused sealed radioactive sources that were manufactured in the Russian Federation may be returned to the Russian Federation for purposes that include reprocessing and disposal. Funding for the measures necessary to return such sources to the Russian Federation shall be provided by the organisation that exported them. The procedure for returning disused sealed radioactive sources manufactured in the Russian Federation, for purposes including their reprocessing and disposal, shall be determined by the Government of the Russian Federation.

Chapter 6. Liability for infractions against the requirements applicable in the domain of radioactive waste management

Article 32. Forms of liability for infractions against the requirements applicable in the domain of radioactive waste management and the bases for such liability

Persons guilty of infractions against the requirements applicable in the domain of radioactive waste management established by the present Federal Law or by any other regulatory act of the Russian Federation shall have civil, criminal, administrative and disciplinary liability in accordance with the legislation of the Russian Federation.

Article 33. Compensation for loss or harm resulting from infractions against the requirements applicable in the domain of radioactive waste management

Any loss or harm to the life, health or property of physical persons, to the property of legal entities, or to the environment resulting from any infraction against the requirements applicable in the domain of radioactive waste management shall be subject to compensation in accordance with the legislation of the Russian Federation.

Chapter 7. Amendments to certain legislative acts of the Russian Federation

[NOT TRANSLATED]

Chapter 8. Final provisions

Article 40. Transfer of ownership rights for radioactive waste disposal sites

1. In the course of the two years following the entry into force of the present Federal Law, or of one year from the time that ownership rights to radioactive waste disposal sites come into existence, the legal entities who are the owners of those sites shall transfer them to the state radioactive waste administrator in accordance with civil law, following a procedure to be established by the Government of the Russian Federation. On the recommendation of the state radioactive waste administrator, the Government of the Russian Federation shall determine the complete list of assets comprising the property of the radioactive waste disposal site being transferred.

2. Upon transfer of the rights to ownership of a radioactive waste disposal site, the legal entity in question shall be entitled to receive compensation for the value of the property of the site, less the expenditure required for its subsequent operation and closure. The value of the property of the site and the expenditures for its operation and closure shall be assessed in accordance with the legislation of the Russian Federation concerning the valuation of property.

3. If the expenditures for subsequent operation and closure of the radioactive waste storage site exceed the value of the property of the site, the legal entity transferring the site property shall refund the amount of the site's subsequent operation. The amount of the refund shall not exceed the cost of operating such a storage point for five years. The refund for the subsequent operation of the transferred site shall be paid during the five years following the transfer of property.

Article 41. Validity of regulatory acts of the Russian Federation adopted prior to the entry into force of the present Federal Law, and of licences issued prior to the entry into force of the present Federal Law

1. Any regulatory acts of the President of the Russian Federation, the Government of the Russian Federation, other federal organs of the executive branch, and organisations which are responsible for the regulation of the utilisation of nuclear energy that were adopted prior to the day on which the present Federal Law entered into force and that establish requirements with respect to the management of radioactive wastes shall continue to apply insofar as they do not contradict the present Federal Law.

2. Licences to use underground resources for the purpose of disposing of radioactive wastes and authorisations (licences) to conduct work in the domain of the utilisation of nuclear energy as concerns the construction, operation and closure of radioactive waste storage sites that were issued prior to the date of entry into force of the present Federal Law shall remain valid for a maximum period of two years from that date. Upon expiry of that period, such licences and authorisations (licences) shall be re-issued to the national operator in accordance with the legislation of the Russian Federation.

Article 42. Entry into force of the present Federal Law

1. The present Federal Law shall enter into force on the day it is officially published, with the exception of those provisions for which a different day for entry into force is specified in the present article.

2. Parts 1 and 2 of article 20.3, parts 3 and 4 of article 21.2 and article 21.3-21.5 of the present Federal Law shall enter into force one year after official publication of the present Federal Law.

President of the Russian Federation
D. Medvedev
Moscow, the Kremlin
11 July 2011
Federal Law 190

News briefs

Carnegie Endowment for International Peace Nuclear Power Plant Exporters' Principles of Conduct

The Nuclear Power Plant Exporters' Principles of Conduct are an industry code of conduct resulting from a three-year initiative to develop norms of corporate self-management in the exportation of nuclear power plants. In developing and adopting the Principles of Conduct, the world's leading nuclear power plant vendors have articulated and consolidated a set of principles that reaffirm and enhance national and international governance and oversight, and incorporate recommended best practices in the areas of safety, security, environmental protection and spent fuel management, non-proliferation, business ethics and internationally recognised systems for compensation in the unlikely event of nuclear-related damage.

The significance of the Principles of Conduct is in their scope and participation. With interest in nuclear energy spreading rapidly, new vendors and buyers are contemplating entering the marketplace, some of whom have limited or no previous experience with nuclear power. Although nuclear energy is already among the most well-regulated industries in the world, the Principles of Conduct are inspired by the conviction that a common high standard is necessary to help minimise both the occurrence and harmful consequences of serious incidents involving nuclear materials and technology. Current state-based and inter-governmental norms and regulations governing the exportation of nuclear technology have been previously focused mainly on preventing the proliferation of nuclear weapons. By adopting the principles, the participating vendor companies commit to also apply less well-known norms related to the exportation of nuclear power plants, such as safety, nuclear security and environmental protection. The participants in this initiative recognised the opportunity and value of a voluntary initiative informed by world-class expertise to collect, identify and widely promote global norms and practices that encourage the socially responsible expansion of nuclear power.

More information, including the principles themselves, is available at: www.nuclearprinciples.org.

CEA: database of French nuclear law RODIN

The legal and litigation affairs office of the French Alternative Energies and Atomic Energy Commission (CEA) has developed a new database that gathers the legislative, regulatory and technical texts constituting the legal and institutional framework of nuclear activities in France.

Updated monthly, RODIN (operational collection of law and nuclear institutions) is a unique resource that gathers all of the legislative, regulatory or technical texts in force, of international, European or national scope, that constitute the legal and institutional framework for nuclear activities in France. RODIN gathers more than 1 600 documents going back to 1926.

More information is available at: www-rodin.cea.fr.

European Atomic Energy Community European Nuclear Energy Forum (ENEF)

The European Nuclear Energy Forum (ENEF), founded in 2007, is a platform for a broad discussion among governments of the 27 EU member states, European institutions including the European Parliament and the European Economic and Social Committee, nuclear industry, electricity consumers and the civil society. Three working groups on "risks", "opportunities", and "transparency" meet frequently and prepare additional ENEF gatherings. More details are available at: http://ec.europa.eu/energy/nuclear/forum/forum_en.htm

Sixth ENEF plenary meeting, 19-20 May 2011, Prague

The sixth plenary ENEF meeting, hosted by the Czech government, took place in Prague on 19 and 20 May 2011. Three hundred high-ranking participants discussed issues relating to safety, risk assessment and long-term operation of nuclear power plants in the EU. In addition, the criteria and modalities of the EU-wide stress tests for nuclear power plants were broadly discussed. The challenges associated with investing in a low-carbon energy system and opportunities for involving civil society in discussions relating to establishing such a system were also discussed. ENEF reviewed European response to the Fukushima accident, addressing the value of national and European initiatives to improve nuclear safety on a continuous basis.

The next plenary session of the European Nuclear Energy Forum will take place in Bratislava in May 2012.

ENEF working group seminar on non-proliferation, 11 October 2011, Luxembourg

On 11 October 2011, the ENEF Risks Working Group and the ENEF Opportunities Working Group jointly organised a seminar in Luxembourg entitled "Non-Proliferation – Export Controls and a Level Playing Field for Europe". The purpose of this seminar was to act as a forum for industry and government to examine, on an EU-wide basis, their respective challenges in relation to controlling the export of nuclear-related goods and technology. The seminar also covered certain internal EU market issues including the controls applied to intra-EU transfers of goods and technology as well as progress towards ensuring the consistent implementation of export controls by EU member states. The seminar also examined the broader international dimension of export controls, including the fight against the proliferation of nuclear weapons and the competitiveness of European industry *vis-à-vis* third states.

International Nuclear Law Association

The next congress of the International Nuclear Law Association (INLA) will take place in Manchester, United Kingdom, from 8 October until 11 October 2012. The congress venue will be the Hilton Hotel, Manchester. The main theme of the congress will be: "The Evolution of Nuclear Law after Fukushima".

Nuclear Law Association (India) First Annual Conference, 17-18 February 2012, New Delhi, India

The Nuclear Law Association (NLA) of India was established in New Delhi, India in 2011. The association is a forum for the legal community to discuss issues relating to peaceful use of nuclear energy in India. NLA aims to promote knowledge sharing and influence policy formulation through seminars, research and outreach. The Nuclear Law Association is organising its first annual conference entitled "Nuclear Energy

Development in India: Role of Law and Legal Institutions" on 17-18 February 2012 in New Delhi, India. The purpose of the conference is to discuss the role of law and legal institutions in India with respect to nuclear energy development. More details are available at: www.nlain.org

World Nuclear University

The World Nuclear University (WNU) Summer Institute was held at the University of Oxford's Christ Church College on 9 July-20 August 2011. Supported annually by the OECD/NEA, this year's WNU has 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 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 concerns. 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 Legal Affairs Offices of the OECD/NEA and of the International Atomic Energy Agency jointly co-ordinated a one-day session to provide a general overview of nuclear law. Representatives of each Legal Affairs Office made presentations that focused on nuclear third party liability and nuclear security and safety. Their presentations were followed by a half-day question and answer session that gave participants the opportunity to deepen their knowledge on certain topics of interest, in particular nuclear third party liability and the accident at the Fukushima nuclear power plants.

The WNU Summer Institute 2012 will be held on 7 July-18 August 2012 at Christ Church College Oxford, United Kingdom. More information is available at: www.world-nuclear-university.org

Bibliography

Droit international et gestion des déchets radioactifs ("International Law and Radioactive Waste Management") by Michel Montjoie[1]

Michel Montjoie is a former engineer at the French *Commissariat à l'énergie atomique et aux énergies renouvelables* (*Commissariat à l'énergie atomique* at the time). After his retirement, he started studying law and wrote a thesis on international law and radioactive waste management which was published as a book in March 2011. His dual expertise as both a lawyer and an engineer give him a unique perspective that he devotes to the study of a specialised field of nuclear law that has been seldom touched upon in the past and is of increasing importance in the international community.

This extensive study (332 pages, excluding notes) focuses on the evolution of international law with respect to radioactive waste management, taking into account the specific risks and challenges associated with managing radioactive waste and the way these risks and challenges have been handled within the broader context of the regulation of the peaceful use of nuclear energy. The author explains that the evolution of international nuclear law, particularly since the Chernobyl accident, has resulted in a mature regime of risk control which is reflected in the provisions of the numerous treaties connected to radioactive waste management. For the author, this specific regime of international law is divided into three aspects:

- International instruments including the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management and initiatives on the supervision and regulation of "technical risks" (i.e. the safety of storage and disposal sites, sealed sources and the role of environmental law in the prevention of both land and sea pollution).
- Legal instruments dealing with the protection against "political risks" (i.e. nuclear security and non-proliferation).
- International conventions dealing with the compensation of nuclear damage in the case of an incident resulting from radioactive waste in radioactive waste repositories and other storage facilities.

Throughout this study, Michel Montjoie highlights certain legal provisions concerning the final disposal of radioactive waste, bearing in mind the paradoxical situation associated with the longevity of the risk of contamination posed by radioactive waste and the objective of protecting future generations. Provisions of European Union law concerning radioactive waste are underlined as well to assess their originality and their contribution to risks' control in member states.

A comprehensive yet enjoyable essay, Michel Montjoie's work will be of interest to experts working in the nuclear field as well as those professionals interested in the solutions offered by international law to the increasingly pressing issue of radioactive waste management.

1. *Droit international et gestion des déchets radioactifs* is published in the *Bibliothèque de droit international et communautaire* by L.G.D.J. – Lextenso Editions. It is only available in French.

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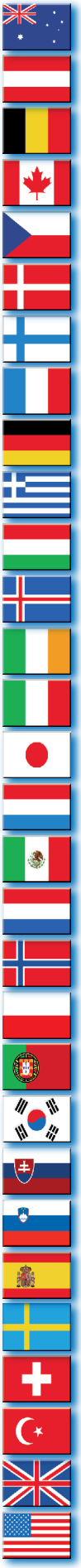

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