

The IAEA Nuclear Safety Conventions: An Example of Successful “Treaty Management”?

by Günther Handl*

I. Introduction

When the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management¹ came into force in June 2002, following by almost five years the entry into force of the Convention on Nuclear Safety (CNS),² the major elements³ of the International Atomic Energy Agency’s long-planned international legal regime on nuclear safety⁴ appeared to be finally in place. This fact might have been expected to be a cause for general satisfaction, if not

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1. The Joint Convention on the Safety Spent Fuel Management and on the Safety of Radioactive Waste Management [hereinafter: “Joint Convention”], reproduced in 36 *International Legal Materials*, p. 1431 (1997).
2. “The Nuclear Safety Convention, IAEA”, Doc. INFCIRC/449 of 5 July 1994; reproduced in 33 *International Legal Materials*, p. 1514 (1994). It entered into force on 24 October 1996.
3. Apart from nuclear power installation and waste safety, this treaty-based regulatory approach does not (yet) cover transport safety, the safety of radiation sources or indeed of research reactors. However, transport safety was the subject of an International Conference on the Safety of Transport of Radioactive Material in July 2003, the purpose of which was to *inter alia* formulate recommendations regarding future international co-operation in this area, which might include development of an international legal instrument. As regards the regulation of the safety of radiation sources and of research reactors, the IAEA has endorsed the development of codes of conduct rather than the adoption of treaty instruments. See, e.g., “Measures to Strengthen International Co-operation in Nuclear, Radiation and Transport Safety and Waste Management: Revision of the Code of Conduct on the Safety and Security of Radioactive Sources”, IAEA, Doc. GOV/2003/49-GC(47)9, 29 July 2003; and “Measures to Strengthen International Co-operation in Nuclear, Radiation and Transport Safety and Waste Management: Nuclear Safety Review for the Year 2002”, IAEA Doc. GC(47)/INF/3, 11 August 2003, Annex, 6.
4. See, e.g., Handl, “Après Tchernobyl: Quelques réflexions sur le programme législatif multilatéral à l’ordre du jour,” 92 *Revue générale de droit international public*, p. 5, at p. 12-15 (1988). This regime at law thus finally complements the existing de facto nuclear safety regime that had evolved over time under the aegis of the IAEA. For an overview of the latter, see “Measures to Strengthen International Co-operation in Nuclear, Radiation, Transport and Waste Management”, IAEA Doc. GC(45)/INF/3, 31 August 2001.

celebration. However, reaction among legal experts has been mixed. Some commentators consider the two Nuclear Safety Conventions⁵ a singular accomplishment of nuclear energy law, if not a milestone in the development of modern international environmental law in general.⁶ Others, however, have been much less charitable in their comments. They criticise the Nuclear Safety Conventions for not appreciably advancing a genuine internationalisation of the nuclear safety regime,⁷ for confirming its “inward-looking, insular character,”⁸ or, more specifically, for lacking clearly established, sufficiently specific, or legally meaningful international safety provisions.⁹

Yet another group of commentators, while welcoming the two Conventions in principle, have reserved final judgement until there exists adequate operational experience to assess the instruments.¹⁰ The principal reason for such caution seems to be the Conventions’ idiosyncratic design which was prompted, at least in part, by the inherent complexity of devising uniform international regulations for traditionally disparate national nuclear power technologies, safety philosophies and regulatory systems, as well as the political sensitivity of subjecting national nuclear power facilities to international jurisdiction and control.¹¹ Thus, conceived as so-called “incentive conventions,”¹² both instruments establish fairly general nuclear safety requirements in conjunction with a non-coercive procedural mechanism¹³ – in peer review format¹⁴ – to ensure realisation of basic Conventional safety

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5. Hereinafter, the Convention on Nuclear Safety will be referred to by its acronym of “CNS” while “Nuclear Safety Conventions” will refer to both the CNS and the Joint Convention.
 6. To this effect, see e.g. Pelzer, “Nuclear Energy”, in *5 Yearbook of International Environmental Law* 1994, p. 195, at p. 197 (1995), speaking of the CNS; and de Kagneck, “*La Convention commune sur la sûreté de la gestion du combustible usé et sur la sûreté de la gestion des déchets radioactifs,*” 102 *Revue générale de droit international public*, p. 145, at p. 155 (1998).
 7. See, e.g., Washington, “Monitoring Compliance with Nuclear Safety Standards: Peer Review through the International Atomic Energy Agency and its Convention on Nuclear Safety,” in P. Szasz, ed., *Administrative and Expert Monitoring of International Treaties*, p. 193, at p. 213 (1999).
 8. Kaminga, “The IAEA Convention on Nuclear Safety,” in 44 *International & Comparative Law Quarterly*, p. 872, at p. 881 (1994).
 9. See *infra* text at notes 33-36; Marples & Cerullo, “International Nuclear Safety: The Case of the Chernobyl Nuclear Power Station,” 24 *Vermont Law Review*, p. 1209, at p. 1222 (2000); and Cameron, “Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management,” in N. Horbach, ed., *Contemporary Developments in Nuclear Energy Law: Harmonizing Legislation in CEES/NIS*, p. 117, at p. 127 (1999), who referring to the Joint Convention’s safety requirements, asserts that “it is hard to see how anyone could find anything offensive with the ‘motherhood and apple pie’ sentiments in these ‘requirements.’”
 10. See, in particular, Jankowitsch, “The Convention on Nuclear Safety,” *Nuclear Law Bulletin* No. 54, p. 9 (1994); Reyners, “*La Convention de 1994 sur la sûreté nucléaire,*” 99 *Revue Générale de droit international public*, p. 605, at p. 621 (1995); Tonhauser & Jankowitsch, “The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management,” *Nuclear Law Bulletin* No. 60, p. 9, at p. 22 (1997); and Cameron, *supra* note 9, at p. 128.
 11. See, e.g., Stoiber, “International Convention on Nuclear Safety: National Reporting as the Key to Effective Implementation,” in N. Horbach, ed., *supra* note 9, p. 97, at p. 100.
 12. See preambular paragraphs iv and ix of the CNS and the Joint Convention, respectively. While the term is not defined in either instrument, it is generally understood to imply a convention, not designed to ensure fulfilment of obligations by parties through control and sanction, but based on the parties’ enlightened self-interest in enhanced levels of safety to be developed co-operatively and promoted through regular “peer review” meetings. See Jankowitsch, *supra* note 10, at p. 12-13.
 13. Carlton Stoiber puts it rather succinctly: “The ‘incentive’ character of the CNS puts issues of compliance and non-compliance in a much different light than for other multilateral instruments. No sanctions or

objectives. Pierre Strohl, in commenting on this “two pillar strategy” notes that “[l]’architecture du premier de ces piliers ne manque pas d’élégance mais les matériaux utilisés sont relativement légers ; la solidité du deuxième est incertaine parce qu’elle dépendra de l’énergie qu’y insuffleront les participants aux examens.”¹⁵

Today, there exist some relevant operational data¹⁶ on the basis of which official commentaries tend to project a fairly optimistic picture as regards the effectiveness of the instrument concerned.¹⁷ Whether such optimism might be justified is, however, far from certain.¹⁸ Indeed, differences of opinion are likely to persist over two fundamental assumptions that underlie the Nuclear Safety Conventions’ design: first, that, generally speaking, a combination of soft substance and soft enforcement procedure – the hallmark of the Nuclear Safety Conventions¹⁹ – can, after all, constitute effective international nuclear law.²⁰ Second, that the particular design of the peer review process will be capable of meeting the twin challenges posed by the Conventions’ inherently open-ended, hence dynamic emphasis on “nuclear safety”: to control the Contracting Parties’ compliance with “existing” legal obligations while also facilitating a progressive improvement of nuclear safety through periodic adjustments in the Contracting Parties’ collective understanding of conventional safety obligations.

It is the validity of these assumptions and, specifically, the implicit claim that the Conventions reflect a “treaty management”²¹ approach that successfully integrates law-application (enforcement,

penalties flow from the fact that a nation has failed to comply... And, in any case, peer review meetings will not be marking findings of non-compliance regarding any individual Contracting Party.” Stoiber, *supra* note 11, at p. 110.

14. See *infra* text at notes 71-76.
15. Strohl, “*La convention sur la sûreté nucléaire*,” 40 *Annuaire français de droit international*, p. 804 (1994). Editor’s translation: “the architecture of the first of these pillars does not lack elegance, but the building materials used are relatively light; the solidness of the second is uncertain because it will depend on the effect which the participants bring to the assessments.” He then concludes: “*L’édifice n’est pas massif, ses chances d’équilibre et de résistance se trouvent dans la souplesse même des structures: pensons à la fable du chêne et du roseau.*”
16. While these are largely derived from the first two review meetings of the Contracting Parties to the CNS, they are likely to be relevant also as regards the Joint Convention given the two Conventions’ virtually identical structural features. Indeed, it might be noted that given their strikingly similar features, the two Conventions have been referred to as “sister conventions.” See de Kogeneck & Pinel, “The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management,” in 47 *International & Comparative Law Quarterly*, p. 409, at p. 417 (1999).
17. See Convention on Nuclear Safety, First Review Meeting of the Contracting Parties, 12-23 April 1999, Vienna, Austria, CNS-RM-99/021, paragraph 52; and Convention on Nuclear Safety, Second Review Meeting of the Contracting Parties, 15-26 April 2002, Vienna, Austria, Summary Report, CNS-RM-2002/02, 26 April 2002.
18. See, e.g., P. Birnie & A. Boyle, *International Law and the Environment*, 463 (2nd ed. 2002) who note that the CNS’s “control regime compares unfavourably with most of the more recent global agreements.”
19. See further *infra* text at notes 70-75.
20. Or, to put it differently, that it is – paradoxically – the formally “weak convention that is most likely to beget the strong regime.” Downs, Danish & Barsoom, “The Transformational Model of International Regime Design: Triumph of Hope or Experience?” 38 *Columbia Journal of Transnational Law*, p. 465, at p. 467 (2000).
21. “Treaty management” is used here to denote a process of interaction among parties to a given treaty through treaty-internal institutions or procedures by which the parties seek to protect the integrity of the existing treaty as well as to expand, further develop and refine the treaty regime. Treaty management thus

compliance control) and law making functions that the present paper will focus on. Although the relative dearth of operational experience²² continues to pose something of a handicap, an examination of these issues appears appropriate at a time of growing dissension among theorists about appropriate international regime design. The Nuclear Safety Conventions are part of an ongoing wider trend in the design of multilateral (environmental or equivalent) agreements that has increasingly de-emphasised coercive application/enforcement measures for the sake of a facilitative, co-operative approach.²³ This trend is inspired by the assumption that in an inclusive institutional setting for interactive discourse among relevant actors, a “self-reinforcing dynamic”²⁴ will inevitably lead to a deepening of co-operation and increasingly ambitious commitments, even though, or rather precisely because, initially agreed to undertakings are modest and compliance is “managed” rather than “enforced.” Recently, however, a backlash has begun to develop calling into question the utility of this “managerial”²⁵ (also “transformational”²⁶ and, relatedly, “interactional”²⁷) model to ensure regime

refers to a structured process that combines both compliance control and regime building functions. It differs from “compliance management” in that the latter focuses primarily on regime maintenance. For an exposition of this narrower concept of “managing compliance,” see Chayes, *et al.*, “Managing Compliance: A Comparative Perspective,” in E.B. Weiss & H.K. Jacobson, eds., *Engaging Countries: Strengthening Compliance with International Environmental Accords*, p. 39 (1998); and A. Chayes & A. Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements* (1995). Note also the different usage of “treaty management” as in “treaty management organisations,” denoting organisations primarily involved in the implementation of substantive treaty provisions. See Sommer, “Environmental Law-Making by International Organisations,” 56 *Zeitschrift f. ausl. öffentl. Recht u. Völkerrecht*, p. 628, at p. 631 (1996). For a more detailed look at compliance control see, e.g., Brunnée, “The Kyoto Protocol: A Testing Ground for Compliance Theories?” 63 *Zeitschrift f. ausl. öffentliches Recht u. Völkerrecht*, p. 255 (2003); M. Ehrmann, *Erfüllungskontrolle im Umweltvölkerrecht: Verfahren der Erfüllungskontrolle in der umweltvölkerrechtlichen Vertragspraxis*, (2000); Fitzmaurice & Redgwell, “Environmental Non-Compliance Procedures and International Law,” in 31 *Netherlands Yearbook of International Law*, p. 35 (2000); Handl, “Compliance Control Mechanisms and International Environmental Obligations,” 5 *Tulane Journal of International & Comparative Law*, p. 29 (1997); Marauhn, “Towards a Procedural Law of Compliance Control in International Environmental Relations,” 56 *Zeitschrift f. ausl. öffentliches Recht u. Völkerrecht*, p. 696 (1996); C. Romano, *The Peaceful Settlement of International Environmental Disputes* 65-90 (2000); and Szell, “Compliance Regimes for Multilateral Environmental Agreements – A Progress Report,” 27 *Environmental Policy & Law*, p. 304 (1997).

22. Thus, at the time of this writing there existed only limited, preliminary data for the Joint Convention as the first review meeting of the contracting parties will not be held until 3-24 November 2003.
23. The essence of this trend is well captured in statements by several experts at a meeting of a UNEP Working Group on compliance and enforcement of multilateral environmental agreements who suggested that proposed UNEP guidelines “should avoid the use of negative connotations and include only positive activities and incentives which encourage compliance and enforcement of environmental conventions in the spirit of full co-operation, understanding and support.” See “MEA: Working Group on Compliance and Enforcement,” 30 *Environmental Policy & Law*, p. 60, at p. 61 (2000). Recent examples of overwhelmingly facilitative approaches include The Basel Convention’s Mechanism for Promoting Implementation and Compliance, Decision VI/12, Appendix, in Report of the Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Doc. UNEP/CHW.6/40, 10 February 2003, 46; and Art. 4 of the Alpine Convention’s Compliance Mechanism, reproduced in 33 *Environmental Law & Policy*, p. 179, at p. 180 (2003).
24. Haas & Sundgren, “Evolving International Law: Changing Practices of National Sovereignty,” in N. Choucri (Ed.), *Global Accord*, p. 401, at p. 406 (1993).
25. The “managerial model of compliance” discourages sanctioning processes and emphasises instead “an iterative process of discourse” that is as inclusive as possible. “The ensuing discourse progressively

effectiveness.²⁸ This controversy, therefore, directly implicates also the effectiveness of the two Nuclear Safety Conventions themselves. In short, the design of the Nuclear Safety Conventions not only raises issues that are important as well as timely from a nuclear legal perspective, but also poses topical questions of a larger, indeed general international legal import.²⁹

II. The Nuclear Safety Conventions' Substantive and Procedural Norms in Context

A first impression of the CNS and the Joint Convention³⁰ as the international legal framework for nuclear safety world-wide is likely to prove somewhat less than reassuring: critically important substantive provisions in either Convention suffer from normative indeterminacy or are subject to very

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- elaborates the meaning of relevant obligations through co-operative processes of consultation, analysis, and persuasion, rather than coercive measures.” Chayes, *et al.*, *supra* note 21, at p. 41.
26. Similarly, “[t]ransformationalism prescribes that regimes be highly inclusive, minimise the stringency of obligations, de-emphasise enforcement, and utilise decision-making rules requiring near unanimity.” Downs, Danish & Barsoom, *supra* note 20, at p. 467.
 27. See Brunnée & Toope, “International Law and Constructivism: Elements of an Interactional Theory of Law,” 39 *Columbia Journal Transnational Law*, p. 19 (2000), who by taking their cue from “constructivism” and drawing heavily on Lon Fuller’s work, offer an “interactional” understanding of law. The hallmark of this theory is an emphasis on communicative or discursive processes, not just as a means, but as an end of law. “Inclusive processes” the authors maintain, serve to “reinforce the commitments of participants in the system to the substantive outcomes achieved by implicating participants in their generation.” They thus conclude that a legal norm is “legitimate” when it reflects a specific rationality, i.e. reasoned argument, reference to past practice and contemporary social aspirations, and use of analogy. In these circumstances, law will attract its own adherence, without coercion. *Id.* at p. 51-58.
 28. See, in particular, Downs, Danish & Barsoom, *supra* note 20, at p. 468, who note that “Transformational design principles have inspired on average less co-operative evolution in the agreements that embody them than have non-Transformational principles.” Similarly, Raustiala & Victor, “Conclusions,” in D. Victor, K. Raustiala & E.B. Skolnikoff, *The Implementation and Effectiveness of International Environmental Agreements: Theory and Practice*, p. 659, at p. 681-84 (1998) offer as well a mixed message in relation to the “management vs. enforcement” issue by concluding that “sticks” can be essential for handling non-implementation or non-compliance situations. See also Tallberg, “Paths to Compliance: Enforcement, Management, and the European Union,” 56 *International Organization*, p. 609, at p. 610 (2002); and Bodansky, “The Legitimacy of International Governance: A Coming Challenge of International Environmental Law,” 93 *American Journal of International Law*, p. 596, at p. 608 (1999) (questioning the basic practicality of a consensus-based compliance control procedure in as complex a regime as that of the Kyoto Protocol).
 29. Still, the focus of the present inquiry will necessarily be on the specific issue of the Nuclear Safety Conventions’ likely effectiveness over time, rather than on generic theoretical questions, such as whether regime effectiveness can or should be viewed as a function of a particular system of compliance control. For a highly pertinent warning against any easy conclusions, see, e.g., Kingsbury, “The Concept of Compliance as a Function of Competing Conceptions of International Law,” 19 *Michigan Journal of International Law* p. 345 (1998). See also Brown Weiss, “Conclusions: Understanding Compliance with Soft Law,” in D. Shelton, (Ed.) *Commitment and Compliance: The Role of non-binding Norms in the International Legal System*, p. 535 (2000).
 30. The key features of both the CNS and of the Joint Convention have been described in great detail elsewhere. See *supra* note 2; Jankowitsch & Tonhauser, “The Convention on Nuclear Safety,” 2 *Austrian Review of International & European Law*, p. 319 (1997); de Kogeneck, *supra* note 6, at p. 145; and Cameron, *supra* note 9, at p. 117. Here it will suffice, therefore, to refer to those provisions of the two instruments that are critical to examining their normative significance.

significant reservations. To begin with, the preamble to the CNS, while reaffirming “the necessity of continuing to promote a high level of nuclear safety” simultaneously undermines the normative significance of this acknowledgement by emphasising that the “Convention entails a commitment to the application of fundamental safety principles... rather than of detailed safety standards.” Key operational safety obligations such as those laid down in Article 6 of the CNS, namely to ensure the safety of existing nuclear installations, are qualified by such weasel words as “reasonably practical” and “as soon as practically possible.” Similarly, while the Convention stipulates that any nuclear installation whose safety cannot be upgraded be shut down, this provision is couched in hortatory rather than mandatory language. Moreover, the normative significance of this stipulation is further compromised by the fact that it admits of balancing any safety risks against countervailing considerations, such as a contemplated shutdown’s “social, environmental and economic impact” on the country.³¹

The corresponding provisions of the Joint Convention, namely Articles 5 and 12,³² are couched in similarly conditional language. By the same token, obligations under Articles 4 and 11 of the Joint Convention which relate to “general safety requirements” applicable to spent fuel and radioactive waste management, respectively, are qualified by such words as “appropriate” or “adequate”.³³ Other important safety objectives are circumscribed in terms of Contracting Parties’ obligation to “strive to” or “aim to” avoid proscribed impacts from management operations.³⁴

That evidence of such non-specific or heavily qualified substantive safety obligations might give rise to concern about the Conventions’ effectiveness as international regulatory instruments should, therefore, not be surprising. Indeed, while expressions of concern about the Nuclear Safety Conventions differ in scope and intensity, they virtually all evince unease about the normative quality, the “softness”³⁵ of many of the Conventions’ substantive provisions. This unease has been most forcefully articulated by Katia Boustany who refers to the two Conventions as prime examples of the “art of legal ‘evasion.’”³⁶ By implying that the Conventions establish a normative house of cards, she

31. “... Contracting Party shall ensure that all reasonably practicable improvements are made as a matter of urgency to upgrade the safety of the nuclear installation. If such upgrading cannot be achieved, plans should be implemented to shut down the nuclear installation as soon as practically possible. The timing of the shut-down may take into account the whole energy context and possible alternatives as well as the social, environmental and economic impact.”

32. They relate to the safety of existing spent fuel management facilities and of radioactive waste management facilities and past practices, respectively.

33. For example, the first paragraph of Articles 4 and 11 provides: “Each Contracting Parties shall take the appropriate steps to ensure that ... individuals, society and the environment are *adequately* protected against radiological [Joint Convention: “and other”] hazards.” *Emphasis added.*

34. See Article 4, paragraphs (vi) and (vii); and Article 11, paragraphs (vi) and (vii).

35. See further *infra* text at notes 40-45. For a description of the concept, see, e.g., P. Birnie & A. Boyle, *supra* note 18, at p. 24-26.

36. Boustany, “The Development of Nuclear Law-Making or the Art of Legal ‘Evasion,’” *Nuclear Law Bulletin* No. 61, p. 39 (1998). Similarly, Peter Cameron notes that the Joint Convention’s safety requirements “are merely hortatory, encouraging Contracting Parties to take action but defining the obligation in the softest of soft terms...” Cameron, *supra* note 9, at p. 126. See also de La Fayette, “International Environmental Law and the Problems of Nuclear Safety,” 5 *Journal of Environmental Law*, p. 31, at p. 68 (1993), who, speaking of what were then “Draft Elements for a Nuclear Safety Convention,” deplores the (proposed) Convention’s “regressive stance” which “defeats the very purpose of the convention.”

criticises that much of states' conventional obligations are of a soft law nature,³⁷ with "[o]ne soft law giv[ing] rise to another, as in a perpetual motion imposed, despite itself, by the evasiveness of Governments."³⁸ In this sense, Boustany articulates a not uncommon view according to which recourse to "soft" norms in international law in general, and international environmental law in particular, is increasingly not intended to create or develop international law proper, but rather to prevent the law from taking shape altogether.³⁹

It may well be true that the phenomenon of international conventional law as law hard in form, but soft in substance, of which the Nuclear Safety Conventions provide seemingly perfect illustrations, is generally on the rise.⁴⁰ However, it would be simplistic to characterise this development *per se* as a pathological phenomenon or to assume that soft normative provisions in a given legal instrument constitute *prima facie* evidence of "wilful intent [...] to avoid restrictions on sovereign powers."⁴¹ Rather, more often than not soft law provisions are likely to have a different, decidedly less morbid explanation.⁴² For example, negotiators may conclude that the goals of the instrument concerned might not be immediately realisable, that additional time and effort are required to shape international consensus for the application of the treaty as a fully effective set of legal norms.⁴³ Indeed, it is perfectly "innocent" or "constructive" considerations such as these that account for much of present-day environmental lawmaking as a process that typically involves the adoption, first, of a framework convention with few or relatively soft substantive provisions, to be followed by implementing protocols of progressively greater normative bite.⁴⁴ "Normative softness", including variability of sanctions thus can be, and most frequently turns out to be, the result of "refined and

37. Thus Boustany characterises post-convention nuclear safety as "caught in the trap of 'soft law' and 'nebulous law'". Boustany, *supra* note 36.

38. *Id.* at.

39. See e.g., Székely, "Compliance with Environmental Treaties: The Empirical Evidence – A Commentary on the Softening of International Environmental Law," [1997] *American Society of International Law (ASIL) Proceedings*, p. 234, at p. 237.

40. For early analyses of this phenomenon, see, e.g., "A Hard Look at Soft Law," [1988] *ASIL Proceedings* p. 371; and Lang, "Diplomacy and International Environmental Law-Making: Some Observations," 3 *Yearbook of International Environmental Law* p. 108, at p. 116-117 (1992). See also Boyle, "Reflections on Treaties and Soft Law," 48 *International & Comparative Law Quarterly*, p. 901 (1999); and, generally, D. Shelton, *supra* note 29.

41. See Székely, "Non-Binding Commitments: A Commentary on the Softening of International Law as Evidenced in the Environmental Field," in *International Law on the Eve of the Twenty-First Century: Views from the International Law Commission*, p. 173, at p. 176 (1997). Indeed, some critics have raised the question of whether this type of commitment can at all to be understood as a treaty commitment. See, e.g., Hillgenberg, "A Fresh Look at Soft Law," 10 *European Journal of International Law*, p. 499 (1999), who speaks of "non-treaty agreements."

42. In fairness it should be pointed out that Prof. Boustany recognises in principle that "legal formalism is not necessarily relevant...when it comes to assessing the effectiveness of a normative tool or of a norm vis-à-vis the behaviour that it is supposed to be triggering." See Boustany, "The IAEA Code of Conduct on the Safety of Radiation Sources and the Security of Radioactive Materials: A Step Forward or Backwards?," *Nuclear Law Bulletin* No. 67, p. 9, at p. 18 (2001).

43. See, e.g., Gehring, "International Environmental Regimes: Dynamic Sectoral Legal Systems," 1 *Yearbook of International Environmental Law*, p. 35, at p. 38-46 (1990).

44. See, e.g., Handl, "Environmental Security and Global Change: The Challenge to International Law," 1 *Yearbook of International Environmental Law*, p. 3, at p. 5-7 (1990).

nuanced socio-legal engineering.”⁴⁵ In consequence, any attempt at passing judgement on the effectiveness of the Nuclear Safety Conventions calls for corresponding caution. For the *prima facie* shortcomings of the safety conventions’ substantive stipulations cannot be separated from but must be seen in the larger normative context, both substantive and procedural, in which they are embedded.

Looked at from this wider perspective, the Nuclear Safety Conventions’ alleged normative quality problems immediately appear less disconcerting. First, both Conventions provide for cross-references to existing as well as evolving international standards and criteria as providing at the very least guidance on how Contracting Parties can achieve what is a fundamental objective of the respective Conventions, i.e. a high level of nuclear safety and protection against radiological hazards. For example, in the CNS the Contracting Parties reaffirm “the necessity of continuing to promote a high level of nuclear safety world-wide,”⁴⁶ and recognise not only the importance of international co-operation “through existing bilateral and multilateral mechanisms...and... [the] Convention,” but also expressly acknowledge that there are internationally formulated safety guidelines which are updated from time to time and so can provide guidance on contemporary means of achieving a high level of safety...⁴⁷

The Joint Convention refers in even stronger terms to pertinent extra-conventional international safety standards and criteria. After endorsing in its preamble, once again, “a high level of safety world-wide,”⁴⁸ it specifically recalls the “Basic Safety Standards for Protection against Ionising Radiation and for the Safety of Radiation Sources,” the “Principles of Radioactive Waste Management” of the IAEA Safety Fundamentals and “existing international standards” relating to transport safety.⁴⁹ Articles 4 and 11, which focus on general safety requirements for spent fuel and radioactive waste management, respectively, establish in identical language each contracting party’s obligation to provide for effective protection of individuals, society and the environment, by applying at the national level suitable protective methods as approved by the regulatory body, in the framework of its national legislation *which has due regard to internationally endorsed criteria and standards*....⁵⁰ Finally, Article 24 of the Joint Convention addressing “operational radiation protection” incorporates again the same reference to “internationally endorsed standards on radiation protection.”⁵¹

The true legal import of Contracting Parties’ individual obligations under the Nuclear Safety Conventions, therefore, cannot be established except by reference to these extra-conventional safety standards, criteria and principles.⁵² Indeed, these references do provide interstitial normative materials

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45. Reisman, “Remarks”, (A Hard Look at Soft Law), (1988) *ASIL Proceedings*, p. 373, at p. 375.
 46. Preambular paragraph (ii). Moreover, Article 1, paragraph (i), again, lists among the objectives of the Convention “to achieve and maintain a high level of nuclear safety world-wide through the enhancement of national measures and international co-operation including, where appropriate, safety-related technical co-operation....”
 47. Preambular paragraph (viii).
 48. Article 1, paragraph (i) of the Joint Convention. See also preambular paragraphs (v) and (ix).
 49. See preambular paragraph (xiv).
 50. Paragraph (iv). Emphasis added.
 51. See paragraphs 1 (ii) and 2 (ii).
 52. For an overview of safety standards and principles developed under the aegis of the IAEA, see, e.g., “Measures to Strengthen International Co-operation in Nuclear, Radiation and Waste Safety including Nuclear Safety Review for the Year 1999,” IAEA Doc. GC(44)/INF/4, 17 August 2000, Annex 2. For a update of their status, see “Status of the IAEA Safety Standards Programme, August 2003,” at www.iaea.org/ns/committees/css/status.pdf, visited 2 September 2003.

that fill outright gaps in the principal instruments themselves, or compensate for the latter's relative lack of normative specificity. The fact that many of the standards or criteria referred to are themselves formally non-binding is *per se* of no consequence, as their ultimate legal significance is a function of the normative status of the referring or adopting provision, rather than of the referred to standards and criteria. Thus, the Joint Convention clearly establishes a link to a secondary level of normative concepts as binding upon states parties, thereby adopting a technique of "indirect legislation" that is well established internationally.⁵³

The CNS, by contrast, recognises such external concepts as merely highly persuasive in pointing the way towards achieving the Convention's fundamental safety objectives. Moreover, it does not refer by name to specifically relevant international safety standards. However, this ostensibly more limited endorsement of CNS-external safety parameters does not necessarily suggest a lesser degree of their normative effectiveness under CNS auspices. First, apart from special circumstances in which IAEA safety standards might be formally binding,⁵⁴ many of the standards and principles involved⁵⁵ are already routinely and widely being complied with by States and as such may generally be deemed to have acquired *de facto* binding status.⁵⁶ In this vein, the proposed European Community's basic statement on fundamental nuclear safety obligations and concepts applicable throughout the EC, simply acknowledges the authoritative guiding function of IAEA standards and principles.⁵⁷ By the same token, their endorsement, by the IAEA's own Commission on Safety Standards,⁵⁸ as a mere

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53. For a discussion of this technique and its implications in the context of, e.g., the Law of the Sea, see Oxman, "The Duty to Respect Generally Accepted International Standards", 24 *New York University Journal of International Law & Politics*, p. 109 (1991). See also Contini & Sand, "Methods to Expedite Environmental Protection: International Eco-standards," 66 *AJIL*, p. 37 (1972); Kirgis, "Specialized Law-Making Processes," in O. Schachter & C. Joyner (eds.), *The United Nations Legal Order* (Vol. 1), p. 109 (1995); and Sommer, *supra* note 21, at p. 654-659.
 54. These include the application of IAEA safety standards to Agency projects in Member States, as well as, at the request of parties, to operations pursuant to any bilateral or multilateral agreement, or at the request of a state to any of that state's nuclear activities. See Art.III.A.6 of the Statute of the IAEA.
 55. Of course, not all IAEA safety standards or principles carry equal normative weight, and therefore are not of equal legal significance from the standpoint of the Nuclear Safety Conventions. Thus, the Agency itself distinguishes between "safety fundamentals" (covering basic objectives, concepts and principles of safety and protection), "safety requirements" (requirements that must be fulfilled to ensure safety for particular activities or applications) and "safety guides" (listing merely recommended actions, conditions or procedures for complying with these safety requirements).
 56. On this point see, e.g., Handl, *supra* note 4, at p. 18; Szasz, "The IAEA and Nuclear Safety," 1 *Review of European Community & International Environmental Law* p. 165, at p. 169 (1992); de La Fayette, *supra* note 36, at p. 58-59; and P. Birnie & A. Boyle, *supra* note 18, at p. 456-58. However, it must be acknowledged that while acceptance and application by states of IAEA safety standards are both routine and widespread, they are not universal. See "Measures to Strengthen International Co-operation in Nuclear, Radiation and Transport Safety and Waste Management: Nuclear Safety Review for the Year 2002", *supra* note 3, at Annex, 1.
 57. See, e.g., European Economic and Social Committee, Opinion on the Draft Proposal for a Council Directive (Euratom) setting out basic obligations and general principles on the safety of nuclear installations and a Draft Proposal for a Council Directive (Euratom) on the management of spent nuclear fuel and radioactive waste, EC. Doc. TEN/128 Nuclear Safety, 26 March 2003, at paragraph 4.1.
 58. The IAEA's Commission on Safety Standards (CSS) is a standing body of senior government officials holding national responsibilities for establishing standards and other regulatory documents relevant to nuclear, radiation, waste and transport safety. The CSS has a special overview role with regard to the Agency's safety standards and provides advice to the Director General on the overall program on regulatory aspects of safety.

“recommendation” instead of an unambiguous affirmation of their steering function, appears overly cautious, if not unwarranted.⁵⁹ Second, although the CNS’s admittedly soft cross-reference cannot change the safety standards’ and principles’ formal legal status from non-binding to binding, neither does it, of course, undermine their extra-conventional status as generally quasi-binding. Third, and most significantly, the CNS’s procedural setting, in particular its peer review mechanism, appears specifically designed to render these standards and principles verifiably applicable across the board to all Contracting Parties as a matter of political, if not legal inevitability. In other words, over time and notwithstanding their incorporation by reference as providing mere “guidance,” IAEA safety standards and principles themselves are likely to metamorphose into *de facto* legally binding provisions, provided the peer review mechanism functions as intended.

There can be little doubt, therefore, that the peer review mechanism is critically important to the Nuclear Safety Conventions’ ultimate effectiveness. Its principal cornerstones are two: first, the national reporting requirements laid down in Article 5 of the CNS and Article 32 of the Joint Convention; and second, regular as well “extraordinary” meetings to review Contracting Parties’ performance.⁶⁰ The reports’ contents as well as structure follow standards specified in guidelines established pursuant to Article 22, paragraph 1(i)⁶¹ and Article 29, paragraph 2(iii),⁶² of the respective Conventions and provide the basic information input into the review meetings. The latter, in turn, focus on individual Contracting Parties’ compliance with conventional obligations – in terms both of overall or generic national safety trends and of the safety of individual nuclear facilities.⁶³ Beyond the expressly acknowledged objective – assessment and improvement of national measures of implementation of, as well as compliance with a given set of normative prescriptions – the peer review process serves also, at least implicitly, to refine, strengthen and, indeed, progressively raise the normative threshold against which implementation and compliance are being assessed.

It is true that the Contracting Parties’ international legal obligations can first and foremost be characterised as those obligations of conduct⁶⁴ specifically enumerated in the respective instruments.

59. Thus the Commission simply recommends that Contracting Parties use IAEA standards as a basis for assessing compliance with their obligations under the Nuclear Safety Conventions. See Commission on Safety Standards, Vision and Strategy for the IAEA Safety Standards, Draft Note to the Director-General, 27 January 2003, at paragraph 11.

60. See Articles 20 and 23 of the CNS, and Articles 30-31 of the Joint Convention.

61. Guidelines regarding National Reports under the Convention on Nuclear Safety, IAEA Doc. INFIRC/572/Rev.2, 2 September 2002 [hereafter: “GNR”].

62. Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, Guidelines regarding the Form and Structure of National Reports, IAEA Doc. INFIRC/604, 1 July 2002 [hereafter: “Joint Convention GNR”].

63. See *infra* text at notes p. 98-103; and GNR, *supra* note 61, at § III, 4-6 & 7; and Joint Convention GNR *supra* note 62, at § II 3 (e) and § III, G, paragraph 15, and H, paragraph 17. See further Stoiber, *supra* note 11, at p. 106.

64. For the Contracting Parties’ “obligation” to achieve a high level of safety world-wide represents an inherently indeterminate obligation. It is given operational meaning only through specifically enumerated “obligations of conduct.” As to the distinction involved, see Articles 20 and 21 of the International Law Commission’s previous draft articles on State Responsibility, [1980] *Yearbook of the International Law Commission* (vol. II-2), p. 32. Note, however, that in its Draft articles on the Responsibility of States for Internationally Wrongful Acts, adopted in 2001, the Commission dropped this classification or typology of international obligations as not particularly useful and potentially confusing. See Crawford, Second Report on State Responsibility, UN Doc. A/CN.4/498, 17 March 1999, paragraphs 88-90; and Dupuy, “Reviewing the Difficulties of Codification: Ago’s Classification of Obligations of Means and

However, as noted before, the Conventions' fundamental objective to "achieve and maintain a high level of nuclear safety world-wide" implies also an obligation of result,⁶⁵ which introduces an inherently dynamic dimension as regards these very obligations of conduct. In this sense, therefore, the reference in the CNS preamble to periodically updated international safety guidelines, as providing "guidance on contemporary means" of achieving the fundamental conventional objective, virtually assures that the review meetings will acquire overtones of a lawmaking exercise. The Joint Convention's analogous provisions and their even stronger "due regard to internationally endorsed criteria and standards" language are likely to have a similar effect: the peer review meetings are invited to engage in ascertaining individualised obligations of conduct commensurate with changing international safety standards and principles. In other words, the meetings should work not only to buttress Contracting Parties' general obligations flowing from the Conventions' basic safety philosophy and objectives, but also to identify and validate *ad hoc* specific normative implications of internationally evolving "good safety practices." It should be evident that in so doing the meetings will also help revise or develop over time generally applicable standards of safety or nuclear due diligence.⁶⁶

In short, the Nuclear Safety Conventions merge in a single, regime-internal procedural mechanism a duality of functions – law application/compliance control, as well as lawmaking. This fact alone may not set the Conventions categorically apart from other comparable multilateral instruments,⁶⁷ although, more typically, such regulatory instruments seek to separate regime-internal compliance control from lawmaking functions, at least in principle.⁶⁸ However, as incentive conventions, the nuclear instruments also eschew truly coercive strategies in support of effectiveness.⁶⁹

Obligations of Result in Relation to State Responsibility," 10 *European Journal of International Law*, p. 371, at p. 374-82 (1999).

65. See Article 21 of the International Law Commission's 1980 draft articles, *supra* note 64.

66. Thus Tonhauser & Jankowitsch correctly observe that "implementation of the Convention on Nuclear Safety and of the Joint Convention will presumably create new State practice by the mere functioning of the peer review mechanism." Tonhauser & Jankowitsch, *supra* note 10, at p. 22. Such practice, of course, is legally relevant in that it expresses or shapes community expectations regarding required conduct.

67. Indeed, compliance control mechanisms, such as the "non-compliance procedures" of various multilateral environmental agreements unavoidably straddle traditional lawmaking and law application or enforcement functions. See, e.g., Chayes & Chayes, "Compliance without Enforcement: State Behavior under Regulatory Regimes," *Negotiation Journal*, p. 311 at p. 313 (1991); and Handl, "Controlling Implementation of and Compliance with International Environmental Law: The Rocky Road from Rio," 5 *Colorado Journal of International Environmental Law and Policy*, p. 305, at p. 329 (1994). Thus, Jutta Brunnée correctly speaks of a "compliance continuum" comprising the design of the regime itself, law making and law application. See Brunnée, "COPing with Consent: Law-Making Under Multilateral Environmental Agreements," 15 *Leiden Journal of International Law*, p. 1, at p. 35-37 (2002).

68. Namely, in the sense that the assessment of factors bearing on compliance, the factual determination of non-compliance and the recommendation of co-operative or facilitative measures to be taken in response, tend to be allocated to special compliance review committees. On the other hand, the formal declaration of non-compliance, issuance of cautions, or suspension of rights and privileges under the treaty – actual sanctions – will normally be the responsibility of the collectivity, i.e. the conference or meetings of the parties, not of the select compliance review committee. For an overview of various pertinent treaty regimes, see Churchill & Ulfstein, "Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-Noticed Phenomenon in International Law," 94 *American Journal of International Law*, p. 623, at p. 628-45 (2000).

69. Except for the Joint Convention's express contemplation of traditional, regime-external dispute settlement mechanisms provided for under international law. For details, see *infra* note 118.

This fact accentuates the ambitious “treaty management,” i.e. regime building and maintenance role assigned to the peer review process and underscores the uniqueness of the Conventions’ design. Inevitably, it also raises the question of the latter’s adequacy given the Conventions’ express and implicit nuclear safety undertakings.

III. The Peer Review Mechanism: Can it fulfil its Pivotal Role?

As an international mechanism of accountability in the nuclear industry,⁷⁰ peer review⁷¹ predates very considerably the entry into force of the Nuclear Safety Conventions. Indeed, for many years now peer review has been a signature characteristic of nuclear safety services provided through the IAEA⁷² as well as the World Association of Nuclear Operators (WANO).⁷³ In these latter fora, submission to peer review is voluntary, their findings intrinsically advisory. By contrast, peer review pursuant to the Nuclear Safety Conventions is mandatory and intended to “compel”⁷⁴ – albeit through peer scrutiny and pressure – states parties towards maintaining as well as developing the nuclear safety regimes. Thus by appealing to parties’ rational self-interest as well as perception of fairness it seeks to demonstrate, educate, persuade and, yes, if necessary, cajole. However, for this “managerial” formula⁷⁵ to work peer reviews must, first, be embedded in a robust procedural framework; second, be able to draw on adequate and accurate information; third, truly facilitate parties’ discursive interaction as the key to the process’s educational, norm-clarifying and validating effect; and, fourth, satisfy the test of legitimacy, if and when reviews involve regime building or lawmaking.

(a) *Basic Structural Issues*

One problem that is characteristic of international peer review and thus needs to be particularly guarded against results from participants’ status as sovereign states, on the one hand, and the natural inclination among members of any social group to be influenced by reciprocally operating social

70. “Peer review operates as a mechanism of accountability within an institutionalized social system.” Washington, *supra* note 7, at p. 204. See also Jankowitsch, *supra* note 10, at p. 13.

71. The concept is said to have originated in 1665 when the Royal Society authorised the licensing of one of its publications “under the charter of the Council of the Society, being first reviewed by some members of the same.” Daryl E. Chubin & Edward J. Hackett, *Peerless Science*, p. 19 (1990). In this sense, peer review is “an organized method for evaluating scientific work which is used by scientists to certify the correctness of procedures, establish the plausibility of results, and allocate scarce resources.” *Id.* at p. 2.

72. See, e.g., Handl, *supra* note 4, at p. 19-21. For a listing of present IAEA safety services, including peer-review-based ones, see www.iaea.org/ns/nusafe/services.htm, visited 3 September 2003.

73. WANO’s peer review program was launched on a provisional, pilot basis in 1991, and formally adopted in 1993.

74. See Jankowitsch, *supra* note 10, at p. 13.

75. This is not the place, nor is there a need, for an in-depth analysis of the peer review process and its underlying legal theory. Suffice it to say instead that the Nuclear Safety Conventions’ design is evidently inspired by “constructivism,” “an account of law not as a body of rules but as a system of legal relations, at once universalising from individual particularities, patterns of interactive behaviour, and particularising society’s universal purposes.” Kingsbury, *supra* note 29, at p. 358. For a fuller discussion of “constructivism” and its impact on international legal theory, see Brunée & Toope, *supra* note 25. For an analysis of the critical role of discursive interaction in relation to law, see generally, J. Habermas, *Faktizität und Geltung: Beiträge zur Diskurstheorie des Rechts und des demokratischen Rechtsstaats*, p. 15-60 (1992).

restraints, on the other. As Winfried Lang put it: “Peer review means that governments only submit to governments; this implies that governments only accept their fellow governments as judges; from this it follows that real judgements or condemnations in case of compliance-failure remain rare events....”⁷⁶ Peer review, in other words, undeniably poses an inherent danger of under-enforcement.⁷⁷ Indeed, this danger is more pronounced in the nuclear safety context given traditional governmental sensitivity about national or international security-related implications of domestic nuclear power program or activities. It is, therefore, reasonable to assume that states might also be less inclined to submit themselves or, conversely, to subject others to intense peer scrutiny in relation to the Nuclear Safety Conventions than would be the case in other multilateral treaty contexts. It is thus of paramount importance that the Conventions’ peer review procedure be capable of guaranteeing a process that is both transparent and rigorous.

Both Conventions’ basic provisions and, in particular, the procedural arrangements adopted thus far in furtherance of the peer review process, reflect a fairly sophisticated approach to counter bias and under-enforcement. Thus, as a key step that aims both to strengthen the effectiveness and to protect the integrity of the review process, the Contracting Parties of the Nuclear Safety Conventions have agreed to establish country subgroups to review the national reports. This means that the composition of each country group, the selection of group co-ordinators, its rapporteurs and chairpersons, become important factors that not only determine whether and how the process works, but that also affect public perception of its effectiveness, as well as its overall legitimacy.

Recognising the critical importance of properly structuring the review process, the Conventions’ guidelines pay careful attention to the participation of states in the meetings’ various country groups.⁷⁸ First, individual groups are made up of both countries with operational nuclear installations or experience with spent fuel/nuclear waste management and countries without such installations or experience. This serves to maximise the individual group’s collective expertise as well as to ensure an appropriately robust review climate. Second, the review process guidelines of both Conventions recommend, but do not mandate, that countries periodically be reassigned to different country groups. The Conventions’ guidelines refer to enhancing expertise among Contracting Parties, and thereby an “increasingly constructive review process” as the rationale for rotating country group membership.⁷⁹ They coyly omit, however, to acknowledge what is, after all, another critical objective of this recommendation, namely avoidance of a build-up over time of intra-group solidarity that might undermine the peer review. Third, the assignment of a country to a particular country group does not

76. Lang, “‘Peer Review’ of Environmental Performances in International Organisations,” in G. Hafner, *et al.*, eds., *Liber Amicorum Professor Seidl-Hohenveldern – In Honour of his 80th Birthday*, p. 381, at p. 382 (1998).

77. “By definition, peer review involves critical analysis of colleagues, which can be beset by bias and animus. Bias is most likely to manifest itself in the under-enforcement of safety norms. Collegial experts may be tempted to overlook certain problems in the safety reports of peer countries.” Washington, *supra* note 7, at p. 215.

78. See Guidelines Regarding the Review Process under the Convention on Nuclear Safety [hereafter: “GRP”], IAEA Doc. INFIRC/571/Rev.2, 2 September 2002; and Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, Guidelines Regarding the Review Process [hereafter: “Joint Convention GRP”], IAEA Doc. INFIRC/603, 1 July 2002, Attachment.

79. See GRP, *supra* note 78, at p. 4, Section VI; and Joint Convention GRP, *supra* note 78, at p. 3, Section VI.

prevent that country from being represented also at the meetings of other country groups, although its right to participate in the deliberations of other groups will be limited.⁸⁰

If these structural safeguards against the risks of misplaced collegiality look sound, there are other aspects of the review process that might be viewed as somewhat less reassuring. One such aspect concerns the limits on Contracting Parties' ability to discuss and if necessary challenge each other's implementation of and compliance with the obligations under the Conventions. Both Conventions expressly provide that "each Contracting Party shall have a reasonable opportunity to discuss the reports submitted by other Contracting Parties and seek clarification of such reports."⁸¹ However, participation in this process is restricted to members of the country group concerned and to other Contracting Parties that have submitted written questions or comments at least two months in advance of the meeting.⁸² Whereas the former will be "full participants," the latter will have the right to present only during the group's review of the national report in relation to which they submitted questions or comments. Additionally, full participants are expected to lead the discussions on each group of questions before the group, whereas other participants' intervention will be restricted to discussing and seeking further clarification of answers to their own advance questions and comments.⁸³ The final plenary session offers another opportunity for all Contracting Parties to comment on national reports as well as on group rapporteurs' oral reports.⁸⁴ However, the net effect of limiting access to group deliberations is likely to be to prevent or at least seriously hamper spontaneous in-depth discussions of safety information that might come to the fore only in the course of intra-group analysis and discussion of national reports.

A second matter of potential concern relates again to restrictions on attendance. Both the CNS and the Joint Convention limit attendance of meetings, or specific session thereof, to Contracting Parties and to intergovernmental organisations specifically invited as observers.⁸⁵ Moreover, such invitation by Contracting Parties must be by consensus and is limited to organisations "competent in respect of the matters governed by this convention." Thus far, only the Nuclear Energy Agency of the OECD has been granted observer status at CNS review meetings.⁸⁶ While such a restrictive approach may be consistent with the nuclear industry's traditional reluctance to open up to outside review generally, it seems at odds with a condition for the proper functioning of any treaty management or compliance management procedure, namely that its institutional setting be truly inclusive. Today, "inclusiveness" in relation to an international review of nuclear safety issues probably ought to be understood to imply a process that is open not only to the Contracting Parties of the Nuclear Safety Conventions and international governmental entities, but also to relevant non-governmental organisations. The Conventions' unequivocal rejection of public participation in this wider sense,

80. See GRP, *supra* note 78, at p. 5, Section VII; and Joint Convention GRP, *supra* note 78, at p. 3, paragraph 2 (a-b).

81. CNS, Article 20, paragraph 3; and Joint Convention, Article 30, paragraph 3.

82. See GRP, *supra* note 78, at p. 3-4; and Joint Convention GRP, *supra* note 78, at p. 3, paragraphs 1-2.

83. See GRP, *supra* note 78, at p. 4; and Joint Convention GRP, *supra* note 78, at p. 3, paragraph 5.

84. See GPR, *supra* note 78, at p. 6; and Joint Convention GPR, *supra* note 78, at p. 5, paragraph 4(c).

85. See Article 24, paragraph 2 of the CNS, and Article 33, paragraph 2 of the Joint Convention, respectively.

86. See Summary Report, Second Review Meeting, *supra* note 17, at p. 1. No invitations were extended for the Joint Convention's Organisational Meeting of Contracting Parties in April 2003 as no requests for participation had been submitted.

therefore, might not only diminish the overall effectiveness of the review process but also shape negatively public perceptions of its legitimacy.⁸⁷

(b) The Information Input

The Nuclear Safety Conventions guarantee confidentiality in relation to safety-related information potentially relevant to the deliberations of the peer review groups. Clearly, this is a matter of concern from the standpoint of the structural robustness of the review process. But it is equally problematical, if not more so, from the viewpoint of ensuring the accuracy and adequacy of the information input into the review proceedings. First, the CNS as well as the Joint Convention exempt information from disclosure if that information is protected information under the laws of the contracting party concerned.⁸⁸ This exemption extends to information that *inter alia* bears on national security or physical protection of nuclear materials or installations, intellectual property rights, and personal data. Although the Contracting Parties are encouraged to publish their national reports or summaries thereof (as well as questions and comments received from other Contracting Parties and responses thereto),⁸⁹ they ultimately are free to decide themselves whether or not information supplied is to be deemed confidential. Second, the contents of the debates during the review of individual national reports are to remain confidential,⁹⁰ the only record to be released to the public being a summary of the deliberations. Third, under the rules of procedure applicable to review meetings under either Convention, any decision on substantive matters must be adopted by consensus.⁹¹ Thus by giving individual Contracting Parties a veto over disclosure of information the meetings' decision-making rules might end up further undercutting the dissemination of relevant information to the public at large. In sum, the transparency of review proceedings on which, after all, the effectiveness as well as legitimacy⁹² of the whole process depend, is less than desirable. Indeed it may be perceived as compromised given this emphasis on protecting Contracting Parties' sensibilities over safety-related information.

A related matter of concern about the quality of the information input stems from the fact that national reports on implementation/compliance are initial self-assessments with each contracting party retaining a potentially significant measure of discretion regarding the form, length and structure of its report.⁹³ This poses an obvious problem as any effective review presupposes that national data

87. See generally, Ebbesson, "The Notion of Public Participation in International Environmental Law," 8 *Yearbook of International Environmental Law*, p. 51 (1997). For further discussion of the issue of legitimacy as justification of authority, see *infra* text at notes 112-118.

88. See CNS, Article 27, paragraph 1; and Joint Convention, Article 36, paragraph 1.

89. See GNR, *supra* note 61, at Annex, 11.

90. Article 27, paragraph 3 and Article 36, paragraph 4, respectively. See further Rule 20 of the CNS Rules of Procedure and Financial Rules, IAEA Doc. INFIRC/573/Rev.2, 2 September 2002, p. 9.

91. See Rule 35, paragraph 1 of both the CNS Rules of Procedure and Financial Rules, IAEA Doc. INFIRC/573/Rev.2, 2 September 2002; and Joint Convention, Rules of Procedure and Financial Rules, IAEA Doc. INFIRC/602, 1 July 2002, Attachment.

92. For a discussion of the issue of legitimacy, see *infra* text at notes 109-118.

93. See GNR, *supra* note 61, at p. 1: "[E]ach contracting party has the right to submit a National Report with the form, length and structure it believes necessary to describe how it has implemented its obligations under the Convention..." and Rule 40, paragraph 2 of the CNS Rules of Procedure and Financial Rules, *supra* note 90, at p. 13. The Joint Convention adopts virtually identical language in describing Contracting Parties' discretion.

submitted be, if not comprehensive, at least relevant in the sense of being *grosso modo* indicative of the national safety situation, reliable and comparable. Comparability of data suggests, of course, standardised formats, if not uniformity of national reports.

In view of the differences that exist among national nuclear technologies, regulatory philosophies etc., on the one hand, and the constraints of time and resources under which the peer review meetings operate,⁹⁴ on the other, national reports thus pose a serious challenge from a data management viewpoint. This problem requires, first, that the Contracting Parties identify and use data that permit both accurate assessments of national trends and cross-industry comparisons. Second, given the virtual impossibility of a truly comprehensive assessment of “nuclear safety” in individual Contracting Parties, peer review meetings must balance judiciously quality and quantity objectives for national reports. In this vein, Carlton Stoiber has suggested that review meetings use select “markers” that can highlight significant changes in a country’s nuclear safety situation.⁹⁵ In other words, peer review meetings are called upon to forge an understanding on a manageable number of criteria by which safety-significant developments and trends can be relevantly measured.

Considering this information management issue, it is not surprising that the guidelines on national reports of both conventions seek to curtail Contracting Parties’ discretion. They do so through recommendations that specify the reports’ basic features as well as what type of information ought to be provided in describing implementation of national obligations under the respective Convention, article-by-article.⁹⁶ Success at streamlining of national reporting, and specifically assuring the quality of the reports, will thus depend on the peer review meetings’ ability to reshape or reverse normative expectations within the nuclear safety regimes, given the Conventions’ express recognition of Contracting Parties’ discretion relative to national reports.

(c) *Specificity and Iteration in the Peer Review Meetings*

For peer review to work as envisaged, it is, as noted before, essential that the process optimise conditions for the collective shaping of normative expectations, i.e. the identification, general affirmation as well as validation ad hoc – vis-à-vis individual Contracting Parties – of applicable nuclear safety norms. Clearly, the process’ structural robustness as discussed before will be an important factor. At least two additional aspects might be singled out here as being critical in this respect. First, reviews of national reports and related exchanges among the participants need to go beyond generic policy issues and reach a level of specificity sufficient to provide clear guidance to individual Contracting Parties with regard to the implementation of and compliance with their obligations under the Conventions. Second, and equally importantly, the notion of iterative discourse as the linchpin of the review process implies by its very terms that the peer review meetings facilitate the revisiting of questions regarding implementation and compliance to ensure the process’ general educational and norm-clarification and validation objectives.

Doubts about the Nuclear Safety Conventions’ peer review as an effective “normative process of communication” frequently surface under the guise of criticism of the review meetings’ safety

94. Note, for example, Article 5, paragraph 2 of the Annex to the Final Act of the Diplomatic Conference adopting the CNS, which recommends limiting the frequency as well as duration of review meetings in order to reduce costs and thereby to encourage the widest possible adherence to the Convention.

95. Among relevant reporting parameters he recommends *inter alia* the number of unplanned reactor shutdowns, availability factors, and occurrences reported under the INES. See Stoiber, *supra* note 11.

96. See GNR, *supra* note 61; and Joint Convention GNR, *supra* note 62.

control function, in particular in relation to risks emanating from individual nuclear installations. Those who tend to judge the merits of the Nuclear Safety Conventions against this yardstick will no doubt claim that limited money and time alone prohibit the peer review meetings from providing the kind of thorough or indepth assessment of national safety trends that might be necessary to anticipate and correct in time significant national nuclear safety lapses. By the same token, it has been suggested that because review meetings are designed to focus on nuclear safety issues at a generic trend or policy level, the meetings would be largely irrelevant as instruments of control of specific hazards emanating from individual installations.

It is certainly true that constraints of time and money⁹⁷ pose obvious obstacles to the meetings assuming a safety review function at individual facility level. Moreover, the general thrust of the peer review process clearly is to redress from a perspective of general safety policy and philosophy possible national shortcomings in implementing conventional obligations, not to assess the safety of individual nuclear installations.⁹⁸ However, the Conventions do not *per se* preclude the review meetings from focusing on individual nuclear facilities. Indeed, the CNS's Guidelines on National Reports (GNR) leave the door open to the possibility of an individual facility-focused review by acknowledging that generic safety trends could be "illustrated by the specific discussion of particular safety-related issues encountered at individual facilities."⁹⁹ A very similar acknowledgement can be found in the Joint Convention's Guidelines regarding the Form and Structure of National Reports.¹⁰⁰ The likelihood that the review meetings might after all end up focusing on individual plant safety is underlined also by the GNR comment to Article 6 of the CNS which invites Parties to report on individual existing nuclear power installations.¹⁰¹ Indeed, the first two review meetings of the CNS seem to confirm that some discussion of specific safety aspects of individual national nuclear installations might well be inevitable.¹⁰² Finally, it might be argued that internationally significant nuclear safety events at individual national facilities – whatever their exact cause – would seem to be precisely the type of situation which Contracting Parties could be expected to wish to be briefed on and to review within the ambit of the Nuclear Safety Conventions.

It is far from a foregone conclusion, therefore, that CNS review meetings might be intrinsically unable or routinely unwilling to relevantly discuss safety issues that arise at individual national nuclear installations. Given the nature of the subject matter, the Joint Convention and related Guidelines on National Reports offer an even clearer prospect that review meetings might cover not just generic safety trends, but also safety issues at individual installations.¹⁰³

97. Thus Article 5, paragraph 2 of the Annex to the Final Act of the Diplomatic Conference adopting the CNS recommends limiting the frequency as well as duration of review meetings in order to reduce costs and thereby to encourage the widest possible adherence to the Convention. Similarly, the Joint Convention Guidelines regarding the Review Process limit group discussions of each national report to a maximum of one full day. See Joint Convention GRP, *supra* note 78, at p. 3, paragraph 4.

98. Thus the summary reports of the first two meetings reiterate emphatically this point. See *supra* note 18, at paragraphs 6, and 9, respectively.

99. GNR, *supra* note 61, at p. 2.

100. See Joint Convention GNR, *supra* note 62, at p. 2, paragraphs 2 (f) and 3(e).

101. GNR, *supra* note 61, at p. 4-5.

102. See Summary Report of the First Review Meeting, *supra* note 17, at paragraphs 29 and 33.; and Summary Report of the Second Review Meeting, *supra* note 17, at, in particular, paragraphs 33 and 37.

103. See also Tonhauser & Jankowitsch, *supra* note 10, at p. 18.

Irrespective of whether the peer review mechanism's ability to canvass individual installation events with international safety implications can or should be taken as an accurate measure of the Conventions' overall effectiveness, it is thus likely that peer reviews will at least occasionally expand their focus to safety issues at individual installation level, notwithstanding mantra-like assertions to the contrary.¹⁰⁴ Indeed, such a step might be a logical consequence of the Nuclear Safety Conventions' cross-reference to extra-conventional safety standards and principles, which bring into play more specific normative parameters. "Managing" Contracting Parties' compliance with these parameters might, therefore, also necessitate a peer review pegged at a more specific level, including operational safety aspects of individual installations. Admittedly, such expanded reviews are unlikely to be carried out in any systematic or comprehensive manner. However, they might well occur sufficiently frequently to make a difference in terms of both public perception of the Conventions' utility and of enhancing overall nuclear safety.

There can be little doubt that the Nuclear Safety Conventions meet the second requirement that peer review meetings provide a forum for effective iterative discourse. Apart from clear indications to this effect in the Conventions themselves, the summary reports of the review meeting of the CNS reflect emphatic acknowledgement of the fact that the "Convention entails a commitment to a continuous learning and improving process."¹⁰⁵ Thus CNS Contracting Parties have specifically affirmed that the review process' ability to revisit safety issues is an indispensable element and a signature characteristic of the nuclear safety regime as an incentive convention.¹⁰⁶ The endorsement of the educational function of peer review "follow-through" on matters previously reported or discussed, finds normative expression also in the GNR catchall safety-related paragraph which specifically envisages follow-up reporting by Contracting Parties in relation to the safety of existing individual nuclear installations.¹⁰⁷ Similarly, the Joint Convention's GNR stipulate that Contracting Parties provide *inter alia* updated information on matters covered in the previous report, address issues identified by the parties previously and, most significantly, respond to any recommendations adopted at the plenary sessions of the previous meeting.¹⁰⁸

In sum, the evidence regarding structural robustness, information management and ability to promote iterative discourse thus reveals a few obvious weaknesses in the Nuclear Safety Conventions' peer review mechanism. Some of these, e.g., with regard to transparency, might require concerted efforts to overcome; others, such as the lack of uniformity in national reporting practices, might be correctable through an informal reinterpretation of the relevant Conventional provisions. At the same time, however, there is little to suggest that the mechanism is fundamentally deficient or a priori lacks any of the basic requisite features for effective regime maintenance, i.e. norm-clarification and validation through discursive interaction among the Contracting Parties.

104. For example, the Second Review Meeting of the CNS again emphasised that it was not the review process' task "to review the safety of individual nuclear installations." See Summary Report of the Second Review Meeting, *supra* note 17, at paragraph 9.

105. Summary Report of First Review Meeting, *supra* note 17, at paragraph 7; and see Summary Report of the Second Review Meeting, *supra* note 17, at p. 3, paragraph 11: "As part of this learning process it was considered to be good practice to provide additional information in future reports on those topics and issues on which particular interest was expressed during the review process...."

106. See, e.g., Summary Report of First Review Meeting, *supra* note 17, at paragraph 8

107. GNR, *supra* note 61, at p. 9, read together with comment on Article 6 of the CNS.

108. Joint Convention GNR, *supra* note 62, at p. 2, paragraph 2(e).

(d) *The Issue of Legitimacy*

The effectiveness of peer review, finally, is also a function of its perceived legitimacy or fairness.¹⁰⁹ For example, Tom Franck refers to the “compliance pull”¹¹⁰ of legitimacy by which he means procedural legitimacy.¹¹¹ In the context of the Nuclear Safety Conventions, to the extent an issue of legitimacy might be perceived to arise at all, it will likely concern legitimacy in the sense of justification of authority.¹¹²

As noted before, the Nuclear Safety Conventions’ peer review process, which serves principally to control or manage implementation/compliance, inevitably strays also into the realm of law making.¹¹³ It is in relation to this latter aspect of “treaty management” that an issue of legitimacy might be seen as presenting itself. This – albeit limited – lawmaking dynamic inherent in the Nuclear Safety Convention’s peer review mechanism, together with indirectly legislated substantive norms,¹¹⁴ might give the impression of an attenuated consensual basis of obligations said to arise under the Nuclear Safety Convention. Specifically, the individualised validation and application of extra-conventional safety standards and principles as legally relevant parameters, though covered by the Contracting Parties’ general consent¹¹⁵ to the Conventions’ enabling provisions, might appear unsupported by the Contracting Parties’ specific consent. If true, this would, of course, raise a question of legitimacy, namely in terms of the peer review mechanism’s authority to prescribe. However, a more careful analysis shows otherwise.

Unlike other international, especially environmental, regimes, which often feature a transfer of binding decision-making powers to institutional bodies while concomitantly abandoning or at least modifying the traditional consent principle, the Nuclear Safety Conventions’ peer review process retains all the characteristics of a state-centred, strictly consensus-based treaty-management device. In other words, while the Conventions and their peer review mechanisms might give the appearance – as Bodansky puts it – of binding consenting states to a governance structure¹¹⁶ with independent, binding decision-making powers, in reality they continue to embody treaties that commit the Contracting Parties to a system of rules of which they remain fully in control: All matters of substance are to be decided by consensus.¹¹⁷ The institutional mechanism, the peer review process, moreover, has no

109. This is not, of course, the place for to an in-depth review of the interrelationship of legitimacy and efficiency in international agreements or a review of the copious literature on the subject. However, a few comments will be necessary.

110. Thomas M. Franck, *The Power of Legitimacy among Nations*, p. 43-44 (1990).

111. See also Kingsbury, *supra* note 29, at p. 355: “Compliance is ... influenced by perceptions of fairness apart from rational calculations of costs and benefits....”

112. For further discussion of this notion of legitimacy, see Bodansky, *supra* note 36, at p. 601.

113. See *supra* text at notes 63-66.

114. i.e. the Conventions’ cross-referenced international safety standards and principles.

115. As to the legitimating role of state consent and the necessary distinction of specific and general consent, see Bodansky, *supra* note 36, at p. 604.

116. *Id.* at p. 608.

117. See Rule 35, paragraph 1 of the CNS Rules of Procedure and Financial Rules, *supra* note 90; and Rule 35, paragraph 1 of the Joint Convention Rules of Procedure and Financial Rules, *supra* note 90.

coercive powers. The only discordant note in this respect arises from the dispute settlement provisions of the Joint Convention, a fact that has not escaped critical attention.¹¹⁸

In sum, it should be evident that the Nuclear Safety Conventions as designed and likely to operate in the foreseeable future probably will not give rise to any significant “legitimacy of governance” issues. In general, such a finding might be taken to confirm the regime’s effectiveness. Somewhat paradoxically, however, it is the very absence of a legitimacy problem that reminds us instead of the problematic nature of the Conventions’ treaty management approach. For within the context of the Nuclear Safety Conventions, peer review-centred regime-building (as well as compliance control) activities remain hostage to individual Contracting Parties’ goodwill, co-operation, and consent. When the two incentive Conventions are reduced to their basic component elements, the notion that the Conventions might signal a radical departure from tradition thus turns out to be something of a myth; the Nuclear Safety Conventions represent typically orthodox regimes. For at the end of the day, in relation to each and every contracting party, law making within the peer review setting remains a self-validating process giving rise to problems typical of collective standard-setting, such as the single-state veto, the slowest boat and the lowest common denominator phenomena.¹¹⁹

IV. Conclusions

The preceding analysis shows that the Nuclear Safety Conventions’ substantive obligations may indeed be often non-specific, or subject to significant reservations, hence *prima facie* weak. Core obligations arising for individual Contracting Parties are, however, pegged to more detailed extra-conventional safety standards and principles, rendering the Conventions’ alleged normative infirmities more apparent than real. This normative structure is backed by states’ reporting obligations within a system of peer review to ensure states’ realisation of the Conventions’ fundamental objective of securing a high level of nuclear safety world-wide.

The Nuclear Safety Conventions undoubtedly represent an advance in bringing national nuclear power activities within the ambit of international legal safety norms. They introduce a novel measure of international legal accountability for the safety of commercial nuclear power operations. But whether this system represents a successful example of “treaty management” defies an easy answer. Certainly, it is beyond doubt that the peer review process combines aspects of law application (enforcement/control of implementation and compliance) with lawmaking. However, the overall effectiveness of this approach in terms of promoting the Conventions’ basic objective cannot readily

118. See Kageneck, *supra* note 6, at p. 156, who rightly calls attention to the incongruity of traditional, regime-external dispute settlement options under Article 38 of the Joint Convention, in particular arbitration, within the setting of an incentive convention.

The Nuclear Safety Convention does not contain provisions on dispute settlement, other than a reference to consultations among the parties concerned “within the framework of a meeting of the Contracting Parties,” be that a regular review or an extraordinary meeting. Thus the CNS meetings’ treaty management functions extend as well to dispute settlement proper. Indeed, they provide the exclusive mechanism, as disputes are to be settled amicably within, and not to be submitted to processes or fora outside, the regime. By contrast, Article 38 of the Joint Convention calls for consultations within the framework of the meetings of the Contracting Parties as a first step, and specifically provides for traditional dispute settlement techniques, including recourse to arbitration in the event that consultations within the regime should fail.

119. The latter two phenomena are aptly described in P. Sand, *Lessons Learned in Global Environmental Governance*, p. 5-18 (1990).

be reduced to a few variables. Compliance, it has been said, is not the same as effectiveness,¹²⁰ nor can legitimacy necessarily be equated with effectiveness. What might be noted, however, is that by entrusting critical aspects of regime maintenance and regime building to the peer review meetings without strengthening also the latter's effective, if not legal, powers – for example, by providing for coercive compliance control measures or, even more significantly, by generally modifying the consensual basis of substantive decisions of the meetings – the Nuclear Safety Conventions are caught in the tension between innovation and tradition. The Conventions are innovative in radically embracing the idea of law as a process of iterative discourse. They are traditional in the sense of clinging to the ideal of an exclusively state-centred, consent-based model of international law. In this sense, the Nuclear Safety Conventions bear the characteristics of a political compromise, perhaps a necessary one, but one that affects also effectiveness. For the time being, at any rate, it remains unclear whether this compromise will prove acceptable in the long-run or how the tension between the two contending perspectives is likely to resolve itself.

120. Raustiala & Victor, *supra* note 28, at p. 661.