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Putting the Cart Before the Horse – The Case Against a New Regime Covering Radioactive Incidents During Transport

by Jeffrey A. Miller*

I. Introduction

States that engage in the international transport of radioactive materials are besieged on all sides by calls for greater regulation and a special regime to address liability for damage caused during such transport. These calls primarily emanate from countries located in the vicinity of shipping routes, which are purportedly concerned that the existing international nuclear liability regimes do not adequately protect the public, the environment, or their respective economic interests. Whatever their actual motivations and agenda may be, these states must realise that they are adversely affecting their own citizens and national interests by resisting efforts to establish a unified international legal regime for liability associated with nuclear accidents on the basis of existing, modern nuclear liability conventions. Widespread adherence to a global nuclear liability regime by nuclear and nonnuclear power generating states is best way to protect all relevant interests in the event of a nuclear incident on land or during transport, and promote the safe use of nuclear energy.

Countries located in the vicinity of shipping routes appear convinced that their transport grievances are so special, so enormous, that they must not acquiesce to establishing a comprehensive nuclear liability regime based upon existing instruments. Portraying themselves as "coastal states", these countries have raised their concerns in many international fora, including the United Nations, International Atomic Energy Agency, International Maritime Organisation, Organization of American States, and the Pacific Islands Forum. The intense, acrimonious debates that have ensued therein continue to polarise positions and engender mistrust, but not an atmosphere conducive to compromise.

Many of the concerns expressed by countries that advocate a new regime to address liability during the transport of nuclear materials are not unreasonable. Serial recalcitrance to support widespread adherence to existing, modern liability regimes that protect the public and promote the safer use of nuclear energy through common principles, however, is absolutely unreasonable. States

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that advocate a new instrument to address liability during transport must recognise that the negotiation and entry into force of such a convention would take a considerable amount of time, assuming *arguendo* that states engaged in the shipment of nuclear materials are willing to consider such a regime. It is the belief of this author that, as of this writing, so-called "shipping states" do not support the creation of a special regime to address liability during transport. The existing international nuclear liability conventions already encompass nuclear accidents during transport within their ambit. Admittedly, these regimes are not perfect. Coastal state concerns should be considered and addressed, to the greatest extent possible, within the rubric of existing instruments and international nuclear liability legal principles – but only after the modern liability regimes are widely in force. Coastal states might find states that engage in the transport of radioactive materials willing to consider modifications to a comprehensive nuclear liability regime once widespread adherence to it by nuclear and non-nuclear power generating states is achieved.

It should be noted at the outset that nuclear power generating states, including states that ship nuclear materials, must provide leadership to create an international liability system. Major nuclear power generating states such as Canada, China, France, Germany, India, Japan, the Russian Federation, South Korea, the United Kingdom, and the United States must join the same nuclear liability regime to create a true worldwide system. Coastal state adherence to the modern nuclear liability conventions should be encouraged, but these countries should not be expected to take the first step. Nuclear power generating states (including states that ship nuclear materials) must be prepared to compromise in order to provide an incentive for nonnuclear power generating states to support the creation of a global liability system. This paper will focus exclusively on the concerns of coastal states related to liability during the sea transport of nuclear materials, and possible amendments to existing, modern nuclear liability regimes that could achieve widespread adherence.

II. Commentary on the International Nuclear Liability Regimes

Before examining and addressing the concerns expressed by countries located in the vicinity of shipping routes, it is worth briefly reviewing the relevant regimes that would potentially apply in the event of nuclear accident during transport, as well as their fundamental underpinnings.[1] Since its inception in the 1960s, international nuclear liability law has served four core purposes: (1) to protect the public through enhancing nuclear safety and preventing nuclear incidents, (2) to compensate victims of nuclear damage, (3) to protect the viability of nuclear industry, and in particular suppliers of nuclear safety equipment and technology, and (4) harmonising legislation in participating countries,

1. A myriad of articles, seminars, and treatises have addressed the finer points of the conventions and international nuclear liability law, and, thus, this paper will offer only a redacted version of its most important features. For further commentary and analysis of the international nuclear liability conventions and nuclear liability law, see Nathalie L.J.T. Horbach, "Contemporary Developments in Nuclear Energy Law/Harmonising Legislation in CEEC/NIS" (The Hague: Kluwer Law, 1999); Marcus Radetzki, "Limitation of Third Party Liability: Causes, Implications and Future Possibilities", *Nuclear Law Bulletin* No. 63, p. 7 (June 1999); Andrea Gioia, "The New Provisions in the 1997 Vienna Protocol and in the 1997 Convention on Supplementary Compensation", *Nuclear Law Bulletin* No. 63, p. 25 (June 1999); Ben McRae, "The Compensation Convention: Path to a Global Regime for Dealing with Legal Liability and Compensation for Nuclear Damage", *Nuclear Law Bulletin* No. 61, p. 25 (June 1998); Patrick Reyners, "Modernisation of the Civil Liability Regime for Nuclear Damage: Amendment of the Vienna Convention and Adoption of the New Convention on Supplementary Compensation for Nuclear Damage", Advanced Training Seminar on Nuclear Law: Compendium, (Tallinn, August 1998); Norbert Pelzer, "Concepts of Nuclear Liability Revisited: A Post-Chernobyl Assessment of the Paris and Vienna Conventions", in *Nuclear Energy Law after Chernobyl* (P. Cameron, L. Hancher and W Kühn eds., 1988).

thereby promoting the safer use of nuclear energy through common principles.[2] Eight international nuclear liability regimes currently exist that reflect these core purposes.[3] Organisation for Economic Co-operation and Development (OECD) member countries drafted the first international nuclear liability regime, the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy (the Paris Convention) and strengthened this regime with the 1963 Brussels Convention Supplementary to the Paris Convention (the Brussels Convention).[4] The Paris regime served as a model for the 1963 Vienna Convention on Civil Liability for Nuclear Damage (the Vienna Convention), developed under International Atomic Energy Agency (IAEA) auspices to form the basis for a worldwide system.[5] The 1971 Maritime Carriage of Nuclear Material Convention (the Maritime Convention) was intended to resolve potential conflicts, which would arise from the simultaneous application of maritime liability regimes and the Paris and Vienna Conventions.[6] The 1988 Joint

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2. See Norbert Pelzer, Professor of International Law, University of Göttingen, Address, "International Law as an Element of Nuclear Safety" (Bonn, Germany, 23 April 2002) *Informationskreis Kernenergie*, www.infokreis-kernenergie.org/e/forumdetail.cfm?fIDUR=498&fIDR=250 (accessed 29 March 2004). See also Omer F. Brown, Attorney, Address, *Nuclear Liability: A Continuing Impediment to Nuclear Commerce* (Uranium Institute, 8-10 September 1999) www.world-nuclear.org/sym/1999/brown.htm (accessed 23 March 2004).

3. In addition to the eight instruments discussed below, there is a substantial question as to whether the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, and its Liability Protocol, apply to shipments of radioactive waste. See the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal at www.basel.int/about.html (accessed 25 March 2004). Article 1(3) of the Basel Convention excludes from the scope of the Convention, "wastes which, as a result of being radioactive, are subject to other international control systems, including international instruments, applying specifically to radioactive materials". With regard to international instruments, the Joint Convention on the Safety of Spent Fuel and Radioactive Waste Management (the "Joint Convention") (www.iaea.org/Publications/ Documents/Conventions/index.html) appears to provide a binding legal regime that addresses radioactive materials. Therefore, it appears that the Basel Convention does not apply to nuclear materials, or the transportation thereof.

4. The Paris and Brussels Conventions were drafted under the auspices of the OECD Nuclear Energy Agency (the "NEA"). Parties to the Paris Convention include Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Turkey and the United Kingdom. All Parties to the Paris Convention, with the exception of Portugal and Turkey, are Parties to the Brussels Convention. The Brussels Convention provides additional compensation from public funds if compensation under the Paris Convention is insufficient. For additional information regarding the Paris and Brussels Conventions, see the NEA Web site: www.nea.fr/html/law/legal-documents.html (accessed 25 March 2004). See also *infra* note 28, and Philippe Sands and Paolo Galizzi, "The 1968 Brussels Convention and Liability for Nuclear Damage", *Nuclear Law Bulletin* No. 64, p. 7 (December 1999).

5. Article 21 of the Paris Convention limits membership in the Paris regime to OECD member states. Non-signatory member states may join the Paris regime, but only with unanimous consent of all contracting parties. In contrast, the Vienna Convention is open for membership by all states. The Parties to the Vienna Convention include Argentina, Armenia, Belarus, Bolivia, Bosnia & Herzegovina, Brazil, Bulgaria, Cameroon, Chile, Croatia, Cuba, Czech Republic, Egypt, Estonia, Hungary, Latvia, Lebanon, Lithuania, Mexico, Niger, Peru, Philippines, Poland, Republic of Moldova, Romania, St. Vincent & the Grenadines, Serbia & Montenegro, Slovakia, Former Yugoslav Republic of Macedonia, Trinidad & Tobago, Ukraine, and Uruguay. (Slovenia withdrew from the Vienna Convention regime on 11 December 2002. Slovenia is now a member of the Paris Convention regime.) For further information on the Vienna Convention, see the IAEA Web site: www.iaea.org/Publications/Documents/Conventions/index.html (accessed 26 March 2004).

6. The Maritime Convention was adopted under the auspices of the International Maritime Organisation, IAEA and NEA. Membership is primarily comprised of Paris regime members, such as Belgium,

Protocol in Relation to the Application of the Vienna Convention and the Paris Convention (the Joint Protocol) established treaty relations between members of the Vienna and Paris regimes.[7] The Protocol to Amend the Vienna Convention (Revised Vienna) and the Convention on Supplementary Compensation for Nuclear Damage (the CSC) were drafted under IAEA auspices in 1997 in a second attempt to establish a comprehensive and unified international nuclear liability system.[8] Contracting Parties to the Paris and Brussels Conventions have also revised these regimes; the signing of the Protocols to amend the Paris and Brussels Conventions took place on 12 February 2004.[9]

With the exception of the Maritime Convention, these treaties incorporate six well-accepted principles, which have also been incorporated into the domestic nuclear laws in many countries.[10] These principles include:

- Adjudicating all claims resulting from a covered nuclear incident in a single forum (in most cases the courts of the Party within which the nuclear incident occurs);
- Channeling liability for all claims to the nuclear installation operator;
- Strict liability of the operator for nuclear damage (i.e., without the need for victims to prove negligence);
- Liability of the operator limited in time, and in amount;

Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Spain and Sweden. Two Vienna member states (Argentina and Gabon) and two non-Vienna/non-Paris flag states (Liberia and Yemen) have also joined. For further information regarding the Maritime Convention, see the International Maritime Organisation Web site: www.imo.org. (accessed 23 March 2004), and the Admiralty and Maritime Law Guide: www.admiraltylawguide.com (also accessed 23 March 2004).

7. The Joint Protocol extends the application of both Conventions to cover victims of nuclear damage in the territory of Parties to either Convention. Particularly in the case of transport, the Joint Protocol also resolves potential conflicts between the two conventions by ensuring that only one convention applies to any one incident. Parties to the Joint Protocol include Bulgaria, Cameroon, Chile, Croatia, Czech Republic, Denmark, Egypt, Estonia, Finland, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Romania, St. Vincent & the Grenadines, Slovakia, Slovenia, Sweden and Ukraine. For further information on the Joint Protocol, see the IAEA Web site: www.iaea.org/ Publications/Documents/Conventions/index.html (accessed 26 March 2004).

8. The CSC is not in force. Revised Vienna is in force. Argentina, Belarus, Latvia, Morocco, and Romania have ratified Revised Vienna.

9. For details on the signing ceremony and the revised Paris and Brussels regimes see the NEA Web site: www.nea.fr/html/general/press/2004/2004-01.html (accessed 23 March 2004). Revisions to the Paris and Brussels Conventions were not completed prior to the International Conference on the Safety and Transport of Radioactive Materials (see *infra* notes 15-22) and consequently, so-called "coastal states" did not squarely address these regimes in their submissions to the Conference. The Revised Paris is generally consistent with Revised Vienna and the CSC, although some differences exist. Article 21 of the Paris Convention (as described in note 5 *supra*) remains unchanged in Revised Paris, except that a new paragraph "(c)" has been added. This paragraph has no relation to the unanimous consent required for non-OECD member countries to join the regime. For a discussion of the main differences between Revised Paris and Revised Vienna, see Patrick Reyners, "The Modernisation of the International Nuclear Liability Regime: its Impact on Transport Operations", in *International Conference on the Safety of Transport of Radioactive Material – Contributed Papers*, p. 5-11 (IAEA-CN-101/5) (7-11 July 2003).

10. The Maritime Convention does not expressly contain the core principles discussed below.

- Mandatory insurance or other financial security for all operators corresponding to its liability; installation state is ultimately responsible for any shortfall; and

- Non-discrimination against victims, based upon nationality, domicile or residence.

These principles have comprised the cornerstones of international nuclear liability law since the adoption of the Paris Convention on 29 July 1960. Stated otherwise, they have formed the basis for nuclear commerce for more than forty years, and they must continue to do so, even as additional revisions to the conventions are considered. When the conventions apply, these principles are equally applicable to nuclear accidents on land and during transport.[11] These treaties, however, do not cover shipments of nuclear materials among and between nuclear power generating states located in North America, Eastern Europe and Asia.[12] Furthermore, the conventions do not uniformly implement the principles described above. The scope of coverage for nuclear accidents under the conventions is not identical (e.g., liability amounts and definitions of what constitutes nuclear damage) and the interrelationship among and between the regimes that are in force is complex.[13] Consequently, victims could potentially invoke several liability agreements in the event of an accident during the transport of nuclear materials, as well as normal tort law.[14] Damage to victims, the environment, and economic interests of countries in the vicinity of shipping routes and their citizens might be left uncompensated under these circumstances.

Mindful of this background, the concerns of countries located in the vicinity of shipping routes will be examined, and addressed.

III. Examination of concerns raised by states located in the vicinity of shipping routes related to a special regime covering transport

A. International Conference on the Safety of Transport of Radioactive Materials ("Conference")

The July 2003 International Conference on the Safety of Transport of Radioactive Materials (the Conference) provided the most recent opportunity for so-called "coastal-states" and so-called

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11. Generally, Vienna Convention Articles I-XV and Paris Convention Article 1-14 contain provisions related to transport, to the extent that the conventions would apply.

12. This includes Canada, China, India, Japan, the Russian Federation, South Korea, and the United States. In addition, the international nuclear liability conventions do not cover shipments between Asia and Western Europe, including Japan, France, and the United Kingdom.

13. The regimes that are currently in force are the Paris Convention, Vienna Convention, Brussels Convention, Joint Protocol, Revised Vienna, and the Maritime Convention. For a complete discussion of the "labyrinth of international agreements on nuclear liability", and their application to transport issues, see Omer F. Brown and Nathalie L.J.T. Horbach, "Liability for International Nuclear Transport: An Overview", International Symposium on the Reform of Civil Nuclear Liability, Budapest Symposium (1 June 1999) at p. 237-261.

14. In other words, ordinary rules of negligence and potentially unlimited liability may apply in jurisdictions where lawsuits are filed in the aftermath of a nuclear incident, and not channeling of legal liability and monetary limitations as contemplated under the conventions. Although this may sound enticing, whereas the conventions expressly identify a person liable and a sum certain to compensate victims of nuclear damage, there is absolutely no guarantee that a defendant will be found liable under normal tort law, and protracted litigation would ensue in any case prior to a defendant compensating victims.

"shipping states" to discuss issues pertaining to the transport of nuclear materials.[15] The Conference featured a series of technical topical sessions and panel discussions that covered selected issues relating to the safety of transport of radioactive material. Chairpersons of each topical discussion presented session summaries, and the President of the Conference presented the Conference findings, conclusions and recommendations to Conference participants.[16] The IAEA also convened an explanatory topical session entitled "Liability in the Transport of Radioactive Material"; papers outlining concerns related to liability were prepared and discussed during the Session, albeit the Conference President did not present findings.[17]

1. Discussion of concerns presented by countries located in the vicinity of shipping routes

Representatives from the governments of Ireland,[18] New Zealand,[19] and Peru[20] (countries located in the vicinity of shipping routes) prepared position papers that articulated rationales for a special regime to address liability during transport.[21] In the view of these countries, the concerns expressed below militate against joining an existing nuclear liability regime.[22] These concerns also appear to reflect the sentiments of other states located in the vicinity of shipping routes, including small island states.[23] Ireland, New Zealand and Peru raised the following concerns:

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15. The International Conference on the Safety of Transport of Radioactive Materials (the Conference) was convened in Vienna, Austria from 7-11 July 2003. The Conference was organised by the IAEA, and co-sponsored by the International Civil Aviation Organization (ICAO), the International Maritime Organisation (IMO), in co-operation with the International Air Transport Association (IATA), and the International Organization for Standardization (ISO). For detailed information on the subjects discussed and findings of the Conference, see the IAEA Web site: www-rasanet.iaea.org/default.asp (accessed 21 March 2004).

16. *Id.* See also: www-rasanet.iaea.org/downloads/meetings/july2003_trans_saf_conf_summary_and_findings.pdf (accessed 21 March 2004).

17. *Id.*

18. F. Maughan and E. Caro, "Liability in the Transport of Radioactive Material", in *International Conference on the Safety of Transport of Radioactive Material – Contributed Papers*, 5-11 (IAEA-CN-101/2) (7-11 July 2003).

19. J. Ludbrook, "Liability in the Transport of Nuclear Material – Existing Liability Regimes and Gaps in their Coverage", in *International Conference on the Safety of Transport of Radioactive Material – Contributed Papers*, p. 15-19 (IAEA-CN-101/4) (7-11 July 2003).

20. C. Azurin-Araujo, "Towards a Global and Comprehensive IAEA's Nuclear Liability Regime, in Particular for Nuclear Damage caused during the Transport of Radioactive Material", in *International Conference on the Safety of Transport of Radioactive Material – Contributed Papers*, p. 29-33 (IAEA-CN-101/6) (7-11 July 2003).

21. The governments of France, the United States, and the NEA also submitted papers for discussion. These papers are available on the IAEA Web site: www-rasanet.iaea.org/downloads/radiation-safety/512seitenText.pdf.

22. Separate and distinct from liability concerns, states located in the vicinity of nuclear shipments have also proposed more stringent regulation of sea transport, and mandatory prior notification of shipments that traverse their Exclusive Economic Zone. These issues are beyond the scope of this paper.

23. See generally 1997-2003 IAEA General Conference resolutions on transportation safety of radioactive materials, available on the IAEA Web site: www-rasanet.iaea.org/programme/radiation-safety/trans-safety.htm (accessed 17 March 2004); see also Second High-Level Meeting on the Special Security Concerns of Small Island States, Declaration of Kingstown on the Security of Small Island States

a. Revised Vienna and the CSC are not in force

Revised Vienna and the CSC were finalised under IAEA auspices in 1997; approximately six years have elapsed and these conventions are not in force.[24] The Vienna and Paris Conventions, the key regimes that are in force, contain serious deficiencies in respect of the definition of nuclear damage, jurisdiction over a nuclear accident, and levels of compensation. Furthermore, not all "shipping states" or nuclear power generating states are members of the Vienna and Paris regimes, and not all members of these regimes are party to the Joint Protocol that establishes treaty relations between them.[25]

b. Inadequate levels of compensation

Compensation levels under the Paris and Vienna Conventions are inadequate.[26] Revised Vienna and the CSC increase the levels of compensation available to victims for nuclear damage, but not necessarily for non-contracting states.[27]

c. Compensating damage without benefiting from the underlying activity

The Brussels Convention and the CSC create multi-tiered mechanisms for compensating nuclear damage caused within the territory of Parties by a nuclear incident for which an operator within a State Party is liable. Under these conventions, one tier of compensation is provided by a supplementary compensation fund to which Parties to these conventions (nuclear and non-nuclear power generating states) would be required to contribute in certain circumstances.[28] Concerned countries located within the vicinity of shipping routes question the requirement to contribute to a fund established to

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(8-10 January 2003), *www.oas.org/xxxiiiga/english/reference_docs/declaracion_kingstown.pdf* (accessed 29 March 2004); Duncan E.J. Currie, "The International Law of Shipments of Ultra hazardous Radioactive Materials: Strategies and Options to Protect the Marine Environment", www.globelaw.com/Nukes/Nuclear%20Shipment%20Paper.htm (accessed 29 March 2004).

24. Revised Vienna has entered into force in the aftermath of the Conference. On October 4, 2003 Revised Vienna entered into force for Argentina, Belarus, Latvia, Morocco, and Romania. As stated above in footnote 9, the governments of Ireland, New Zealand and Peru did not squarely address Revised Paris in their submissions to the Conference. While Revised Paris will not be the primary focus of ensuing discussion below, this convention (once adopted under NEA auspices) will constitute a key component in creating a global civil nuclear liability regime. Therefore, elements of Revised Paris will be discussed below.

25. See F. Maughan and E. Caro, "Liability in the Transport of Radioactive Material", at p. 8.

26. See *infra* note 44.

27. See F. Maughan and E. Caro, "Liability in the Transport of Radioactive Material", at p. 9; J. Ludbrook, "Liability in the Transport of Nuclear Material – Existing Liability Regimes and Gaps in their Coverage", at p. 17.

28. The Paris and Brussels Conventions together create a three-tier structure that provides for a maximum of SDR 300 million to compensate victims of nuclear damage. In the first two tiers, compensation of up to SDR 175 million is provided by the operator, and possibly public funds of the Party in whose territory the nuclear installation is located. Compensation above SDR 175 million and up to SDR 300 million is provided from public funds contributed by all Parties to the Brussels Convention. For a discussion of the CSC's supplementary fund see *infra* note 47. See *infra* note 53 for a discussion of the Revised Paris-Brussels regimes.

compensate nuclear damage when they derive no benefit from, and do not necessarily support, the underlying activity.[29]

d. Jurisdiction

Generally, under the Vienna and Paris regimes, jurisdiction lies only with the courts of the state where a nuclear incident occurs.[30] Where, however, a nuclear incident occurs outside the territory of a State Party (for example, during the course of maritime transport, on the high seas) jurisdiction lies with the competent court in whose territory the installation of the operator liable is situated. Revised Vienna and the CSC would allow jurisdiction to reside with the contracting state in whose exclusive economic zone (EEZ) and incident occurs, but this provision will not benefit victims of incidents, either on the high seas or in non-contracting states.[31]

e. Definition of nuclear damage

The Paris and Vienna Conventions define nuclear damage to generally include loss of life, personal injury and damage to property.[32] Revised Vienna and the CSC would expand the definition of nuclear damage, but these regimes are not in force.[33] These conventions, however, do not contemplate compensation for economic loss arising as a result of rumor damage.[34]

IV. Responding to the concerns raised by states located in the vicinity of shipping routes related to a special regime covering transport

A. Requiem for coastal states and the coastal state/shipping state dichotomy

Underlying the concerns expressed by countries located in the vicinity of shipping routes appears to be dubious belief as to the safety of shipments of nuclear materials, coupled with concern over damage to the marine environment and economies of coastal states, should an accident during transport occur.[35] Evidence exists, however, which indicates that the concerns of states located in the

29. J. Ludbrook, "Liability in the Transport of Nuclear Material – Existing Liability Regimes and Gaps in their Coverage", at p. 18; F. Maughan and E. Caro, "Liability in the Transport of Radioactive Material", at p. 9-10.

30. F. Maughan and E. Caro, "Liability in the Transport of Radioactive Material", at p. 8-9. See also Vienna Convention, Article XI, and Paris Convention, Article 13.

31. F. Maughan and E. Caro, "Liability in the Transport of Radioactive Material", at 8-9.

32. See Vienna Convention Article I(k), and Paris Convention Article 3(a).

33. As stated above, Revised Vienna has entered info force in the aftermath of the Conference. See *infra* note 48 for citations to expanded definitions of nuclear damage in the Revised Vienna and Paris regimes, as well as the CSC.

34. See F. Maughan and E. Caro, "Liability in the Transport of Radioactive Material", at p. 9. In its submission to the Conference, the government of New Zealand described rumor damage as the "economic loss sustained as a result of a perceived danger of harm resulting from an accident/incident, such as irradiation of fish resources or of tourism areas, thereby threatening human health". See J. Ludbrook, "Liability in the Transport of Nuclear Material – Existing Liability Regimes and Gaps in their Coverage", at p. 17.

35. On the other hand, non-governmental organisations such as Greenpeace openly advocate the cessation of nuclear transport entirely. See Greenpeace, "Can't Pay, Won't Pay: Plutonium and high-level nuclear waste and the inadequacies of international liability arrangements", http://archive.greenpeace.org/nuclear/transport/mox99/index.html (July 1999) (accessed 29 March 2004). It is possible that countries

vicinity of shipping routes are not supported by objective facts.[36] Experts have determined that the probability of an accident during transport where casks containing radioactive materials spill on to the ocean floor is negligibly small.[37]

Nevertheless, the consequences of an incident with a release of radiation during transport should not be underestimated. The results could be severe, due to the long half-lives of the radioactive material involved. There have been, however, more than 160 sea shipments of radioactive materials between Europe and Asia over more than thirty years without a single incident involving radiological consequences.[38] All shipments strictly comply with requirements in the IAEA Transport Guidelines, and International Maritime Organisation standards.[39] The IAEA published its first transportation safety standards in 1961; the IMO published its first regulations in 1965. In the intervening 42 years, IAEA and IMO standards have become even more exacting.[40] States that engage in the transport of nuclear materials are acutely aware of the transboundary consequences of a nuclear incident, particularly in the aftermath of the 1986 Chernobyl disaster.

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calling for a special regime to address liability during transport share the same views, and further that calls for a new convention are one step in a coordinated effort to achieve this end.

36. See for example, Ron Smith, "The Maritime Transportation of Nuclear Materials: a view from New Zealand", *Political Science*, Volume 54, No. 1 (June 1999) at p. 5-19. In this article, Ron Smith, a citizen of New Zealand, challenges the views of the government of New Zealand on the safety of the sea transport of radioactive materials.

37. In fact, the overall probability of an accident during transport (in the case of MOX fuel shipments) has been determined to be "one such event every 500 000 years". This would not necessarily result in the release of radioactivity into the marine environment. See Ron Smith, "Maritime Transportation of Nuclear Materials", at p. 7 [quoting Jeremy Sprung et al, "Data and Methods for Assessment of the Risks Associated with the Maritime Transport of Radioactive Materials: Results of the SeaRAM Program Studies", Sandia National Laboratories (1998) (SAND98-1171/1)]. With regard to shipments of vitrified high-level radioactive waste (VHLW), the probability of a release of radiation resulting from an accident during transport is 1 in 10^{18}, or 0.000,000,000,000,000,001. See Ron Smith, "Maritime Transportation of Nuclear Materials", at p. 6 [quoting Jeremy Sprung et al, "Comments on Paper Titled 'The Sea Transport of Vitrified High-Level Radioactive Wastes: Unresolved Safety Issues'", Sandia National Laboratories (May 1997)].

38. The spotlight has primarily been on sea shipments of nuclear materials between Europe and Japan. These include (1) Japanese spent power reactor fuel being sent to Europe for reprocessing; (2) mixed plutonium/uranium oxide (MOX) fresh fuel to Japan for use in Japanese power reactors; and (3) VHLW – the residue after reprocessing – which has been put into a stable, solid glass form for safety of handling, transport and disposition, and is returned from Europe to Japan for long-term storage.

39. IAEA regulations relevant to the transport of nuclear materials include the Regulations for the Safe Transport of Radioactive Material, and the IAEA Basic Safety Standards. The full scope of the IAEA's programs in the area of nuclear transport safety is beyond the scope of this paper. For a full explanation of IAEA regulations and transport requirements, see "Radioactive Materials Transport: The International Safety Regime", *World Nuclear Transport Institute*, Series No. 1 (July 2001). See also IAEA Board of Governors Resolution, Safety of Transport of Radioactive Material, GOV/1998/17 (30 April 1998). The IMO publishes an International Maritime Dangerous Goods Code (IMDG) for sea transport, which incorporates the IAEA's transport regulations. Since 1993, the IMO has also published the Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-level Radioactive Wastes in Flasks on Board Ships ("INF Code").

40. The IAEA has also created the Transport Safety Standards Advisory Committee (TRANSSAC), a body of senior regulatory officials with expertise in radioactive materials transport safety. TRANSSAC reviews IAEA transport regulations on a two-year cycle.

All but 42 countries in the world have coastlines, and thus the majority of countries on the planet are "coastal states".[41] Marine bio-diversity is omnipresent; seafaring nations exist on every continent, in every hemisphere and region. Each country with coastlines and their citizens derive at least some revenue from marine-based businesses, and tourism.[42] Therefore, it appears that the "coastal state/shipping state" dichotomy is not a proper way to frame the nuclear transport debate. An appropriate context within which to discuss these issues might be "shipping states" or "nuclear seafaring states" on the one hand, and "concerned states" or "vicinity states" on the other hand.

B. Modern liability regimes can provide the basis for a comprehensive international nuclear liability regime

The majority of concerns highlighted by Ireland, New Zealand and Peru in their submissions to the Conference are rectified, at least to some extent, in the Revised Vienna and the CSC regimes.[43] The new and expanded provisions in the Revised Vienna and CSC regimes stem from the renewed intention to create a true worldwide liability system. It is not merely because these conventions permit all states to become parties, but rather that nuclear power generating states have already introduced concessions in order to make adherence more attractive to non-nuclear power generating sates, including states located in the vicinity of shipping routes.

1. Compensation amounts

Many countries, in particular non-nuclear power generating countries, remain unwilling to enter into treaty relations on the basis of the compensation amounts under the Vienna and Paris regimes.[44] The minimum amount of compensation is low, and relatively little incentive exists for Parties to make

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41. The World Bank Group, "Look after your Coastline", www.worldbank.org.yu/ECA/yugoslavia.nsf/0/61DA5752899E9FBBC1256DA2004A4E40?Opendocument (accessed 27 March 2004).

42. See generally, *The World Almanac and Book of Facts 2002*. The coastlines of Canada, France, Japan, Russia, South Korea, the United Kingdom, and the United Sates are 202 080 km, 3 427 km, 29 751 km, 37 653 km, 2 413 km, 12 429 km and 19 924 km, respectively. The coastlines of the Dominican Republic, Fiji, Ireland, New Zealand, and Peru, are 1 288 km, 1 129 km, 1 448 km, 15 134 km and 2 414 km, respectively. See *CIA World Factbook*, "Field Listing – Coastline", www.odci.gov/cia/publications/factbook/fields/2060.html (accessed on 28 March 2004).

43. Revised Paris also addresses the concerns of vicinity states to the same extent that Revised Vienna and the CSC address them. As explained in note 5 *supra*, however, the Paris Convention, even in its revised form, still contains barriers to accession for non-OECD member states, and, as a consequence, the Paris Convention arguably cannot provide the basis for a global regime. [At present, 30 countries currently comprise the membership constituency of the OECD. For further information regarding the membership of the OECD, and its relationships with non-member countries, see www.oecd.org/document/58/0,2340,en_2649_34483_1889402_1_1_1_1,00.html (accessed 27 March 2004)]. Furthermore, the United States (an OECD member country) cannot join the Paris regime, even in its revised form, because the United States is not prepared to alter its fundamental system of tort liability based on the laws of the states of the United States. Membership in Revised Vienna is open to all states. Membership in the CSC is open to all parties to the Vienna and Paris Conventions, as well as to countries (including the United States) that have domestic nuclear liability statutes, which conform to the requirements set forth in the CSC's Annex. The U.S. domestic nuclear liability statute, the Price-Anderson Act (42 U.S.C. § 2210) conforms to the requirements set forth in the CSC's Annex.

44. Under the Paris Convention, the minimum must not be less than 7 million US dollars ("USD"), while the Vienna Convention requires not less than USD 5 million in terms of gold on 29 April 1963 (about USD 50 million at recent gold prices). See Paris Convention Article 7, and Vienna Convention Article V, respectively.

more than the minimum amounts prescribed in the conventions available to compensate victims of nuclear damage. Revised Vienna and the CSC, however, require a minimum amount of 300 million Special Drawing Rights (SDRs), about 400 million US dollars (USD) at current rates of exchange.[45] These minimum amounts are in excess of USD 300 million higher than the minimum amounts under the Vienna and Paris regimes.[46] Furthermore, the CSC makes at least an additional SDR 300 million available through a supplementary fund designed to mobilise additional funds on an international plane to compensate victims of nuclear damage.[47]

2. Jurisdiction over a nuclear incident

The modern conventions expand the jurisdictional provisions to increase the likelihood that a vicinity state would be able to exercise jurisdiction over a nuclear incident during transport. Revised Vienna and the CSC (in addition to Revised Paris) treat the exclusive economic zone (EEZ) of a Party as an extension of its territory as opposed to the high seas, thereby ensuring that jurisdiction over a transport incident in a Party's EEZ will reside with that Party.[48] Vicinity states would not exercise jurisdiction over an incident during transport in its EEZ under the Vienna and Paris regimes.

3. Definition of nuclear damage

Revised Vienna and the CSC (in addition to Revised Paris) improve the definition of nuclear damage by explicitly identifying the types of damage that are considered nuclear damage.[49] In addition to personal injury and property damage, these regimes expressly identify five categories of

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45. A special drawing right is the unit of account defined by the International Monetary Fund and used by it for its own operations and transactions. Both conventions prescribe transition periods where not less than SDR 150 million must be available under the CSC until 29 September 2007, and not less than SDR 100 million must be available under Revised Vienna through fall 2013. See Articles III and V of the CSC and Revised Vienna, respectively.

46. See *supra* note 44.

47. The obligation to contribute to the fund would be triggered if the "installation state" notifies the Parties that the amount of all eligible claims may exceed the minimum first tier amount that applies to that state. Fifty percent of the fund is to be used to compensate damage occurring outside the "installation state" (transboundary damage), including transboundary damage occurring in a non-nuclear power generating Party. Under Article XI(4), Parties to the CSC may declare a first tier amount that is SDR 600 million or greater. In that case, the allocation to transboundary damage is eliminated and the entire international supplementary fund is available on a non-differentiated basis. For a complete analysis of the CSC, including the supplementary fund, see Ben McRae, "The Compensation Convention: Path to a Global Regime for Dealing with Legal Liability and Compensation for Nuclear Damage", *Nuclear Law Bulletin* No. 61, p. 25 (June 1998).

48. Compare Article XI of the Vienna Convention and Article 13 of the Paris Convention to Article XIII of the CSC, Article XI of Revised Vienna, and Article 13 of Revised Paris. The new provisions on jurisdiction in these conventions take into account the changes in the international law of the sea which have occurred in the past 20 years, and are reflected in the 1982 United Nations Convention on the Law of the Sea (the "LOSC"): www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf (accessed 25 March 2004). (The LOSC was adopted in Montego Bay, Jamaica on 10 December 1982, and entered into force on 16 November 1994.) For further commentary and analysis on the new jurisdictional provisions in Revised Vienna and the CSC, see Andrea Gioia, "The New Provisions in the 1997 Vienna Protocol and in the 1997 Convention on Supplementary Compensation", *Nuclear Law Bulletin* No. 63, p. 25 (June 1999), and Ben McRae, "Compensation Convention", *Nuclear Law Bulletin* No. 61, p. 25 (June 1998).

49. See Revised Vienna Article I(k), CSC Article I(f), and Revised Paris Article I(a)(vii)-(x).

damage relating to impairment of the environment, preventive measures, and economic loss.[50] The later five categories have no analogue in the Vienna and Paris regimes; these concepts were included primarily in response to vicinity state concerns regarding nuclear incidents during transport.[51]

B. Possible amendments to a global regime, once widely in force

The discussion above demonstrates that further steps were taken in order to improve the international nuclear liability regime for nuclear damage with the aim of creating a worldwide system. Additional improvements should be considered, however, once widespread adherence has been achieved, and provided that vicinity states promote the benefits of membership in a global regime to similarly situated countries. Nuclear and non-nuclear power generating states could consider four basic amendments:

1. Increased liability amounts

Five years after the revision of the Vienna Convention and creation of the CSC, the Paris Convention members have revised this regime under NEA auspices.[52] Once in force, the revised Paris Convention would require the liability of the operator to not less than EUR 700 million.[53] The *Exposé des Motifs* to the Paris Convention makes clear that the operator's minimum liability under Revised Paris (i.e., EUR 700 million) must also constitute a risk currently insurable on international insurance markets.[54] Amendments to Revised Vienna and the CSC could harmonise minimum operator liability amounts, bringing them into conformity with Revised Paris and the apparent current capacity of international insurance markets.[55]

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50. *Id*. See also Ben McRae, "Compensation Convention", *Nuclear Law Bulletin* No. 61, at p. 37-40.

51. National law determines the extent to which damage relating to impairment of the environment, preventive measures, and economic loss are covered. See CSC Article I(f), and Revised Vienna Article I(k).

52. Although Revised Paris arguably cannot provide the basis for a global regime, certain provisions in Revised Paris can serve as a model for amendments to Revised Vienna and the CSC.

53. See Revised Paris, Articles 7 and 10. Once in force, the revised Paris and Brussels regimes would provide EUR 1.5 billion to compensate victims of nuclear damage. The first tier of compensation is comprised of the minimum liability requirement under Revised Paris, i.e., EUR 700 million, and is still provided by the operator's financial security; the installation state is ultimately responsible for any shortfall. The second tier of Revised Brussels is now EUR 500 million, and continues to be provided from public funds made available by the installation state. The third tier (EUR 300 million) is derived from compensation provided by all Contracting Parties. The Protocol to amend the Paris Convention will enter into force when ratified by two-thirds of the Signatory States; the Protocol to amend the Brussels Supplementary Convention will enter into force when ratified by all Signatory States to the Convention. For further information, see the NEA Web site: www.nea.fr/html/general/press/2004/2004-01.html (accessed 25 March 2004).

54. Paragraph 4 of the *Exposé des Motifs* to the Paris Convention (approved in its revised form, on 16 November 1982 by the OECD Council) states in pertinent part, "the possible magnitude of a nuclear incident requires international collaboration between national insurance pools. Only by an effective marshalling of the resources of the international insurance markets by coinsurance and reinsurance can sufficient financial security be made available to meet possible compensation claims". See *also* Marcus Radetzki, "Limitation of Third Party Liability: Causes, Implications and Future Possibilities", *Nuclear Law Bulletin* No. 63, at p. 9-14.

55. It should be noted, however, that a relationship may exist in Revised Paris between international insurance capacity, and the statistical probability that a catastrophic nuclear incident could occur in the

In addition, nuclear and non-nuclear power generating states should consider raising the level of the CSC's supplementary fund to approximately SDR 700 million. Such an amendment would maintain the current concordance between the supplementary fund and the operator's minimum liability amount required under the CSC and Revised Vienna. A minimum of SDR 1.4 billion (about USD 1.6 billion) would be available to compensate victims of an accident during transport if these amendments are adopted.

2. Compensating damage without benefiting from the underlying activity

In respect of the supplementary fund created under Article III.1(b) of the CSC, ninety percent of contributions would come from nuclear power generating countries on the basis of their installed nuclear capacity.[56] The remaining ten percent would come from all Parties on the basis of their United Nations (UN) rate of assessment.[57] The CSC already provides that no contribution shall be required from countries on the minimum UN rate of assessment with no nuclear reactors.[58] Members of the regime should consider an amendment to ensure that only nuclear power generating states shall be required to contribute to the supplementary fund. Through such an amendment, non-nuclear power generating states such as Chile, Ireland, New Zealand and Peru could accede to the regime without the ideological conflict of potentially compensating victims of nuclear damage when they do not necessarily support the underlying activity.[59]

3. Definition of nuclear damage

Countries located in the vicinity of shipping routes claim that Revised Vienna and the CSC do not require compensation for rumor damage.[60] Vicinity states are correct in their assessment that under the Vienna and Paris regimes operator liability for nuclear damage is predicated upon a release of ionising radiation.[61] With regard to Revised Vienna, the CSC, and the Revised Paris regimes, vicinity

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OECD member area, in which approximately 350 reactors are operating. See Marcus Radetzki, "Limitation of Third Party Liability: Causes, Implications and Future Possibilities", *Nuclear Law Bulletin* No. 63 at p. 11. The minimum levels in Revised Vienna and the CSC could still be increased, to the extent that insurance markets cannot meet the same level of insurance capacity in (for example) Eastern Europe because of the higher risk involved in insuring reactors located in Eastern Europe, of Soviet-legacy design. Article V of Revised Vienna would allow the liability of an operator to be limited to less than SDR 300 million provided that public funds are available to meet the minimum requirement of SDR 300 million. See Revised Vienna Article V(1)(b), and V(2). A similar liability-sharing scheme could be created through revisions to Revised Vienna and the CSC to ensure that at least a minimum of EUR 700 million is available to compensate victims of nuclear damage.

56. See CSC Article IV.1(a). See also Ben McRae, "Compensation Convention", *Nuclear Law Bulletin* No. 61at p. 33-37.

57. See Article IV.1(a).

58. See Article IV.1(b). This would include virtually all small island states.

59. In his article analysing the CSC, Ben McRae notes that nuclear power generating states typically have high UN rates of assessment, and therefore the formula described in CSC Article IV should result in 98% percent of the contributions to the supplementary fund coming from nuclear power generating states. See Ben McRae, *Nuclear Law Bulletin* No. 61 at p. 34-35. Assuming this is the case, the amendment described above would merely formalise an implicit reality of the CSC regime when adopted in 1997.

60. The government of New Zealand's definition of rumor damage appears *supra* in note 34.

61. Under the Vienna and Paris Conventions, nuclear damage "arises out of or results from the radioactive properties or a combination of radioactive properties with toxic, explosive or other hazardous properties

state claims are not entirely correct. Each of these regimes allows recovery for precautionary evacuations when the possibility of a nuclear incident creates a grave and imminent threat of a release of ionising radiation.[62] Such preventive measures would likely include, among other things, operations to recover a ship that sinks in a vicinity state's EEZ, as well as the cost of shutting down fisheries, testing water for contamination, and prohibiting the consumption of marine food products for a reasonable period of time while confirming whether or not a release of ionising radiation has occurred.[63] The conventions, however, do not appear to cover broader forms of economic damage that might arise in a hypothetical scenario where a ship sinks in a vicinity state's EEZ, and it is determined that a release of ionising radiation has not occurred.[64] In this regard, nuclear and non-nuclear power generating states could consider inserting a definition for "rumor damage" as follows: "in the event of an accident during the transport of nuclear materials, economic damage resulting in the absence of a release of ionising radiation, to the extent permitted by the general law on civil liability of the competent court."[65] Such a definition would give vicinity states with jurisdiction over a nuclear incident broad leeway to define economic damage in the absence of a release of radioactivity, while ensuring that an accident must occur (as opposed to merely traversing the EEZ of a vicinity state) in order for this provision to be invoked.[66]

4. Accidents during transport on the high seas

As stated above, Revised Vienna, and the CSC (as well as Revised Paris) equate the EEZ of a State Party with its territorial sea, thus ensuring that jurisdiction over a transport incident in a Party's EEZ will reside with that Party.[67] Under all existing international nuclear liability regimes, however, the installation state (i.e., the state where the operator of a nuclear installation is located) would exercise jurisdiction over nuclear incidents not occurring within the territory of any Party. This includes nuclear incidents on the high seas. Vicinity states highlighted this as a major concern in their

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of nuclear fuel or radioactive waste products..." See Vienna Convention Article I(k), and Paris Convention Article 1(a)(i).

62. See CSC Articles I(f), I(h) and I(i); Revised Vienna Articles 1(k) 1(l) and 1(n); and Revised Paris Articles 1(a)(vii), 1(a)(ix), and 1(a)(x).

63. Of course, the definition of rumor damage might also include instances where a release of radiation occurs, but the levels are not significant enough to cause harm people, or the environment. Under such a scenario, victims would be compensated for the costs of measures to reinstate the impaired environment, loss of income deriving from economic interests and "any other economic loss" permitted by the competent court under CSC Article 1(f), Revised Vienna Article 1(k), and Revised Paris Article 1(a)(vii).

64. Such broader forms of economic loss might include a decline in the sale and consumption of fish, and loss of tourism revenue.

65. This definition could be incorporated as a component of the definitions of "nuclear damage" [CSC Article 1(f), Revised Vienna Article I(k)], or as a separate concept, similar to "preventive measures" [CSC Article I(h), and Revised Vienna Article I(n)]. National also law determines the extent to which damage relating to impairment of the environment, preventive measures, and economic loss are covered. See CSC Article I(f), Revised Vienna Article I(k), Revised Paris I(a)(vii)-(x).

66. The government of Peru correctly points out that CSC Annex Article 6 states that the maximum operator liability for an accident during transport is determined by the national law of the installation state. See C. Azurin-Araujo, "Towards a Global and Comprehensive IAEA's Nuclear Liability Regime, in Particular for Nuclear Damage caused during the Transport of Radioactive Material", at 32. Vicinity states must accept this, in exchange for including the concept of "rumor damage" in modern liability regimes, and determined in accordance with their national laws.

67. See Section IV(B)(2) of this article, and note 48 *supra*.

submissions to the Conference.[68] The *Exposé des Motifs* to the Paris Convention makes clear that the drafters' considered the propriety of installation states exercising jurisdiction in these instances. The drafters were "unable to find another solution which would enable the victims to refer to their national court and which would at the same time secure unity of jurisdiction".[69] Provisions exists, however, in the original and revised conventions (including the CSC) that allow Contracting Parties to determine by agreement which courts shall have jurisdiction when jurisdiction might lie with more than one party. Notwithstanding the commentary in the *Exposé des Motifs* to the Paris Convention, perhaps incidents on the high seas could be addressed in an analogous manner. To the extent that a nuclear incident occurs on the high seas with damage resulting in the EEZ of only one Contracting Party, jurisdiction could reside with the courts of this Party, and not the installation state.[70] Likewise, to the extent that a nuclear incident occurs on the high seas with damage resulting in the EEZ of multiple Contracting Parties, the installation state and these Parties could decide by agreement which courts shall have jurisdiction.[71] Such amendments would, of course, constitute an exception to the unity of jurisdiction principle and potentially jeopardise timely compensation for victims of nuclear damage.

5. Treatment of non-contracting Parties

One additional argument made by vicinity states in their submissions to the Conference is that the benefits of membership in a liability regime do not necessarily extend to non-parties.[72] This may be true, but the answer is simple: join the conventions. The costs for non-nuclear power generating states, including small island states, to join Revised Vienna or the CSC are small, but the benefits of legal certainty, guaranteed levels of compensation and a predictable procedural legal process for receiving compensation are enormous. The majority of vicinity states are non-nuclear power generating states; the cost of joining a convention would be negligible at best.[73] With the exception of an intentional act for which an operator could exercise a right of recourse, vicinity states would have no financial obligations under these conventions. That said, it is entirely possible that ideological convictions will ultimately prevent non-nuclear power generating states from joining efforts to create a worldwide nuclear liability system.[74] Assuming this is the case, the Vienna Convention on the Law of

68. See notes 30-31 *supra*, and accompanying text.

69. See *Exposé des Motifs* to the Paris Convention, at paragraph 55. See also Andrea Gioia, "The New Provisions in the 1997 Vienna Protocol and in the 1997 Convention on Supplementary Compensation", *Nuclear Law Bulletin* No. 63 at p. 28.

70. This concept is similar, but not identical to Revised Paris Article 13(f)(i).

71. CSC Article XIII(3)-(4), and Revised Vienna Article XI(2)-(3) would have to be revised under these circumstances. Jurisdiction over accidents on the high seas with no damage resulting in the EEZ of a Contracting Party would still reside with the installation state.

72. For example, the government of Ireland notes that access to supplementary compensation funds under the second and third tiers of the CSC might be excluded, depending upon the obligations of a State under the Vienna or Paris regimes. See F. Maughan and E. Carroll, "Liability in the Transport of Radioactive Material", at p. 9. The government of New Zealand also notes that levels of compensation under Revised Vienna will be limited if an installation state excludes claims for damage in a non-party. See J. Ludbrook, "Liability in the Transport of Nuclear Material – Existing Liability Regimes and Gaps in their Coverage", at p. 17.

73. In particular, Ireland, New Zealand and Peru are non-nuclear power generating states, and therefore would have no nuclear installations to declare and no claims for compensation to satisfy or indemnify in the event of a nuclear incident. For a listing of nuclear power generating states, and the number of reactors operating in each state, see *Nuclear News Magazine*, A Publication of the American Nuclear Society (March 2004) at p. 41-67.

74. See Greenpeace discussion, *supra* note 35.

Treaties could provide a solution whereby non-contracting states become third party beneficiaries of the regime provided that such countries adopt national laws that fully and faithfully implement the principles embodied in the conventions.[75] Such states would appear bound to follow the requirements of the conventions, *pacta sunt servanda* under either scenario.

V. Final Thoughts

Vicinity states that advocate a new instrument to address liability during the transport of nuclear materials must recognise that the negotiation and entry into force of such a convention would take a considerable amount of time, assuming *arguendo* that nuclear power generating states are willing to consider the creation of such a regime. The Paris Convention was adopted under NEA auspices in 1960, but the regime did not enter into force until 1968. The Vienna Convention was adopted under IAEA auspices in 1963; the regime entered into force in 1977. Revised Vienna and the CSC were revised during 17 sessions over a seven-year period, starting in 1990. Revised Vienna has only recently entered into force, and the CSC remains merely an existing instrument adopted under IAEA auspices. Further delay in creating an international nuclear liability system to compensate victims of nuclear damage is contrary to the interests of nuclear and non-nuclear power generating states alike.

The way forward is for all nuclear power generating states to lead by example through ratification of the modern nuclear liability instruments, and where applicable withdrawing forthwith from the Vienna and Paris regimes.[76] Modern civil nuclear liability conventions assure that significantly greater resources will be available from both domestic and international sources to compensate potential victims and provide for restoration of the environment in the territory of Parties in the event of a nuclear incident.[77] Adherence to the same regimes, or, alternatively, linkages through binding treaty relations would form the basis for an international civil nuclear liability system

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75. See Vienna Convention on the Law of Treaties (VCLT), Article 36, www.un.org/law/ilc/texts/treaties.htm (accessed 26 March 2004). Article 36 states in pertinent part, "(1) A right arises for a third State from a provision of a treaty if the parties to the treaty intend the provision to accord that right either to the third State, or to a group of States to which it belongs, or to all States, and the third State assents thereto. (2) A State exercising a right in accordance with paragraph 1 shall comply with the conditions for its exercise provided in the treaty or established in conformity with the treaty".

76. As Andrea Gioia points out, VCLT Article 30 addresses the "application of successive treaties relating to the same subject matter". Paragraph 3 states that "when all parties to the earlier treaty are parties also to the later treaty but the earlier treaty is not terminated or suspended . . . the earlier treaty applies only to the extent that its provisions are incompatible with those of the later treaty". Likewise, under Article 30, paragraph 4(a), the same rule also applies "when the parties to the later treaty do not include all the parties to the earlier one as between States, which are parties to both treaties". The primary concern here is that the new rules in respect of jurisdiction and the EEZ might not apply if nuclear and non-nuclear power generating states do not join the modern regimes, and where applicable withdraw from the older regimes. See Andrea Gioia, "The New Provisions in the 1997 Vienna Protocol and in the 1997 Convention on Supplementary Compensation", *Nuclear Law Bulletin* No. 63 at p. 27.

77. For comparison purposes, vicinity states should review the Soviet law on compensating victims of the Chernobyl nuclear accident. The Union of Soviet Socialist Republics (USSR) law is entitled "On Social Protection for Citizens who suffered as a Result of the Chernobyl Catastrophe". Chapter 3, Article 13 generally sets forth the measures of compensation available for victims of the Chernobyl incident. Among other things, victims are entitled to "free manufacture and repair of dentures (with the exception of dentures of precious metals)", a "free passenger car with manual transmission if there are appropriate medical indications", and "provision of foodstuffs in accordance with rational norms of food consumption." See text of Law of the Union of Soviet Socialist Republics (in particular Article 13) on Social Protection for Citizens Who Suffered as a Result of the Chernobyl Catastrophe, Izvestiya (21 May 1991).

to which vicinity states might derive benefit in joining. Treaty relations among and between nuclear and non-nuclear power generating states is best way to protect all relevant interests in the event of a nuclear incident on land or during transport, and promote the safe use of nuclear energy. At the same time, influential vicinity states, such as Ireland, New Zealand and Peru should promote adherence to similarly situated states on the understanding that once the conventions are widely in force, vicinity state concerns will be addressed to the greatest extent possible through amendments to the modern liability conventions.