GREENPEACE

Briefing

Nuclear Shipments and Small Island Developing States (SIDS)

Pacific Pintail Photographed Inside Federated States of Micronesia EEZ – July 2002

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INTRODUCTION

The shipment of nuclear material has been addressed in a number of regional and international fori and is particularly relevant to Small Island Developing States (SIDS), many of which are exposed to shipments past their coastlines. This fact sheet describes recent developments and makes some recommendations for SIDS to consider.

NUCLEAR SHIPMENTS IN THE BPOA

The Bahamas Programme of Action (BPoA) adopted in 1994 sets forth specific actions and measures at the national, regional, and international levels in support of the sustainable development of the small island developing States (SIDS). States noted that "[t]here is also growing concern about the transboundary movement of toxic and hazardous waste…[t]he passage of ships carrying toxic and hazardous wastes chemicals and radioactive materials is of international concern and of priority concern to small island developing States. There is a need to develop and enhance the emergency response capacities necessary to protect marine and coastal environments from accidents and incidents relating to marine transport. Emergency response capabilities and any damage compensation arrangements must not impose an unreasonable burden on small island developing states."[1]

On a regional basis, the Programme of Action included commitments to "[e]stablish regional mechanisms, including conventions where appropriate, to protect the oceans, seas and coastal areas from ship-generated wastes, oil spills and transboundary movement of toxic and hazardous waste, consistent with international law."[2] On an international basis, the programme called for international action to "[a]ccept the right of small island developing States to regulate, restrict and/or ban the importation of products containing non-biodegradable and/or hazardous substances and to prohibit the transboundary movement of hazardous and radioactive wastes and materials within their jurisdiction, consistent with international law."[3] Five years later, little progress was made on nuclear transports in BPOA+5.[4] The 10 year review of the Bahamas Programme of Action (BPoA+10) is to take place in Mauritius in late August 2004. The purpose of the International Meeting is to discuss recommendations for further and successful implementation of the BPoA. The meeting will be followed by the SIDS Preparatory Meeting for BPoA+10 at the UN in New York on 14-16 April.

Regional preparatory meetings have already taken place which confirm that problems still continue.[5] The Pacific report mentioned that "[a] growing concern was the security and environmental implications of the disposal and transport of radioactive materials in and through the region and the lack of liability and compensation"[6] and the Caribbean meeting resolved that "[t]he meeting expressed concern at the unresolved issue regarding the transhipment of nuclear waste through the Caribbean Sea, and the threat posed by such shipments. The meeting reaffirmed that the most acceptable solution is the cessation of nuclear waste shipments through the region's waters."[7]

RECENT AND UPCOMING NUCLEAR TRANSPORTS

The Fret Moselle

In October 2003, the Antigua-flagged *Fret Moselle* carrying hazardous radioactive waste from Lucas Heights in Sydney, departed Port Botany in Australia for Cherbourg, France for reprocessing and temporary storage.[8] It passed by the Cape of Good Hope.[9]

Recently, the US Department of Energy has applied for a licence to ship weapons grade plutonium to France onboard PNTL vessels, giving rise to security concerns as well as concerns about the safety of such transports.[10]

The San Onofre Nuclear Reactor

Most recently, the US Department of Transport in December 2003 granted permission to Southern California Edison (Edison) to ship a 668 tonne Reactor Pressure Vessel Package Transport System (RPVPTS) from the San Onofre Nuclear Generating Station Unit 1 (SONGS) in California to the Chem-Nuclear Systems low level radioactive waste burial site at Barnwell, South Carolina. It had recently changed its mind and decided to ship it by barge around the Cape of Good Hope rather than overland, reportedly due to cost and liability considerations,[11] and so had to apply for a modification to its permit, which it obtained. The journey around Central and South America and through the Caribbean is expected to take some three months. The proposed route will take it 200 miles from shore, outside EEZs, except for the Cape Horn passage.[12]

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Edison stated that "[i]t is not practical to attempt salvage on the package in water depths in excess of 300 ft, therefore most of the route will be in water depths where salvage is not considered."[13] In response to a question which observed that the proposal to salvage only in water up to 300 feet appears insufficient, Edison stated that "each potential salvage location presents unique challenges

and would require specific planning. Therefore it is unrealistic to plan for salvage operations for every mile of the trip or to pre-stage each unique salvage asset at each location." [14]

There are at least three cases in which the barge may go to port:

(1) In case of emergency weather, the transport will seek the closest safe harbour and secure the barge; [15] (2) in the case of barge emergency it is proposed to perform necessary repairs on the barge and then resume the transport[16] and (3) in the case of communication emergency it is proposed to seek the closest safe harbour and secure the barge. [17] These proposals however would imply that the coastal State would anticipate the arrival of the barge and its load and make appropriate arrangements. It also presupposes that the nearest harbour would admit the barge. The applicant has stated that the Strait of Magellan will not be used. Edison stated that the transport will pass by the following countries:

Ports the Barge May Enter

Mexico: Mazatlan, Ensenada, Acapulco
El Salvador: Acajutla
Panama: Panama
Ecuador: Guayaquil
Peru: Callao
Chile: Valparaiso, Puerto Montt, Punta Arenas;
Argentina: Ushuaia, Puerto Madryn
Uruguay: Montevideo
Brazil: Rio de Janeiro, Recife, Belem
Guyana: Georgetown
Puerto Rico: San Juan.

United States, Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Columbia, Ecuador, Peru, Chile, Argentina, Uruguay, Brazil, French Guiana, Suriname, Guyana, Venezuela, Trinidad And Tobago, Grenada, Barbados, St Vincent and the Grenadines, St Lucia, Martinique, Dominica, Guadeloupe, Antigua and Barbuda, St Kitt and Nevis, St Marten, Virgin Islands, Puerto Rico, Dominican Republic, Bahamas.

Far from promising cooperation and coordination, Edison stated that "[t]o avoid setting a precedent that several expert sources have recommended against, Edison has not made, nor intends to make, any pre-arrangements with any of the safe harbours."[18] Nevertheless, the US Department of Transportation (DOT) stated that advance notification of coastal states is an important element in preparation for contingencies, and observed that it may be necessary to seek shelter in waters of a coastal state along the transport route. Edison responded that a number of safe harbours had been identified in its September 3 notification, and that it has contracted with a Chilean law firm that specializes in maritime matters for legal support in Chile. The Chilean legal counsel recommended that Edison apply to Chile for passage through the Strait of Magellan (which would reduce the voyage by 5 days), but the US State Department's position was that Edison should not apply for Chilean authorization for the passage since it would set an unfavourable precedent.[19]

Chile has also entered into a Joint Declaration on the Transport of Radioactive Waste with Brazil, Argentina and Uruguay which addresses the transport of radioactive materials through the Strait of Magellan.[20] Argentina stated in its declaration upon its ratification of the Law of the Sea Convention[21] that the Argentine Government considers that the transit by sea of vessels carrying highly radioactive substances must be duly regulated.

Edison stated that the firm has had discussions with the General Directorate of the Maritime Territory and the Merchant Marine of Chile (Directemar) regarding the shipment and the law firm advised that Directemar would not oppose the transit around Cape Horn. It also responded that it has notified the Regional Security Officer at the American embassies in a number of enroute states.

This shipment raises a number of concerns:

- If it is correct that the nuclear reactor has not been sent via United States territory and/or kept within the United States instead of sending it by sea for liability and cost reasons, then this exposes major shortcomings in the international liability regime for ocean transports;

- If the barge and its nuclear cargo may enter enroute ports, coastal States should demand consultation and cooperation to ensure adequate preparation of emergency response and contingency plans. International law requires consultation and notification and the IAEA demands compliance with its Safety Guide on Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material. Coastal states which are not aware of the shipment will be unable to keep the barge under surveillance and make prior arrangements.

> "[t]o avoid setting a precedent that several expert sources have recommended against, Edison has not made, nor intends to make, any pre-arrangements with any of the safe harbours." – *Southern California Edison*

- It is not clear that shippers have complied with all applicable IAEA regulations including the 1996 IAEA Regulations for the Safe Transportation of Radioactive Materials;
- There is no intention to, and it is stated not to be practicable to, salvage the reactor if it sinks beneath 300 feet;
- No environmental impact assessment has been carried out along the route. There have been no contingency plans for responding to pollution incidents in the marine environment.;
- It is not clear whether the barge has permission to navigate through the Chilean EEZ. It seems likely that it has not;
- There are no liability arrangements in place that will ensure coastal states receive full compensation in case of all incidents, including one that does not actually result in radiation but that causes loss e.g. in tourism or fisheries.

En route Caribbean states include:

> *Trinidad and Tobago, Grenada, Barbados, St Vincent and the Grenadines, St Lucia, Martinique, Dominica, Guadeloupe, Antigua and Barbuda, St Kitt and Nevis, St Marten, Virgin Islands, Puerto Rico, Dominican Republic, Bahamas.*

Already an Argentine judge has reportedly issued an order prohibiting the shipment from entering Argentinian waters.[22]

MOX Shipments

In terms of future plutonium and Mixed Oxide Fuel (MOX) shipments, shipments are primarily expected from Japan's plutonium program. Currently, around 33,000kg of plutonium belonging to Japanese nuclear utilities is in storage in France and the UK. The ultimate aim of the Government in Tokyo is to have all of this material fabricated into MOX fuel and shipped to Japan. However, the many problems that Japan's nuclear program has confronted in the last ten years, including major opposition from en-route countries, has led to a failure to proceed with the use of MOX. In four transports of plutonium and MOX fuel since 1985, not one gram of plutonium has been loaded into a Japanese reactor. There was significant opposition to the BNFL return MOX shipment in 2002 from en route States.

Currently there understood to be no commercial contracts in place for the fabrication of MOX fuel between Japan and BNFL and Cogema. In the case of the UK MOX manufacturer, there are no immediate prospects of any contracts with Japan, due to the fall-out from the 1999 MOX fuel scandal, and BNFL's inability to produce MOX fuel at their new billion dollar MOX plant, SMP. In the case of Cogema there is a risk that new MOX contracts will be signed between Kansai Electric before March 2004. This would lead to a MOX shipment within the next 2-3 years.

A more immediate prospect is a shipment of weapons-grade plutonium which is would leave the east coast of the United States for the French port of Cherbourg in July-August 2004. The plutonium is to be incorporated into MOX fuel at Cogema facilities during the second half of this year, and shipped back to the United States late 2004 or early 2005. The shipment will carry around 150 kilograms of plutonium removed from dismantled nuclear warheads. As with the Japanese MOX shipments, the weapons-grade plutonium and fresh MOX fuel will be transported by Pacific Nuclear Transport Limited vessels, the Pacific Pintail and Pacific Teal. No additional security beyond the limited armed guards and cannon on the transport ships is planned to be put in place by the US Department of Energy, despite a promise to protect this material the same as if it were nuclear weapons ("Stored Weapons Standard"). Greenpeace International has requested a public hearing before the U.S. Nuclear Regulatory Commission on the export license requested by the Department of Energy.[23]

High Level Waste Shipments

High level waste shipments are on-going. A shipment of vitrified high-level waste departed Cherbourg, France on Monday, January 19 bound for storage in Japan, where it is expected in early March.[24] The shipment is expected to transit via the Caribbean Sea and Panama Canal. This waste is among the most radioactive material ever produced - the glass blocks are in fact so radioactive that a person standing within one metre of an unshielded block would receive a lethal dose of radiation in less than one minute. If released into the environment, the waste would be a deadly environmental pollutant for hundreds of thousands of years. The nuclear waste shipment is ultimately bound for the Japanese port of Mutsu Ogawara. The nuclear waste will then be transported to the controversial nuclear waste storage facility at the Rokkasho Mura nuclear site where Japan is building its own plutonium reprocessing facility.

In addition to the French shipment to Japan, the first transport of UK vitrified high-level waste from the reprocessing of Japanese spent fuel at Sellafield is expected to take place during 2004.

SOME REGIONAL DEVELOPMENTS IN NUCLEAR TRANSPORTS

Caribbean Statements of Concern

Regional concern from Caribbean and Pacific States has been notable. CARICOM Heads of Government, meeting in Port-of-Spain for their Twentieth regular session from 4-7 July 1999, [25] discussed reports that two British flagged ships carrying nearly 450 kilograms of plutonium were soon to leave Ports in Britain and France for Japan via routes traversing the Caribbean Sea. In a strongly worded statement, the Heads of Government stated their outrage at the "callous and contemptuous disregard of their appeals by the governments of France, the United Kingdom and Japan to desist from this dangerous misuse of the Caribbean Sea. They also bitterly regretted that their appeal to the United States to use its authority as the nation in control of the passage of vessels through the Panama Canal to prohibit such shipments, fell on deaf ears. In light of these situations Heads of Government have vowed to take all necessary steps to protect their people and the fragile ecology of the Caribbean Sea from this highly dangerous threat to which they are now habitually exposed, as well as to safeguard the livelihood of the millions of people who depend on that unique resource for their well-being."

The Association of Caribbean States (ACS) in the Declaration of Santo Domingo in 1999 stated that[26] "[w]e consider the Caribbean Sea an invaluable asset and agree to give special priority to its preservation. We therefore deplore its ecological degradation and reject its continuous use for the transport of nuclear and toxic waste that may in any way cause a greater degradation of the Caribbean Sea." This followed the ACS 1996 Declaration on the Transport of Nuclear Wastes[27] and was followed by the OAS Kingston Declaration on the Security of Small Island States in January

2003.[28] That Declaration declared that "the small island states and other coastal states of the Hemisphere are deeply concerned about the possible threats posed to their economic and maritime environment should a ship transporting hazardous waste, in particular nuclear waste, have an accident or be the target of a terrorist attack while transiting the Caribbean Sea". In October 2003 the Declaration on Security in the Americas noted that "[t]he security of states of the Hemisphere is affected by the potential for damage to arise in the event of an accident or incident during the maritime transport of potentially hazardous materials, including petroleum and radioactive materials and toxic waste; and the possibility of access, possession, and use of weapons of mass destruction and their means of delivery by terrorists, and that it is the responsibility of the specialized fora of the OAS, and inter-American and international fora to develop cooperation mechanisms to address these new threats, concerns, and other challenges, based on applicable instruments and mechanisms.[29]

Pacific Statements of Concern

The Pacific Islands Forum in its 2003 Communiqué[30] reiterated the leaders' continuing concerns over the shipment of radioactive material through the region. This followed the 2002 Communiqué[31] in which the Leaders welcomed the growing recognition in international fori such as the ACP Summit in Nadi, in the IAEA and at the NPT PrepCom, of the concerns of SIDS and other coastal States regarding the shipment of radioactive material and encouraged Forum members to continue to constructively and vigorously pursue their concerns in appropriate fori. In particular, they called for:

- acceptance by shipping States of full responsibility and liability for compensation for any damage which may result directly or indirectly from transport of radioactive materials through the region,
- the assurance by those States that the highest possible safety standards are met; and
- the appropriate advanced notification and consultations by shipping States with States in the region through which the shipments pass, taking into account security considerations and the legitimate interests of Forum member countries.

The 2002 ACP Nadi Declaration[32] declared that ACP States "[e]xpress our strong objection to the transport of nuclear and other hazardous materials through the waters around ACP States. We call for the immediate cessation of such practice in order to, inter alia, prevent the occurrence of accidents that could seriously threaten their sustainable development and the health of our peoples."

WSSD

Paragraph 35 of the World Summit on Sustainable Development (WSSD) Johannesburg Plan of Implementation[33] states that:

> Governments, taking into account their national circumstances, are encouraged, recalling paragraph 8 of resolution GC (44)/RES/17 of the General Conference of the International Atomic Energy Agency, and taking into account the very serious potential for environment and human health impacts of radioactive wastes, to make efforts to examine and further improve measures and internationally agreed regulations regarding safety, while stressing the importance of having effective liability mechanisms in place, relevant to international maritime transportation and other transboundary movement of radioactive material, radioactive waste and spent fuel, including, inter alia, arrangements for prior notification and consultations done in accordance with relevant international instruments.

It is clear then that prior notification and consultation, and liability are ongoing issues of concern with these shipments.

IAEA

The International Atomic Energy Agency (IAEA) International Conference on the Safety of Transport of Radioactive Material in July 2003[34] acknowledged considerable uncertainty and debate about the implementation of a comprehensive liability regime for nuclear transports, but resolved only to prepare an explanatory text of existing arrangements. There was agreement that the provision by shipping States of appropriate and timely information to en route States was desirable, though shipping States insisted on freedom of navigation. The TRANSAS-3 report on UK transports was discussed, although Greenpeace has pointed out that the report suggested that the UK Government should continue multilateral liaison with neighbouring States, stating that "such liaison agreements could prove beneficial in the event of an emergency in waters surrounding the UK involving ships carrying radioactive material."[35] There was no such suggestion about non-neighbouring, en-route states and no reason given for the omission. Greenpeace has stated that the recommendation has equal validity for all coastal States and reinforces the need for proper consultation.

Nuclear shipments were later discussed at the General Conference GC47 in September 2003 and a resolution was passed[36] in which the General Conference

> 5. "Welcomes the practice of some shipping States and operators of providing in a timely manner information and responses to relevant Coastal States in advance of shipments for the purposes of addressing concerns regarding safety and security, including emergency preparedness, and invites others to do so in order to improve mutual understanding and confidence regarding shipments of radioactive materials. The information and responses provided should in no case be contradictory to the measures of physical protection and safety."

The IAEA is to develop an Action Plan by March 2004 and there is to be appointed a group of experts to explore and advise on issues related to nuclear liability. However it is clear from the July Conference that no substantive developments on liability can be expected from shipping States.

DEVELOPMENTS IN INTERNATIONAL LAW

The obligation to protect the marine environment, together with the duty of consultation and preparation of environmental impact assessment, has emerged as a countervailing force against the freedom of navigation, which has throughout its development been set against other rights and uses of the ocean.[37] Given the failure of international bodies to comprehensively address the issue of nuclear transports, the question arises as to what a coastal State can do to protect its population, its economic and environmental security and its coastline. A substantial number of important concerned nations, including Chile, have themselves banned the shipments from their EEZs.[38]

States have a general obligation to protect and preserve the marine environment.[39] Rights of navigation in the EEZ are qualified 'subject to the relevant provisions of this Convention'[40] and States are directed to 'have due regard to the rights and duties of the coastal State' and to 'comply with the laws and regulations adopted by the coastal State in accordance with the provisions of this Convention and other rules of international law in so far as they are not incompatible with this Part.'[41] Coastal States have jurisdiction as provided for in the relevant provisions of the Convention with regard to the protection and preservation of the marine environment.[42] States are to take, individually or jointly as appropriate, all measures consistent with the Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source.[43] Specifically, such measures shall include those necessary to protect and preserve rare or fragile

> The duty to cooperate is a fundamental principle in the prevention of pollution of the marine environment. – *International Tribunal for the Law of the Sea*

ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.[44]

The law relating to the protection of the environment in general, and the precautionary principle in particular, has developed considerably since the conclusion of the Law of the Sea Convention in 1982. Agenda 21, for instance, provides that in exercising their jurisdiction to protect and preserve the marine environment, states may and should apply the precautionary principle and in particular to apply preventive, precautionary and anticipatory approaches so as to avoid degradation of the marine environment, as well as to reduce the risk of long-term or irreversible adverse effects upon it.[45] The cumulative effect of coastal state actions and protests is to develop international law relating to shipments of radioactive wastes.[46]

The Law of the Sea Convention recognizes that there may be cases where the Convention does not attribute rights or jurisdiction to the coastal State or to other States within the exclusive economic zone, and provides accordingly that where a conflict arises between the interests of the coastal State and any other State or States, the conflict should be resolved on the basis of equity and in the light of all the relevant circumstances, taking into account the respective importance of the interests involved to the parties as well as to the international community as a whole.[47]

Thus measured and proportionate action by a coastal State to protect its coastline from the threat to its marine environment posed by ultrahazardous nuclear shipments can be justified under developing international law. As one commentator has noted, [48]

"As a number of states now argue, the disproportionate and extreme nature of the threat from the transport of such hazardous cargo and the incorporation of environmental principles in international law, exemplified in the precautionary principle advocated at UNCED, necessitate a more dynamic approach to the relationship between navigation and environmental protection in the law of the sea, one with increased scope for coastal state protection and intervention."

Consistently with this, Brazil, Argentina, Chile and Uruguay issued a joint declaration in 1997 about radioactive waste transport.[49] They declared their serious concern with the risks associated with the transit of radioactive waste shipments in the region, and their intention to adopt, in waters under their jurisdiction, the measures recognized in international law, in defence of the health of their populations and marine environment. They also declared the need to reinforce, in international bodies, the regulation of transport of nuclear waste and spent nuclear fuel, that must contemplate:

- warranty about no contamination of marine environment;
- information about the routes;
- the obligation to inform coastal countries about the emergency plans in case of accidents;
- the commitment to rescue the radioactive waste in case of accidents with the ship; and
- and payment of compensation in case of injury and damages.

Notification and Consultation Under International Law

In the MOX case (United Kingdom v Ireland) before the international Tribunal for the Law of the Sea (ITLOS),[50] ITLOS stated in its Order of 3 December 2001 stated that

> "82. *Considering,* however, ***that the duty to cooperate is a fundamental principle in the prevention of pollution of the marine environment under Part XII of the Convention and general international law*** and that rights arise therefrom which the Tribunal may consider appropriate to preserve under article 290 of the Convention." [emphasis added]

Bans on Single Hulled Tankers Following the Prestige Spill

Since the sinking of the oil tanker *Prestige* with over 70,000 tonnes of heavy oil on 19 November 2002, a number of States have taken measures to protect their coastlines and the marine environment that highlight options available to coastal States which countervail the traditional freedom of navigation espoused by shipping States. Entry to the Moroccan exclusive zone for single hull oil tankers more then 15 years old, carrying heavy fuel, tar, asphaltic bitumen or heavy crude oil is subject to previous notification. Spain issued a regulation[51] banning single-hulled tankers carrying heavy fuel oil, tar, asphaltic bitumen or heavy crude from entering Spanish ports, terminals or anchorages with effect from January 1, 2003. The E.U. amended Regulation 417/2002 in Regulation 1726/2003[52] to bring in a ban on single-hulled tankers, which came into force on 21 October 2003. The ban applies to single hulled oil tankers over 5000 tonnes entering or leaving a port or offshore terminal or anchoring in an area under the jurisdiction of a Member State, irrespective of their flag, or flying the flag of a Member State, carrying heavy grades of fuel. Since February 18, 2003 Israel has imposed age limits on tankers entering its waters. Tankers of 20 years and above (in the Gulf of Eilat) and of 25 years or more (in the Mediterranean) that carry 'persistent oils' have been banned from Israeli territorial waters.

Chilean Law

In 2002 Chilean legislation[53] was passed which requires authorization for entry or transit in the national territory, exclusive economic zone, surrounding sea and national airspace of nuclear substances or radioactive materials.[54] Environmental considerations are to be taken into account[55] and evidence of the dates on which the transport will be carried out, the routes and areas to be used, the characteristics of the load, and safety and contingency measures is required.[56] Liability is imposed[57] whereby operators must put up insurance or guarantees to a maximum[58] of US $75 million.[59] The operator is responsible for unforeseeable circumstances or force majeure.[60]

The Chilean Nuclear Energy Commission (Comisión Chilena de Energía Nuclear) is in charge of receiving and approving requests for authorization.

CONCLUSION

The BPoA+10 should reflect international developments, including in particular prior notification and consultation, including the conduct of environmental impact assessments, assurance of liability and compensation and adequate security of shipments. These issues have been articulated in the Caribbean, American and Pacific contexts as well as in international fori. A coordinated response of Small Island Developing States is needed to ensure that these concerns are addressed.

Already Pacific Island States are in discussions with shipping States on liability and other issues.A regional as well as coastal response is essential. United diplomatic, political and legal initiatives by concerned States are essential to formulate an effective response to nuclear shipments. In addition, investigation and implementation of initiatives such as the Chilean legislation, obtaining assurances that shipments will not transit EEZs or territorial waters and demanding cooperation, consultation, environmental impact assessments, prior notification, emergency response planning, effective liability regimes and assurances of compensation are all measures that SIDS can and should take to protect their coastlines.

Greenpeace has proposed a Charter of Rights which would stand as a declaration of coastal States' position and interest in protecting the environment and their own waters and coastline, and would be an important step towards the development and progression of international law relating to the shipment of ultrahazardous nuclear materials.

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[1] Report of the Global Conference on the Sustainable Development of Small Island Developing States, Bridgetown, Barbados, 25 April-6 May 1994, UN Doc. A/CONF.167/9, at http://www.sidsnet.org/docshare/other/BPOA.pdf ('BPOA'), III. Management of Wastes, §23.

[2] BPOA, III, Management of Wastes, B. Regional Action, para. (iv)

[3] BPOA, III, Management of Wastes, C. International Action, para. (iii)

[4] Special Session of the United Nations General Assembly on SIDS New York, 27-28 September 1999, Special Reports to the 7th Commission on Sustainable Development, (BPOA+5), at http://www.un.org/esa/sustdev/sids/sidsspec.htm

[5] http://www.sidsnet.org/Mauritius2004/Regional_Meetings/Pacific.html

[6]Report of the Pacific regional preparatory meeting to review the programme of action for the sustainable development of small island developing States, at http://www.sidsnet.org/docshare/other/20030813142441_Apia_Meeting_Final_Report_8_August_2003.pdf

[7] Report of the Caribbean regional preparatory meeting to review the programme of action for the sustainable development of small island developing States, at http://www.sidsnet.org/docshare/other/20031104134625_final_report_of_the_caribbean_regional_meeting_on_sids.doc

[8] See Greenpeace exposes secret nuclear shipment, at http://www.greenpeace.org.au/nuclear/.

[9] See http://www.nuclearfreeflotilla.org/031125.htm.

[10] See Tim Deere-Jones, "A review of the marine transport of radioactive materials with particular reference to the activities of the Pacific Nuclear Transport (PNTL) Fleet", at http://www.greenpeace.org/international_en/multimedia/download/1/10009/0/TDJmarine_transports.pdf.

[11] "San Onofre equipment to travel 11,000 miles", San Diego Union Tribune, November 9, 2003.

[12] Southern California Edison (SCE) - Additional Information re: Modification Request to Exemption (DOT-E 12871), 9 September 2003, page 6, 8, at http://dmses.dot.gov/docimages/pdf88/257527_web.pdf.

[13] September 5 2003 further information, page 720.

[14] Southern California Edison Letter to Mr Robert McGuire of Department of Transportation, 23 October 2003, page 20, at http://dmses.dot.gov/docimages/pdf88/257828_web.pdf

[15] Attachment 4 to modification of exemption. Para 9.1.4.1 of plan. At http://dms.dot.gov/search/document.cfm?documentid=257526&docketid=11072.

[16] Attachment 4 to modification of exemption. Para 9.1.7.1 of plan.

[17] Attachment 4 to modification of exemption. Para 9.1.5.1 of plan.

[18] Further information September 5 2003, page 8.

[19] Further information September 5 2003, page 8.

[20] Joint Declaration of Brazil, Argentina, Chile and Uruguay about Radioactive Waste Transport, 17 January 1997. Copy at http://www.nci.org/c/cs-arg.htm. See also Edison further information September 5 2003, page 8.

[21] http://www.un.org/Depts/los/los_decl.htm#Argentina

[22] Federal Judge Jorge Pflejer decided in favour of a suit by the state government in Chubut, southern Argentina, according to an AFP story, January 14 2004. At http://www.channelnewsasia.com/stories/afp_world/view/66222/1/.html. It is unclear whether this order includes the Argentinean EEZ.

[23] See Dianne Curran, "Greenpeace intervenes against DOE's plans to ship weapons grade plutonium to France: Request for hearing on export liscence application" (November 2003) at http://www.greenpeace.org/international_en/multimedia/download/1/364453/0/CurranonLTAPu1103.PDF and John Large, "Greenpeace intervenes against DOE's plans to ship weapons grade plutonium to France: Comments and Opinion on the Applicability as these Apply to the TransAtlantic Shipment, European Waters and France," at http://www.greenpeace.org/international_en/multimedia/download/1/364454/0/LargeonLTAPu1103.PDF.

[24] See "Ship Carrying Nuclear Waste Leaves France for Japan," *Japan Today*, 21 January, at http://www.japantoday.com/e/?content=news&cat=4&id=285614.

[25] Press release 67/1999, 17 July 1999, at http://www.caricom.org/pressreleases/pres67_99.htm

[26] Second Summit of Heads of State and/or Government of the States, Countries and Territories of the Association of Caribbean States, Santo Domingo de Guzmán, Dominican Republic, 16-17 April 1999 (Declaration of Santo Domingo), at http://www.acs-aec.org/Summit/English/Declaration_eng.htm.

[27] Agreement No. 19/96, Declaration of the ACS on the Transportation of Nuclear Wastes, Havana, 13 December 1996, at http://www.acs-aec.org/Legal/1996/agrmt19.htm.

[28] OAS, Second High-Level Meeting on the Special Security Concerns of Small Island States, January 8-10, 2003, Kingstown, St. Vincent and the Grenadines, OEA/Ser.K/XXIX, SEPEIN-II/doc.8/02 rev. 2 corr. 1, 15 January 2003, at http://www.summit-americas.org/Quebec-hem-security/Kingston%20Declaration-eng.doc.

[29] Declaration on Security in the Americas, OEA/Ser.K/XXXVIII, CES/DEC.1/03 rev. 1, 28 October 2003 at http://www.oas.org/csh/ces/documentos/ce00339e04.doc

[30] Thirty-Fourth Pacific Islands Forum, Auckland, 14-16 August 2003, at http://www.forumsec.org.fj/docs/Communique/2003%20Communique.pdf para. 34.

[31] Thirty-Fourth Pacific Islands Forum, Suva, , 15-17 August 2002, at http://www.forumsec.org.fj/docs/Communique/2002%20Communique.pdf, para. 33-34.

[32] African, Caribbean and Pacific Group of States, Nadi Declaration, Nadi, 19 July 2003, ACP/28/029/02, at http://www.acpsec.org/fiji/en/nadi-declaration-en.pdf

[33] Report of the World Summit on Sustainable Development, Johannesburg, South Africa, Annex, Plan of Implementation, A/Conf.199/20, at http://daccess-ods.un.org/access.nsf/Get?Open&DS=A/CONF.199/20&Lang=E

[34] International Conference on the Safety of Transport of Radioactive Material, 7-11 July 2003, Vienna, Austria, Summary and Findings of the Conference President, at http://www-rasanet.iaea.org/downloads/meetings/transport-conf-summary-and-Findings-final.pdf.

[35] *Appraisal for the United Kingdom of the Safety of the Transport of Radioactive Material Appraisal for the United Kingdom of the Safety of the Transport of Radioactive Material*, September 2002.

[36] IAEA Resolution 7 (GC47/RES/7 Sept 2003 at http://www.iaea.org/About/Policy/GC/GC47/Resolutions/gc47res7.pdf

[37] For a historical perspective see R. P. Anand, "Changing Concepts of Freedom of the Seas: A Historical Perspective", an address to a seminar on freedom for the seas, in J. Van Dyke, D. Zaelke and G. Hewison, *Freedom for the Seas in the 21st Century: Ocean Governance and Environmental Harmony* (1993), 72. Hersch Lauterpacht in 1950 emphasized that the freedom of the navigation must be viewed against the reasonable requirements of economic life and scientific progress. H. Lauterpacht, "Sovereignty Over Submarine Areas", (1950) 27 *BYIL* 376. See also J. Van Dyke, "Sea Shipment of Japanese Plutonium under International Law", 24 *Ocean Devt. & Int'l Law* 399-430, B. Kwiatkowska and A. Soons, "Plutonium Shipments – a Supplement," 25 *Ocean Devt. & Int'l. Law* 419-429 and J. Wonham, C.M. Davies, V.G. Asimakopoulos and B.S. Tselentis, "Marine transportation of irradiated nuclear fuel, plutonium and radioactive wastes: the continuing debate on regulatory measures," 24 *Marine Policy* 287-299 (2000).

[38] Including Brazil, Chile and Argentina in 1995, Portugal in 1997 and Pacific states such as Nauru and a protest from the Solomon Islands in 1992.

[39] Law of the Sea Convention Article 192

[40] Law of the Sea Convention Article 58(1)

[41] Law of the Sea Convention Article 58(3)

[42] Law of the Sea Convention Article 56(1)(b)(iii)

[43] Law of the Sea Convention Article 194(1)

[44] Law of the Sea Convention Article 194(4)

[45] Agenda 21, Chapter 17, 17.22.

[46] This development parallels concerns surrounding the Basel Convention. Egypt, for instance, declared that "prior notification must be given of the movement of any hazardous wastes through areas under its national jurisdiction." Report of the 3rd COP, U.N. Doc. UNEP/CHW.3/34 (17 October 1995). Nigeria, in s. 1(2) of its 1988 Act and the Philippines (s 13(d) of its 1990 act) prohibit the transit of ships carrying hazardous cargoes through their EEZ. E.J. Molenaar, *Coastal State Jurisdiction Over Vessel Source Pollution* (1998).

[47] Law of the Sea Convention Article 59

[48] Robert Nadelson, Legal Consultant, Department of Economic and Social Affairs, United Nations, in "After Mox: the Contemporary Shipment of Radioactive Substances in the Law of the Sea," 15 *International Journal of Marine and Coastal Law*, 193-244, 221 – 222.

[49] Joint Declaration of Brazil, Argentina, Chile and Uruguay about Radioactive Waste Transport, 17 January 1997. Copy at http://www.nci.org/c/cs-arg.htm.

[50] Ireland v. United Kingdom ("MOX Plant Case Decision No. 3") Order of 3 December 2001 at http://www.pca-cpa.org/PDF/MOX%20Order%20no3.pdf and the proceedings at http://www.pca-cpa.org/ENGLISH/RPC/ .

[51] Royal Decree 9/2002 of December 13, 2002. The regulation was influenced by EC Regulation 417/2002 of February 18, 2002, on the accelerated phasing-in of double hulls, or equivalent design requirements for single-hull tankers, but the single hulled ban was not included in the EC Regulation. Text at http://www.intertanko.com/communications/issue.asp?topic_id=319.

[52] Regulation (EC) No 1726/2003 Regulation (EC) No 1726/2003 of the European Parliament and of the Council of 22 July 2003 amending Regulation (EC) No 417/2002 on the accelerated phasing-in of double-hull or equivalent design requirements for single-hull oil tankers. OJ L 249 (1 October 2003).

At
http://europa.eu.int/servlet/portail/RenderServlet?search=DocNumber&lg=en&nb_docs=25&domain=Legislation&coll=&in_force=NO&an_doc=2003&nu_doc=1726&type_doc=Regulation

Amending 417/2002 of the European Parliament and of the Council of 18 February 2002 on the accelerated phasing-in of double hull or equivalent design requirements for single hull oil tankers and repealing Council Regulation (EC) No 2978/94. 2002 regulation At
http://europa.eu.int/servlet/portail/RenderServlet?search=DocNumber&lg=en&nb_docs=25&domain=Legislation&coll=&in_force=NO&an_doc=2002&nu_doc=417&type_doc=Regulation.

[53] Law 19825 of 1st October 2002 modifying Chilean Law 18302 of 2nd May 1984

[54] Article 4(a)(i)

[55] Article 4(a)(ii)

[56] Article 4 (a)(ii)

[57] Article 54

[58] Article 62

[59] Article 60

[60] Article 56