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to -- SUSTAINABLE JUSTICE 2002 - - - - - - Implementing International Sustainable Development Law

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The goal of International Sustainable Development Law (ISDL) is to motivate people who live in all parts of the world to implement sustainable development.

The objectives are twofold. The first objective is agreement among the representatives of people from all parts of the world regarding the legislative instruments that are required to achieve sustainable development (SD); and,
the second objective is a system of legislative instruments that supports sustainable development.

This case study relates directly to the two objectives of ISDL in that it focuses on the following:

1. Levels of cooperation within the international community regarding the shared objectives of ISDL; and
2. The ways in which the laws buttress this cooperation.

The geographical focus of this case study is the Caribbean Region, although the legislative instruments and levels of cooperation are global.

The issue addressed, is the transportation of nuclear materials around the globe.

This case study describes the treaty regimes, contract law, and the consultation and complaints procedures for some civil society groups — particularly as they pertain to prior informed consent and safety standards.

The treaty regimes relate directly to the passage of nuclear materials through territorial waters or Exclusive Economic Zones (EEZs), and the safety precautions that are effected.

Basically, the nations of the Caribbean Region are united in their opposition to the passage of nuclear materials through their EEZs under <u>any</u> circumstances; and have thus highlighted their concerns (as well as the concerns of concurring nations) regarding the potential for severe, irreparable, and far-reaching damage to the planet, for tens of thousands of years to come.

These concerns are founded in the nature of plutonium, uranium, and the other radioactive elements such as strontium, caesium and kryptonite, that are involved in the process of nuclear power generation — and that are currently being transported, by sea, around the globe.

Plutonium (Pu—239) which is the primary fuel in some nuclear reactors, and in most nuclear waste, does not occur naturally. It is created artificially by bombarding Uranium (U —238) directly with neutrons, or as a byproduct of the bombardment of Uranium (U—235) when U-235 serves as the primary fuel.

All forms (or isotopes) of plutonium and uranium are extremely dangerous because they are radioactive and explosive. Plutonium is arguably the most dangerous substance in the world.

The radiation from plutonium causes cancer in people exposed. Even one thousandth of one gram of plutonium can lead to cancer. Each molecule of plutonium remains radioactive for a period of almost 50 thousand years.

The other radioactive substances in nuclear materials are also dangerous to people and the environment. They remain radioactive for periods in the order of centuries to thousands of years.

In 1957, the power of nuclear energy (then called atomic energy) was recognized when the requisite 18 states ratified the statute that established the International Atomic Energy Agency (IAEA). The Agency serves as the world s foremost inter-governmental forum for scientific and technical cooperation in the peaceful use of nuclear technology — especially with respect to nuclear safety, radioactive waste management and disposal.

The states which use the most nuclear energy (including Canada, the USA, Japan, France, the UK, and the Russian Federation) as well as the Caribbean states of Cuba and Haiti, all became members of IAEA during the first year (1957). Jamaica joined in 1965. The total membership of the IAEA was 134 (as of April 2002).

On 21 September 1990, the General Conference, by resolution GC(XXXIV)/RES/530, adopted a Code of Practice on the International Transboundary Movement of Radioactive Waste and requested the Director General - inter alia - to take all necessary steps to ensure wide dissemination of the Code of Practice at both the national and the international level.

This code of practice takes the following especially into account:

1. "policies and criteria for radiation protection of populations outside national borders from releases of radioactive substances should not be less stringent than those for the population within the country of release ;

2. Every State should take the appropriate steps necessary to ensure that, subject to the relevant norms of international law, the international transboundary movement of radioactive waste takes place only with the

prior notification and consent of the sending, receiving and transit States in accordance with their respective laws and regulations .

3. The sending State should take the appropriate steps necessary to permit readmission into its territory of any radioactive waste previously transferred from its territory if such transfer is not or cannot be completed in conformity with this Code, unless an alternative safe arrangement can be made ; and,

4. States should co-operate at the bilateral, regional and international levels for the purpose of preventing any international transboundary movement of radioactive waste that is not in conformity with this Code.

The transport of nuclear materials between European states and the UK, and Japan, is subject to this Code.

Such transport originally occurred because Japan produced nuclear waste which included plutonium and uranium. The disposal of this nuclear waste became an unresolved national problem, so the decision was made to transport it via sea to Europe and the UK for re-processing. The re-processed nuclear material was later shipped back to Japan for use as fuel in further generation of nuclear energy.

Reprocessing, however, creates up to 180 times the volume of nuclear waste compared to the volume of waste created in the uranium-powered nuclear reactor. The contracts signed by Japan with the re-processing industries in the UK and France during the 1970s predicted the problem of waste disposal and therefore required that some of the resulting wastes from reprocessing should be taken back to Japan. To date Japan has some 30 tonnes of plutonium that has been separated out of its waste nuclear fuel in European reprocessing plants. A further 15 tonnes will become separated within the next 10 years. To date only 2 tonnes of plutonium have been returned from Europe. None of the plutonium returned has ever been used in a nuclear reactor. Most of it remains stored in Japan. With some 45 tonnes of plutonium to be returned from Europe, up to 80 shipments will be required in the next ten years (Nuclear Free Seas Floatilla, 2002).

The three routes that have been used for the transport of nuclear fuel and nuclear wastes to date, include: (1) the Panama Canal and Caribbean Sea; (2) the South American route via Cape Horn; and, (3) the southern Africa route via the Cape of Good Hope.

Large known shipments of nuclear materials between Britain and France to Japan began in 1992, and may continue annually or bi-annually. The materials so-far shipped were plutonium powder, high-level vitrified nuclear waste (HLW), or mixed plutonium-uranium oxide (MOX) pellets. In 1992, 1.7

tonnes of plutonium powder was shipped from Europe to Japan, and during this same year the Heads of Government of the Caribbean Community (CARICOM) sponsored a resolution at the UN declaring the Caribbean Sea as a nuclear-free zone.

Subsequent, known shipments, using the route through the Caribbean Sea occurred on a British vessel in January 1998, March 1999 and December 1999; carrying a total of 204 containers of HLW encased in glass blocks weighing 1,000 pounds each. A landmark court case relating to the shipment of MOX fuel manufactured by British Nuclear Fuels Limited also began in 1999. The MOX fuel was intended for use in the Takahama reactor (in the Fukui Prefecture), but Japanese citizens groups took the Kansai Electric Power Company (KEPCO) to court over the quality of the MOX fuel. KEPCO was not able at the court session to deny that falsification with quality control data took place but insisted that the fuel was safe. Due to information leaks from within and subsequent pressure from the media and the public, KEPCO ended up admitting that the data was falsified one day before the court's decision was to be given.

The deliberate falsification of crucial safety data in British-made MOX fuel, has exposed safety concerns about using MOX. The falsification related to measurements made of the diameter of the MOX fuel pellets. This data is crucial because any pellets that are too large or too small should be rejected and not put into fuel assemblies. This is because once inside a reactor, the wrong sized pellets can vibrate or expand and rupture the metal fuel pins, releasing radioactivity into the reactor and increasing the risk of a meltdown accident.

In July 2000, the governments of Japan and the U.K., BNFL, and KEPCO all agreed that the BNFL fuel (which was the subject of the court case) would be returned to the U.K. The MOX fuel includes uranium supplied by the United States and thus under the U.S.-Japan nuclear agreement of 1982, the Japanese government is required to obtain permission from the U.S. government for this shipment. Japan also has a similar agreement with Canada. The Fukui government and local citizens have been insisting that no MOX fuel can be used in the Prefecture while the falsified fuel remains there.

As well as causing safety problems in the reactor, plutonium MOX fuel leads to increased hazards during shipment. The release of even a small amount of the plutonium in MOX fuel as a result of an accident during transport could lead to widespread environmental, health and economic impacts for the surrounding area. The containers used for transporting the plutonium MOX fuel to Japan are reportedly tested to a fire of 800 degrees centigrade for 30 minutes. According to worldwide statistics the average fire on ships burn for 23 hours at higher temperatures. Tests on plutonium MOX fuel exposed to air has shown that it can start to be broken down within 15 minutes in

temperatures of only 430 degrees centigrade. Once the plutonium fuel starts to break up, breathable particles of plutonium can escape into the air and be blown far from the scene of the accident depending upon the weather conditions.

The possible consequences of an accident or terrorist act involving a shipment at sea are summarised in an article by Professor Jon Van Dyke at the William S. Richardson School of Law of the University of Hawai:

"These highly-toxic and long-lived poisons could endanger large coastal populations or create an ecologically dead zone in the ocean for thousands of years. They are extremely difficult to handle, and the equipment necessary to salvage them in the event of an accident has not yet been developed. British representatives acknowledge that in the event of a vessel sinking 'it was quite apparent that recovery from some places would not be possible'. If a vessel carrying such a cargo collided with another vessel causing an intensely hot and long-lasting shipboard fire, then radioactive particles could become airborne, putting all nearby life-forms in grave danger of catastrophic health impacts.

The Caribbean qualifies as an enclosed or semi-enclosed sea under Article 122 of the International Law of the Sea, since its entire area consists of Exclusive Economic Zones over which the insular and littoral states of the region exercise jurisdiction. The states of the Greater Caribbean are thus entitled under the Convention to cooperate in the management of the Sea s resources and to co-ordinate the implemention of their rights and duties with respect to the protection and preservation of the marine environment -- directly or through regional organisations such as the Caribbean Community (CARICOM), the Organization of Eastern Caribbean States (OECS), Association of Caribbean States (ACS), and the Economic Commission for Latin America and the Caribbean (ECLAC).

In 1999, Caribbean countries proposed that the United Nations General Assembly declare the Caribbean Sea to be a Special Area in the Context of Sustainable Development . The initiative was taken as part of the implementation of the SIDS (small island developing states) Programme of Action adopted at the 1994 United Nations global SIDS conference held in Barbados. Besides pertaining to environmental protection, the U.N. declaration would provide the basis for a comprehensive sustainable development framework for the region covering both land and marine areas.

The resolution encountered opposition from major shipping powers concerned about its possible implications for their maritime rights of passage. A compromise resolution was adopted calling for an integrated management approach to the Caribbean Sea.

Political leaders of the Greater Caribbean reaffirmed their intention, at the third ACS Summit in December 2001, to continue to strive for international recognition of the Caribbean Sea as a Special Area in the Context of Sustainable Development. This has assumed added urgency with the signing of the ACS Convention on the Sustainable Tourism Zone of the Greater Caribbean.

Caribbean leaders are thereby emphasising, through their discussions and actions, that the maritime transport of nuclear materials is a risky undertaking that could have extremely disastrous consequences for generations to come — and that ISDL which motivates people around the globe to manage the generation and disposal of nuclear materials requires urgent discussion, refinement and cooperation amongst nations.

In fact -- given the developments concerning the build-up of nuclear wastes in several areas of the world; the problems of quality control relating to the manufacture of reprocessed fuel; the nuclear accidents that have already occurred in Japan, the USA, the UK and Europe; and, the opposition of civil society groups to the use of nuclear energy -- more serious consideration should be given to a ban on fissile materials which has been suggested since the mid-1950s. Nuclear materials are fissile or capable of being split and releasing enormous quantities of energy.

On August 11, 1998, the United Nations Conference on Disarmament (CD) agreed, contextually and specifically in CD/1547 and CD/1548, to convene an *ad hoc* committee to negotiate a ban on the production of fissile materials for nuclear weapons or other explosive devices. The committee is charged to negotiate, "on the basis of the report of the Special Coordinator [Shannon Report] and the mandate contained therein, a nondiscriminatory, multilateral, and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices."

Much more emphasis should be placed on reaching agreement regarding the ISDL which is required to manage nuclear (fissile materials), on solving the problem of the disposal of the nuclear materials which already exist, and on implementing the use of alternative sources of energy — especially solar power.