



PUBLIC ACCEPTANCE APPROACHES RELATED TO BACK-END TRANSPORT BETWEEN EUROPE AND JAPAN

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ABSTRACT

Plutonium is indispensable for a Fast Breeder Reactor (FBR). Since 1960s Japan has been developing FBRs, thus Japan chose reprocessing. When light water reactors (LWR) were fully introduced in early 1970s, the Japanese utility companies made long-term contracts with UK/French state-owned reprocessing companies for 7000 tons of spent fuel. Japan is far away from the reprocessing site, so some states outside of Europe could be "en-route". In 1992 plutonium shipment from France to Japan faced 35 "coastal states" objection. In 1995 fifteen "coastal states" opposed or concerned about the safety of the first high level radioactive waste (HLW) transport from France. In 1999 when MOX fuel (Uranium and plutonium oxide fuel) transport from France and UK started, 8 states advocated 3 regional organizations to issue objections, saying that the transport fatally endangers coastal population and environment. The voices did not occur spontaneously. Strong agitations and negative campaigns by international anti-nuclear organizations led them. In 1992 Greenpeace International 'warned' all the possible routes states and traced the transport convoy by two vessels, releasing hour by hour the location, saying that they are warning coastal people the fatal dangers coming. In 1995, in 1999 and in 2002, the similar spectacular campaigns were observed. In most small island developing 'coastal states' neither nuclear business nor nuclear expert exists. Objective domestic scientific resource is not available for the local media and residents. It must be provided from outside. Nuclear industries involved in the transport understood the necessity to organize continuous public acceptance activities for these 'coastal states'. Once political leaders have ridden on the 'anti-nuc' bandwagon, there are few domestic needs for them to change the position.

In IMO and IAEA the authorities denied the 'Unresolved Safety Issues' claimed by anti-nuclear groups. The 'issues' were solved. But 'evidence of safety' is rarely carried to coastal residents by their government, whereas 'evidence of danger' is vocally announced by them. Based on the fact that transport is an essential part of any industry and considering that nuclear generating states is a minority in international society, nuclear industry needs to continue the international public acceptance efforts.

INTRODUCTION

Plutonium is indispensable for a Fast Breeder Reactor (FBR). Since 1960s Japan has been developing FBRs, thus Japan chose reprocessing. When light water reactors (LWR) were fully introduced in early 1970s, the Japanese utility companies made long-term contracts with UK/French state-owned reprocessing companies for 7000 tons of spent fuel. Japan is far away from the reprocessing site, so some states outside of Europe could be "en-route". Until 1990s, transports of spent fuel from Japan to Europe continued in a politically calm circumstances. When the return shipments of recovered material from Europe started, the situation changed drastically.

Chapter1. Historical overview of transport issue

(1) Worldwide Challenge by anti-nuclear entities targeting maritime transport

In 1992 plutonium (PuO₂) shipment from France to Japan for Japanese Fast Breeder Reactor fuel use faced 35 "coastal states" objection. Subject to INFCIRC225, route-information was not disclosed by the sender, the carrier, the recipient, nor competent authorities. Greenpeace stalked by two vessels, Solo and Smit New York, and released hour by hour the location of the transport ship 'to warn the coastal states that a fatally dangerous cargo ship is accessing.' Because the transporters could not disclose the route, 'possible



en-route states world-wide' were dependent on the Greenpeace information/propaganda. As a result, although the actual transport route was via The Cape of Good Hope and South West Pacific, Caribbean island states and some south American states issued objection to the transit through their region. Japanese government dispatched explanatory missions to more than 30 states about the safety measures taken before and after the shipment. But sensation by Greenpeace campaign was dominant.

In 1995 fifteen "coastal states" opposed or concerned about the safety of the first high level radioactive waste (HLW) transport from France. The connection between Greenpeace and such coastal states' media and governments, established in 1992 campaign, worked efficiently. Prior to the shipment, 1994 South Pacific Islands Forum (14 island states governments + Australia and New Zealand) Summit held on 31 July - 2 August in Brisbane. At that time Greenpeace press conference was held on the same place. Local media covered their story. In January and February 1995 Greenpeace vessel Rainbow Warrior started its anti-transport campaign-visits in Caribbean region. Jamaican scientist Dr. W.R. Pinnock reported the situation as follows(*1):

In the narrowest sense, perhaps as most of us perceived it, this was simply a case of the rich and powerful nations imposing upon us again, but this time exposing us to the dangers of long-lived, lethally toxic radionuclides in the process.In the process of voicing our objections, public demonstrations were mounted, letters to the local papers and calls to radio call-in programmes were dominated for a while by those who disapproved of the shipments, school children were brought out to demonstrate and to participate in candle-light vigils against the impending 'doom', and local entertainers were enlisted to lend their support in public demonstrations, to the stand against the shipment of nuclear waste through the Caribbean. ...Letters to the editors of local newspapers...suggested ...objections were not merely against the shipment... apparently opposed to all nuclear-power-related activity anywhere in the world.

Nuclear industry side sent explanatory missions over 40 states before, during, and after the transport. But initiative had been taken by anti-nuclear campaigners.

In 1999 when MOX fuel (Uranium and plutonium oxide fuel) transport from France and UK started, 8 states advocated 3 regional organizations to issue objections, saying that the transport fatally endangers coastal population and environment.

As mentioned above, the coastal states' voices did not occur spontaneously. Strong agitations and negative campaigns by international anti-nuclear campaigners led them. Not only In 1992 and 1995, but also in 1999 and in 2002, the similar spectacular campaigns were observed. When we imagines the situation professional 'anti-nuclear' campaigners' faced at that time, permanent extension of Nuclear Non-Proliferation Treaty in 1995 and de-facto cessation of nuclear detonation-test might lead them to lose the job. This transportation might seem to give them a new business chance. More to say, they might develop a new business field by their own efforts. When the author visited the countries after the campaigners passed there, typical media image is 'fatal radioactive liquid contaminates the sea and coast of the region'. (See FIGURE 1: 2002 South African newspaper's illustration.) It is my recognition that their business needs to appeal the public forced them to ignore the scientific accuracy. In fact, neither MOX ceramic pellet nor molten glass HLW are soluble in to sea water. This image of pollution is unrealistic.

In most of small island developing 'coastal states', neither nuclear business nor forum of nuclear expert exists. Objective domestic scientific resource is not available for the local media and residents in most cases. It must be provided from outside. Japanese utilities understood the necessity to organize continuous public acceptance activities for these 'coastal states'. Without such activities, initiative stays on anti-nuclear campaigners' side. Still, once political leaders have ridden on the 'anti-nuclear' bandwagon, there are few domestic needs for them to change the position. Recovery process is hard and time-consuming.

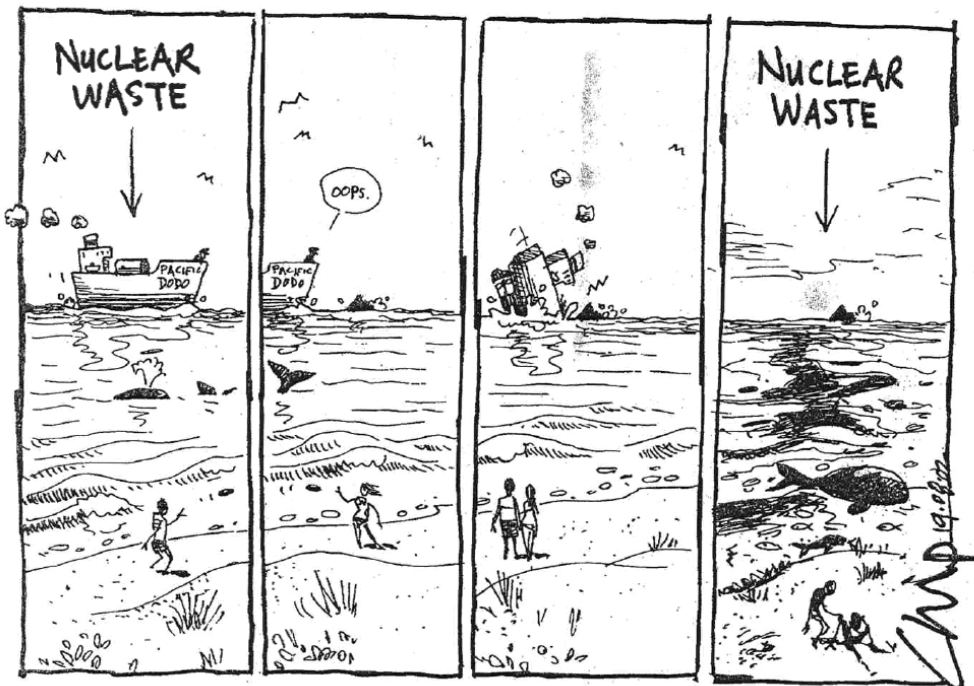


FIGURE 1. Typical Image of Local Media shown on the occasion of Anti-Nuclear Campaign

(2) Some issues behind coastal states response to anti-nuclear campaigns

Most of the safety and security issues asked by coastal states were clearly answered in WNTI web-site , PNTL web-site and AREVA web-site. The author want to touch the political background of bigger picture .

(a) Hypothesis of nuclear weapon proliferation through commercial reprocessing:

Since the CANDU-reactor-origin-plutonium explosive device detonated by India in 1974, risk of nuclear proliferation caused by LWR-origin plutonium have been argued. The U.S. Nuclear Nonproliferation Policy Act of 1978 is one result. The argument focuses on commercial reprocessing saying that it might open a flood gate of proliferation. Real proliferation did not occur through commercial reprocessing, at least until now.. Specific military security reason of each state drove it to nuclear weapon development program. But this theme is recognized as important.

Japanese answer to this issue is that only uranium-plutonium mixed material are recovered in domestic reprocessing facilities (in Tokai-mura and Rokkasho-mura), development of safeguard technology for a large scale reprocessing plant in IAEA, and that returned plutonium from Europe is in a form of uranium-plutonium mixed oxide fuel (MOX) manufactured in Europe*2.

Still, there is an argument about 'weapon usable material concerning so-called reactor grade plutonium'. For example, on 18 June 2001, New Zealand Minister of Foreign Affairs and Trade, Hon. Phil Goff stated ' extra concern (about a shipment of MOX) is that it is MOX which theoretically possible to be converted into nuclear weapons.' The policy of user- states are as follows. 'All grade of plutonium should be rigorously protected in accordance with our international non-proliferation obligation, stringent controls are applied to all forms of plutonium.'*3 This view is shared by IAEA. (Burden of scientific proof of 'weapon-usable' is an other issue.)

(b) International environmental pollution by industrialized states and the concern of developing states

Why the anti-nuclear campaigns so strongly appealed to en-route developing states?



There are some regional characters concerning the maritime/nuclear issue. South Americans pursue 200miles- territorial water concept through environmental issue. In Pacific Islands negative legacy of nuclear weapon detonations by nuclear weapon states are shown.

However, as Dr. Pinnock said, there is a more common and widely- accepted recognition: 'the rich and powerful nations imposing upon us again.'

To change such situation, long-term movement exists in international society. On 16 June 1972, 114 states (and 2 NGOs)*4 agreed on the Stockholm Declaration (Declaration of the United Nations Conference of the Human Environment). This is said to be the first worldwide governmental recognition of environmental issue. In November that year, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (usually called London Dumping Convention) was agreed in IMO. The Stockholm Declaration modestly stated that international matters concerning the protection and improvement of the environment should be handled in a cooperative spirit by all countries, big and small, on a equal footing. However, when low-level radioactive waste dumping regulation was argued in IMO under the London Dumping Convention in 1980s, the issue was tend to be recognized as industrialized states' versus non-nuclear, developing states and NGOs. Scientific analysis by the expert group concluded that the risk of contamination is negligible. But this was not accepted by majority of the member states. In 1985 moratorium is decided, and in 1994 the prohibition of dumping was agreed. This is recognized as a victory by the cooperative efforts of Greenpeace developing states. When the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal was agreed in 1989, the role of NGOs is more clearly identified. (See Article 15.6.)

This movement reached a peak in Rio de Janeiro 'Earth' summit in 1992. 181 states and 1400 NGOs were attended. *4Rio Declaration on Environment and Development says that the special situation and needs of developing countries shall be given special priority (Principle 6). Common but differentiated responsibilities are declared (Principle 7). Also it says that precautionary approach shall be widely applied. (It means) where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (Principle 15). These principles are often quoted as basis of the objection to the transport of MOX and HLW. Concerning the precautionary approach, some technical documents were issued for anti-nuclear campaign. Well known one is 'The Sea Transport of Vitrified High Level Wastes: Unsolved Safety Issues' by Dr. Edwin S. Lyman, December 1996. It could be somewhat reasonable when a coastal state government felt that there is a threat of serious damage, if the only available document is this one at the very beginning. However, the document was scrutinized in IMO and IAEA since then, and the major points were denied by the organizations.*5 After all, to treat this as a matter of precaution is difficult to be justified. Catastrophic scenarios are repeatedly denied in IMO's 'Special Consultative Meeting of Entities Involved in the Maritime Transport of Nuclear Materials Covered by the INF Code' in 1996, IAEA's 'International Conference on the Safety of Transport of Radioactive Material' in 2003, and its follow-up meeting about 'complex technical issues' in 2004. The author has never heard any claim about the analysis by the representatives of coastal states in these meetings.

Chapter2. Constructive comments for mutually satisfactory transport scheme

(1) Third party liability regime / how to mitigate the damage

We have international conventions for liability for nuclear damage. But the strict liability and legal channeling to nuclear operator does not mitigate the rumor damage caused by anti-nuclear activities. A country has a domestic law which punish a person who releases incorrect information concerning a danger, risk, and accident about nuclear activity with malicious intent and who make public being scared, This approach may deter irresponsible demagogy.

(2) Environmental impact analysis

Not only Rio Declaration (Principle 17) but also United Nations Convention on the Law of the Sea referred this issue*6. The author's view about it is that IMO will be a better place for argument than IAEA, because the methodology should be basically common for all maritime dangerous goods transports by sea.



CONCLUSIONS

Current high-price market situation of fossil fuel and the needs to suppress global warming gas emission lead the small islands states to recognize indirect contribution of nuclear power generation. On the other hand, the influence of sensational negative campaigns still remains in the residents of developing coastal states. There is no quick medicine to change the public perception. Nuclear industry should continue its daily explanatory efforts to local media, academics, and governments. Though 14 years of this effort, the author experienced gradual better understanding of public perception about the reality of nuclear transport business.

The responsible safety authority of a coastal government needs timely advice by a reliable third party-expert in an accident situation. Although the business entities involved in MOX/HLW transport established their own public acceptance team, and ship operator has its own emergency response team, public recognition to the party with direct business interest has a genuine limit. Contribution of IAEA's independent expertise are highly expected. The IAEA secretariat is conscious of the role. It will be helpful to answer to the concern of coastal states.

ACKNOWLEDGMENTS

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- *2 On early stage of Japanese FBR development program, in 1984 and in 1992, plutonium dioxide were transported from Europe for FBR Joyo and Monju's fuel fabrication. This type of transport will not be foreseen in the future.
- *3 Mr. Aitken, the Secretary of State for Defence, in the United Kingdom Parliament, 1994-07-04
- *4 The number of attendants are quoted from Dr. Kazuo Matsushita, Professor of Graduate School of Kyoto University; http://www.geic.or.jp/tentative/prjps/wssd/6th_020117/Prof.MATSUSHITA.pdf
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- *5 MSC 68/15/4, IMO, MATERS RELATED TO THE INF CODE, Comments on MSC 68/INF.2 and MEPC 39/INF.15 Submitted by International Atomic Energy Agency.
SAD97-1130, Sandia National Laboratories, Comments on a Paper Titled " The Sea Transport of Vitrified High-Level Radioactive Wastes: Unresolved Safety Issues"
IAEA –TECDOC-1231 'Severity, probability and risk of accidents during maritime transport of radioactive material Final report of a co-ordinated research project 1995-1999' gathers more analysis about transport.
- *6 Section 4. Article 204, Article 205, Article 206. United Nations Convention on The Law of The Sea