

Subject: Factual errors or disinformation?

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Does the Nuclear Waste Management Organization circulate disinformation by accident or design?

When factual errors are pointed out to the Nuclear Waste Management Organization, why is this material not retracted?

In Background Paper #6, "Technical Methods", the authors claim, "Lack of confidence in predicting the fate of the wastes has also been the reason why little attention has been paid to disposal in subduction zones [House of Lords Select Committee 1999]. Concerns have been expressed that waste might return to the surface environment via volcanic eruptions [EKRA 2000]. It has also been suggested that the option would be seen as a form of sea disposal and hence would be prohibited by international conventions [Nirex 2002b]. Retrieval of the fuel after disposal in a subduction zone would be impossible. The option is not included in any national or international R&D programs.

The Geological Survey of Japan (GSJ) is currently undertaking the JUDGE project http://www.aist.go.jp/GSJ/PSV/Pub/gsj_pube/bull/vol48e/vol48_3-4.htm which it recognizes as important from both a scientific and societal point of view. "The JUDGE project is aimed at understanding the earth's interior, last unexplored region of our planet earth, by conducting ultra-deep continental scientific drilling and multi-purpose scientific observation on subduction zones. This project provides us with fundamental knowledge that is indispensable for;

- (1) reducing the damage of geologic hazard such as earthquake,
- (2) exploration for new energy resources,
- (3) managing deep ground-water and mineral resources, and
- (4) geologic disposal of radioactive or toxic waste.

Besides, it will give incentive for innovation of new technology."

Professor Joseph Coates, a former analyst for the National Science Foundation and the U.S. Congressional Office of Technology Assessment, in his book, "2025: Scenarios of U.S. and Global Society Reshaped by Science and Technology"

http://josephcoates.com/pdf_files/2025/2025_Ch_7.pdf states, "In three years, the United States, Korea, and Japan will perform the first experiments to dispose of nuclear waste by embedding it in glass marbles and injecting it into the subduction zones between the geological plates, which would then carry the wastes below the crust of the Earth." He concludes his chapter on Working Toward a Sustainable World, by stating "Success – with the subduction zone experiments – would essentially solve the nuclear waste disposal problem."

The suggestion that the Subductive Waste Disposal Method is prohibited by international convention is a canard. In 1993, the Contracting Parties to the London Convention, the United Nations treaty that regulates the dumping of wastes at sea, banned the dumping of all radioactive wastes from ships, aircraft, platforms and other man-made structures at sea. The status of sub-seabed disposal was ambiguous until 1996 when the Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, (the Protocol) extended the definition of "dumping" to include "any deliberate disposal or storage of wastes or other matter in the sea-bed and the subsoil thereof." Definition, 7. of Article 1 of the Protocol states: "Sea" means all marine waters other than the internal waters of States, as well as the seabed and the subsoil thereof; it does not include sub-seabed repositories accessed only from land." As the embodiment of the Subductive Waste Disposal Method is a sub-seabed repository accessed from land it is perfectly legal.

Retrieval of the fuel after disposal in a subduction zone would be impossible but this is precisely what is required in this era of vast arrays of bomb-grade materials and high-level waste lying poorly protected around the world waiting to be bought or stolen by some terrorist or rogue state. The recently released MIT interdisciplinary study on "The Future of Nuclear Energy" concluded, "The reprocessing system now used in Europe, Japan, and Russia that involves separation and recycling of plutonium presents unwarranted proliferation risks. We conclude that, over at least the next 50 years, the best choice to meet these challenges is the open, once-through fuel cycle. We judge that there are adequate uranium resources available at reasonable cost to support this choice under a global growth scenario."

Even the IAEA finally has come to this conclusion. Mohamed ElBaradei recommended to the Fifty-Eighth Regular Session of the United Nations General Assembly limiting the processing and production of nuclear materials that can be used for bombs and placing facilities under international control." He added, "We should consider multinational approaches to the management and disposal of spent fuel and radioactive waste. More than 50 countries have spent fuel stored in temporary sites, awaiting reprocessing or disposal. Not all countries have the right geology to store waste underground and, for many countries with small nuclear programmes for electricity generation or for research, the costs of such a facility are prohibitive."

As to the question of lack of confidence:

- K. R. Rao declares in the December 25, 2001 Current Science article, [Radioactive waste: The problem and its management](#) the Subductive waste disposal method "is the state-of-the-art in nuclear waste disposal technology. It is the single viable means of disposing radioactive waste that ensures non return of the relegated material to the biosphere. At the same time, it affords inaccessibility to eliminated weapons material. The principle involved is the removal of the material from the biosphere faster than it can return. It is considered that 'the safest, the most sensible, the most economical, the most stable long-term, the most environmentally benign, the most utterly obvious places to get rid of nuclear waste, high-level waste or low-level waste is in the deep oceans that cover 70% of the planet".
- Dr. Burton Richter, Noble laureate in Physics, addressing the nuclear waste problem at the July 15, 1999, [World Experts Meeting on Accelerator Transmutation of Waste](#), stated, "It can be done if it is done right and the public is correct in their concern that it be done so. If we would dump all this stuff in subduction zones in the ocean, or if we would bury it half a kilometer deep in the deep sediments of the ocean floor, no one would ever have to worry about it."
- James Lovelock whose Gaia theory inspired the Green movement declared in an August 2001, ["Telegraph,"](#) article, We need nuclear power, says the man who inspired the Greens, "Nuclear is the only practical energy source that we could apply in time to offset the threat from accumulating greenhouse gases." In terms of the waste problem associated with nuclear, he stated, "There seems no sensible reason why nuclear waste should not be disposed of in the deep subducting regions of the ocean where tectonic forces draw all deposits down into the magma."
- The [Ecoforum For Economics and the Environment](#) has asserted "A solution to that problem -nuclear waste- is at hand. . . The solution is to use subduction zones, the areas where one continental plate has become pushed below another; here the encased waste would be taken slowly but surely into the depths of the earth where, eventually, it will become molten and blend into the liquid rock at the earth's core. If it ever reappears as surface rock that will be in millions of years' time, when its radiation will long have decayed and disappeared."
- Even [Lord Oxburgh](#), the head the House of Lords Science Committee which was quoted above, wrote two years ago, "I too have been interested in the possible use of subduction zones for the disposal of waste. . . I rather regret that this possibility has not been explored further."

As to concerns that waste might return to the surface environment via volcanic eruptions, Professor Frank W. Dickson, a research professor at the University of Nevada, has recently stated, "The deduction that materials could be sent downward to depths over times sufficient for decay before returning is ingenious. Much engineering and research is needed before it's given a try, but it looks like the only alternative left to us."

The state-of-the-art solution no one would have to worry about, with no sensible drawbacks to implementation, which is the only viable alternative left, how much more assurance does anyone require?

The government of Canada is not funding subduction zone research but that is a reflection on the government of Canada not the technology. For fifteen years Ottawa has shown no interest in this indispensable technology for disposing of radioactive and toxic wastes or in fostering innovation and new technologies for addressing mankind's greatest threats.

The U.S. Union of Concerned Scientists recently issued a report and statement endorsed by 62 prominent scientists which charged widespread manipulation and misuse of science in the federal government. It is my experience this abuse is far from being confined simply to the United States.

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