

No to Nuclear Energy

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Last October, I received a letter from the Bulletin's Board of Directors inviting me to make a presentation at a conference on the Future of Nuclear Energy in Chicago. I was a little bit surprised that they offered to cover all travel expenses. It was hard to imagine the Bulletin with an abundance of funding. In any case, due to health reasons, I couldn't attend. Instead, I sent the following contribution:

From the invitation, I understand that the main theme of this conference is the future of nuclear energy during the next 20 years. What I would like to say is that the next 20 years could cause a disastrous 2,000 years for humankind if we allow a resurgence of the nuclear energy industry worldwide. If my health permitted--and if my old friends Bernard T. Feld and David R. Inglis were still alive--I would be at the conference with them, chastening those who harbor a malicious plan to exploit climate change for the benefit of the nuclear industry.

When nuclear power was first introduced, government officials and so-called experts from elite institutions assured its safety and economic success. Now we know that they lied, or they were totally ignorant.

We witnessed nuclear disasters at Three Mile Island, Chernobyl, and more. One thing common in these nuclear disasters is that authorities, i.e., governments and nuclear industries, always tried to hide essential information necessary to assess the scale of danger and also the true causes of the disasters.

Remarks made by those pro-nuclear experts always underestimate the possible danger of the nuclear disaster, and they are never shy to deceive people. I remember one of these experts (perhaps a professor at a prestigious university) said that because the probability of a nuclear accident is much smaller than a jumbo jet crash, it is ridiculous to worry. I believe he deliberately avoided discussing the expectation value. For college students who learned probability theory, it should be obvious that the relevant quantity is the expectation value and not the probability itself. But for common people, it may not be. I think this example typifies the general attitude of those pro-nuclear experts.

Some time ago in Japan, an official institution of a pro-nuclear group circulated hundreds of copies of a promotional video for children. In the video, it was shown that plutonium was so safe that one could even drink it! When I heard the story, I couldn't believe that a human, particularly one who certainly knew the danger of plutonium, could make such a devilish propaganda video. I suspect that similar deceiving propaganda is distributed worldwide.

Even though they are dishonest and shamelessly indifferent to the future welfare of humankind, they are protected to lie under the guard of secrecy for national security, because nuclear technology is inherently connected to nuclear weapons. The amount of energy released in a single nuclear reaction is on the order of 1,000,000 electron volts, while the typical chemical reaction yields only a few electron volts.⁽¹⁾ This enormous amount of energy makes a nuclear reaction particularly suitable for destructive purposes and not for peaceful uses.

That amount of disastrous energy is also emitted from nuclear waste for hundreds of years. One can see the risk of nuclear waste vividly in the recent brief prepared by Greenpeace.⁽²⁾ Everywhere else in the world will face this same problem if we allow further nuclear power plants. We have no right to leave dangerously radioactive high-level nuclear waste for generations for thousands of years. That would be the ultimate sin to the future of humankind and to the future of this planet.

You may ask that if nuclear energy is excluded, what alternatives do we have? The answer is given in a book written by Inglis in 1978, *Wind Power and Other Energy Options*.⁽³⁾ It seems obvious to me that governments and industries have deliberately undermined such energy options. Their sin should never be forgiven.

(1) David Rittenhouse Inglis, *Nuclear Energy: Its Physics and Its Social Challenge*, Addison-Wesley, Reading, 1973.

(2) *The Nuclear Waste Crisis in France*, Greenpeace Briefing Document, May 30, 2006.

(3) David Rittenhouse Inglis, *Wind Power and Other Energy Options*, The University of Michigan Press, Ann Arbor, 1978.

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