

The New York Times Reprints



This copy is for your personal, noncommercial use only. You can order presentation-ready copies for distribution to your colleagues, clients or customers [here](#) or use the "Reprints" tool that appears next to any article. Visit www.nytreprints.com for samples and additional information. [Order a reprint of this article now.](#)

June 24, 2011

'Safety Myth' Left Japan Ripe for Nuclear Crisis

By NORIMITSU ONISHI

SHIKA, Japan — Near a [nuclear power plant](#) facing the Sea of Japan, a series of exhibitions in a [large public relations building](#) here extols the virtues of the energy source with some help from "Alice in Wonderland."

"It's terrible, just terrible," the White Rabbit says in the first exhibit. "We're running out of energy, Alice."

A Dodo robot figure, swiveling to address Alice and the visitors to the building, declares that there is an "ace" form of energy called nuclear power. It is clean, safe and renewable if you reprocess uranium and plutonium, the Dodo says.

"Wow, you can even do that!" Alice says of nuclear power. "You could say that it's optimal for resource-poor [Japan!](#)"

Over several decades, Japan's nuclear establishment has devoted vast resources to persuade the Japanese public of the safety and necessity of nuclear power. Plant operators built lavish, fantasy-filled public relations buildings that became tourist attractions. Bureaucrats spun elaborate advertising campaigns through a multitude of organizations established solely to advertise the safety of nuclear plants. Politicians pushed through the adoption of government-mandated school textbooks with friendly views of nuclear power.

The result was the widespread adoption of the belief — called the "safety myth" — that Japan's nuclear power plants were absolutely safe. Japan single-mindedly pursued nuclear power even as Western nations distanced themselves from it.

The belief helps explain why in the only nation to have been attacked with atomic bombs, the Japanese acceptance of nuclear power was so strong that the accidents at Three Mile Island and Chernobyl barely registered. Even with the crisis at the Fukushima Daiichi nuclear power

plant, the reaction against nuclear power has been much stronger in Europe and the United States than in Japan itself.

As the Japanese continue to search for answers to the disaster at the Fukushima Daiichi plant, some are digging deep into the national psyche and examining a national propensity to embrace a belief now widely seen as irrational. Because of this widespread belief in Japanese plants' absolute safety, plant operators and nuclear regulators failed to adopt proper safety measures and advances in technology, like emergency robots, experts and government officials acknowledge.

“In Japan, we have something called the ‘safety myth,’ ” [Banri Kaieda](#), who runs the Ministry of Economy, Trade and Industry, which oversees the nuclear industry, said at a news conference at an International Atomic Energy Agency meeting in Vienna on Monday. “It’s a fact that there was an unreasonable overconfidence in the technology of Japan’s nuclear power generation.”

As a result, he said, the nuclear industry’s “thinking about safety had a poor foundation.”

Japan’s government has concentrated its propaganda and educational efforts on creating such national beliefs in the past, most notably during World War II. The push for nuclear power underpinned postwar Japan’s focus on economic growth and its dream of greater energy independence. But as the carefully fostered belief in nuclear safety has dissipated in the three months after the March 11 disaster, Japanese are increasingly blaming the nuclear establishment for Fukushima. In a politically apathetic country, tens of thousands have regularly held [protests against nuclear power](#). Young Japanese have used social media to organize and publicize demonstrations that have been virtually ignored by major newspapers and television networks.

A song, “It Was Always a Lie,” has become an anthem at the protests and a vehicle for Japanese anger on the Internet. Its author, a famous singer named [Kazuyoshi Saito](#), wrote it by changing the lyrics of a love ballad, “I Always Liked You,” that he composed last year for a commercial for Shiseido, the cosmetics giant. Mr. Saito’s performance of the song, surreptitiously [uploaded on YouTube](#) and other sites, has gone viral.

“If you walk across this country, you’ll find 54 nuclear reactors/School textbooks and commercials told us they were safe,” the song goes.

“It was always a lie, it’s been exposed after all/It was really a lie that nuclear power is safe.”

Caught Unprepared

In the days after a giant tsunami knocked out Fukushima Daiichi's cooling system, the prime minister's office and the Tokyo Electric Power Company, or Tepco, the plant's operator, wrestled over whether to [inject cooling seawater into the reactor buildings](#) to prevent catastrophic meltdowns, and then over how to do it.

With radiation levels too high for workers to approach the reactors, the Japanese authorities floundered. They sent police trucks mounted with water cannons — equipment designed to disperse rioters — to spray water into the reactor buildings. Military helicopters flew over the buildings, dropping water that was scattered off course by strong winds, in a “performance, a kind of circus” that was aimed more at reassuring an increasingly alarmed Japanese population and American government, said Kenichi Matsumoto, an aide to Prime Minister Naoto Kan.

What became clear was that Japan lacked some of the basic hardware to respond to a nuclear crisis and, after initial resistance, had to look abroad for help. For a country proud of its technology, the low point occurred on March 31 when it had to use a 203-foot-long water pump — shipped from China, an export market for Japanese nuclear technology — to inject 90 tons of fresh water into the No. 1 reactor building. But perhaps more than anything else, the absence of one particular technology was deeply puzzling: emergency robots.

Japan, after all, is the world's leader in robotics. It has the world's largest force of mechanized workers. Its humanoid robots can walk and run on two feet, sing and dance, and even play the violin. But where were the emergency robots at Fukushima?

The answer is that the operators and nuclear regulators, believing that accidents would never occur, steadfastly opposed the introduction of what they regarded as unnecessary technology.

“The plant operators said that robots, which would premise an accident, were not needed,” said Hiroyuki Yoshikawa, 77, an engineer and a former president of the University of Tokyo, Japan's most prestigious academic institution. “Instead, introducing them would inspire fear, they said. That's why they said that robots couldn't be introduced.”

Even before the accident at Three Mile Island in 1979, Mr. Yoshikawa, a robotics expert, and other researchers began building emergency robots capable of responding to a nuclear accident, eventually producing a prototype called Mooty. The robots were resistant to high levels of radiation and capable of surmounting mounds of rubble.

But the robots never made it into production, forcing Japan, in the aftermath of Fukushima, to rely on an emergency shipment of robots from [iRobot](#), a company in Bedford, Mass., more

famous for manufacturing the Roomba vacuum. On Friday, Tepco deployed the first Japanese-made robot, which was retrofitted recently to handle nuclear accidents, but workers had to retrieve it after it malfunctioned.

The rejection of robots, Mr. Yoshikawa said, was part of the industry's overall reluctance to improve maintenance and invest in new technologies.

"That's why the safety myth wasn't just an empty slogan," said Mr. Yoshikawa, now the director general of the [Center for Research and Development Strategy](#) at the Japan Science and Technology Agency. "It was a kind of mind-set that rejected progress through the introduction of new technology."

Entering a New Age

The deliberate effort to rally Japanese behind nuclear power can be traced to the beginning of the atomic age, scholars and experts say.

In August 1945, Yasuhiro Nakasone, a young naval officer who would become one of postwar Japan's most powerful prime ministers, was stationed in western Japan.

"I saw the nuclear mushroom cloud over Hiroshima," Mr. Nakasone wrote in an essay in the 1960s. "At that moment, I sensed that the next age was the nuclear age."

For many Japanese like Mr. Nakasone, nuclear power became a holy grail — a way for Japan, whose lack of oil and other natural resources had led to World War II and defeat, to become more energy independent. The mastery of nuclear power would also open the possibility of eventually developing nuclear weapons, a subject that Japan secretly studied when Mr. Nakasone was defense minister in 1970.

It was precisely because of nuclear power's possible link to nuclear arms and its close ties to the United States that left-leaning politicians, academics and intellectuals became fierce opponents. As a countermeasure, proponents of nuclear power stressed its absolute safety, so that each side struck extreme positions, a standoff that lasts to this day.

The nuclear establishment — led by Tepco among the utilities and the Ministry of Economy — spent hundreds of millions of dollars on advertising and educational programs emphasizing the safety of nuclear plants. The ministry's division responsible for nuclear power has budgeted \$12 million this year for those programs, said Takanobu Sugimoto, a division spokesman. Mr. Sugimoto said he "regretted" that the ministry might have "stressed only" the plants' safety.

The government and the utilities encouraged the creation of many organizations that

propagated the message of safety. One of the oldest, the [Japan Atomic Energy Relations Organization](#), receives 40 percent of its financing from two ministries that oversee nuclear power and 60 percent from Japan's plant operators. In addition to producing information promoting nuclear power, the organization sends nuclear power experts to speak at secondary schools and colleges, at no cost.

Mitsuhiro Yokote, 67, the executive managing director of the organization and a former nuclear engineer at the [Kansai Electric Power Company](#), acknowledged that the experts conveyed the message that nuclear plants were absolutely safe. Mr. Yokote said he "regretted" that his organization had contributed to the safety myth.

In a country where people tend to reflexively trust the government, assurances about the safety of Japan's plants were enough to reassure even those at greatest risk. [In Oma, a fishing town in northern Japan where a plant is currently under construction](#), Chernobyl made no impression on local residents considering the plant back in the 1980s.

"What could we do but believe what the government told us?" said Masaru Takahashi, 67, a member of a fishing union in Oma. "We were told that they were absolutely safe."

A Public Relations Drive

After Chernobyl, the nuclear establishment made sure that Japanese kept believing in safety.

The plant operators built or renovated the public relations buildings — called "P.R. buildings" — attached to their plants. Before Chernobyl, the buildings were simple facilities intended to appeal to "adult men interested in technical matters," said [Noriya Sumihara](#), an anthropologist at [Tenri University](#) who has researched the facilities. Male guides wearing industrial uniforms took visitors around exhibits consisting mostly of wall panels.

But after Chernobyl, the facilities were transformed into elaborate theme parks geared toward young mothers, the group that research showed was most worried about nuclear plants and radiation, Mr. Sumihara said. Women of childbearing age, whose presence alone was meant to reassure the visitors, were hired as guides.

In Higashidori, a town in northern Japan, one of the country's newest [P.R. buildings](#) is built on the theme of Tonttu, a forest with resident dwarfs. The buildings also holds events with anime characters to attract children and young parents, said Yoshiki Oikawa, a spokesman for the [Tohoku Electric Power Company](#), which manages the site with Tepco.

Here in Shika, more than 100,000 guests last year visited the P.R. building where Alice

discovers the wonders of nuclear power. The Caterpillar reassures Alice about radiation and the Cheshire Cat helps her learn about the energy source. Instead of going down a rabbit hole, Alice shrinks after eating a candy and enters a 1:25 scale model of the Shika nuclear plant nearby.

Since the Fukushima disaster, visitors have started questioning the safety of nuclear power, said Asuka Honda, 27, a guide here. Many were pregnant women worried about the effects of radiation on their unborn children. But the presence of Ms. Honda and other guides, mostly women in their late 20s, seemed to reassure them.

The nuclear establishment also made sure that government-mandated school textbooks underemphasized information that could cast doubt on the safety of nuclear power. In Parliament, the campaign was led by [Tokio Kano](#), a Tepco vice president who became a lawmaker in 1998. Mr. Kano, who declined to be interviewed for this article, returned to Tepco as an adviser after retiring from Parliament last year.

In 2004, under the influence of Mr. Kano and other proponents of nuclear power, education officials ordered revisions to textbooks before endorsing them. In one junior high school social studies textbook, a reference to the growing antinuclear movement in Europe was deleted. In another, a reference to Chernobyl was relegated to a footnote.

The effect could be seen in opinion polls that even after Fukushima have indicated that young Japanese are the strongest proponents of nuclear power.

The nuclear establishment itself came to believe its own safety myth and “became entangled in its own net,” said [Hitoshi Yoshioka](#), an author of a book on the history of Japan’s nuclear power and a member of a [panel](#) established by the prime minister to investigate the causes of the Fukushima disaster.

He said that helped explain why, at Fukushima, Tepco failed to carry out emergency measures in case of a complete loss of power, which is what happened when the tsunami hit in March. Others have said that the nuclear establishment’s embrace of the safety myth also makes it possible to understand what, in hindsight, was the most glaring hole in the safety measures at Japan’s nuclear plants. In the country that gave the world the word tsunami, [few measures were taken](#) at Fukushima Daiichi or elsewhere to protect plants against the giant waves. Neither the Dodo nor the Caterpillar makes any mention of tsunamis to Alice.

Kantaro Suzuki contributed reporting.

