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Can Nuclear Power Be an Answer to India's Electricity Needs?

🕒 November 14, 2013 📁 Japan, Nuclear, Science 📍 India, Japan, Nuclear, Princeton, Ramana, Technology

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The Indian government is engaged in discussions with the Japanese government aimed at concluding a bilateral nuclear cooperation pact; this would allow India to **import nuclear reactor parts** from Japan. The primary argument given for India's plans to expand nuclear power is that the country already suffers electricity shortages and its electricity demand **is fast growing**.

There are at least three sad realities that underlie this discussion. The first, and perhaps most poignant, is that Japan, which is currently facing tremendous democratic opposition to restarting nuclear reactors within the country, is considering exporting nuclear reactor parts to a country where, again, there is significant opposition to nuclear power, especially at all the sites that have been selected for installing reactors imported from companies like Westinghouse, General Electric and Areva. Their reasons for such opposition are not difficult to discern. In the aftermath of 11 March 2011, people near an existing or proposed nuclear reactor can—and do—imagine themselves suffering a fate similar to those of the inhabitants of the areas around Fukushima. These nuclear reactors are also located in areas that support thousands of people living off farming, fishing, and other occupations, and these people see, quite correctly, the reactor as a major threat to their livelihoods. The Indian government's response to the opposition has been a combination of coercion, bribery, and propaganda. Support for the Indian government's nu-

The Power of Promise: Examining Nuclear Energy in India

clear efforts, therefore, cannot be considered respectful of democratic rights.

The second reality that I elaborate in my book, *The Power of Promise: Examining Nuclear Energy in India*, is that nuclear energy will not be the answer to India's electricity problems. The multiple reasons for this assertion include a history of failure, poor technology choices and a lack of organizational learning. To start with, the current nuclear capacity in the country—more than sixty years after the atomic energy program was established—is just 5,780 MW, about 2.5 percent of the total generation capacity. Even with optimistic assumptions about the future, this fraction is unlikely to increase to more than 5 percent for decades. But optimism is not warranted. The Indian Department of Atomic Energy (DAE) has long made ambitious projections and failed to deliver. The DAE's plans also involve constructing hundreds of fast breeder reactors. In the early decades of nuclear power, many countries pursued breeder reactor programs, but practically all of them have given up on breeder reactors as unsafe and uneconomical. The DAE has simply not absorbed the lessons from the sorry history of breeder technology globally, and thus shows a lack of organizational learning. In contrast, wind energy, which began in earnest only in the 1990s, has overtaken nuclear power, not just in terms of installed capacity, but in the number of units of electricity (kWhs) fed into the grid.

The third reality is that India, and industrializing countries in general, need electricity that is cheap and affordable. Nuclear power is in that sense badly suited to many of these because it is expensive. This has been amply borne out in the Indian case, where coal based thermal power has been much cheaper than nuclear electricity. Future reactors, both imported light water reactors as well as fast breeder reactors, promise to be much more expensive, which will make electricity generated in these unaffordable to the weaker sections of society. Expectations that the nuclear industry will learn from past experience and lower the construction costs have also been belied repeatedly.

Finally, what of the other commonly heard argument – that nuclear power would significantly reduce India's carbon emissions and thereby help with climate change mitigation. First, India's planners do not see it as a question of nuclear power or fossil fuels, but nuclear power *and* fossil fuels. Second, if nuclear power cannot expand rapidly and substantially, then it cannot help with climate change in any significant fashion, especially if the achieved expansion comes at the cost of investment in other potential solutions to these concerns. Third, because of its centralized character and the huge costs involved, nuclear power cannot play a significant role in solving the energy needs of the vast majority of India's population, much less do so in a way that offers any net environmental gains. In particular, trying to use nuclear power as a solution to climate change only brings with it two of the familiar—and so far insoluble—problems associated with nuclear energy: susceptibility to catastrophic accidents, and having to deal with radioactive waste that stays hazardous to human health for millennia.

To summarize, there is no justifiable case for supporting a large scale expansion of nuclear power in India. Japan's leaders should face up to this reality as they contemplate entering into nuclear commerce with India.

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