Can India Learn from Fukushima?

The unfolding tragedy in Japan is an opportunity to rethink nuclear power, but India has its head in the sand.

The tragedy in Japan has been truly heart-wrenching. The scale of the havoc wreaked by the earthquake and the resulting tsunami has overwhelmed even the extensive planning and disaster management for which the country is known. What have been unprecedented are the multiple nuclear accidents at the Fukushima-Daiichi plant and the continuing threat, at the time of writing, of widespread radioactive contamination.

Fukushima has come as a wake-up call to the world at large, where the passage of time has dulled the memory of the catastrophic accident at Chernobyl in 1986 and there has been much talk, if not action, in recent years of a “nuclear renaissance”. This tragic moment should be used to seriously reflect on the wisdom of using nuclear power to generate electricity. Unfortunately, even now, the nuclear industry and its attendant organisations in many different countries continue to make a case for nuclear power.

The stark and frightening message from Fukushima is that the risk of catastrophic accidents is inherent to nuclear power and complete safety of these complex technologies cannot be guaranteed. The events there reveal not only large failures, such as those of two levels of cooling systems, but also numerous small ones. For example, on 14 March, the Tokyo Electric Power Company that operates the Fukushima plants announced that some safety (pressure release) valves did not open for unknown reasons and therefore the pressure continued building up, making it difficult to pump water into the reactor. As analyses of several accidents in high technology systems have revealed, such small failures can combine to produce disastrous results.

In India, in particular, the first response of the nuclear power establishment was to dismiss the Fukushima accident as the result of exceptional circumstances, namely, the earthquake and the tsunami, and that India need not worry. This is wrong on two counts. First, exceptional events like earthquakes, cyclones, fires, and large-scale power failures will continue to occur, in India and elsewhere, and it is not wise to rely on technologies that could compound the harm. Further, while nuclear accidents are more likely during natural disasters like earthquakes, they can be initiated even without the occurrence of a natural disaster. Neither the Three Mile Island nor the Chernobyl accident needed a natural disaster to start them off.

Unfortunately, the Indian nuclear establishment continues, as always, to put its head in the sand. S Banerjee, the country’s senior-most policymaker on matters nuclear, has gone as far as to say that Fukushima-Daiichi “was purely a chemical reaction and not a nuclear emergency as described by some section of (the) media” (Press Trust of India, 15 March). This attempt to belittle concerns about the safety of nuclear power reveals an attitude contemptuous of people's fears and dismissive of actual events. Also sharing this attitude of misplaced confidence is the Atomic Energy Regulatory Board, the agency responsible for the safety of most nuclear facilities in the country. In part, these attitudes are because it is not independent of the Atomic Energy Commission (AEC).

Regrettably, policymakers turn to such officials for advice. Shivshankar Menon, national security adviser, said after a briefing by AEC officials, “The fire (in Japan) was a hydrogen fire in the area where the spent fuel is stored...They (AEC) tell us that this is most unlikely” (Press Trust of India, 16 March). One cannot make any sense of this statement. In India too, there are spent fuel pools and if these run out of water for one reason or the other, the fuel temperatures will rise. Then, unless the laws of chemistry do not hold in the AEC’s nuclear facilities, the zirconium enclosing the uranium fuel will interact with water or steam producing hydrogen. Hydrogen is inflammable whether it comes out of fuel from the Nuclear Power Corporation of India's reactors or the Tokyo Electric Power Company’s reactors.

Many nuclear officials have also been asserting that a Fukushima cannot happen in India. This may be legally correct in that the exact same sequence of events may not occur here but that does not mean that nuclear accidents are not possible. There have been numerous close calls in the past (“Safety First? Kaiga and Other Nuclear Stories”, EPW, 13 February 2010) and some of them could have well escalated into a full-blown accident. As Peter Bradford, a former commissioner of the US Nuclear Regulatory Commission, said recently, “The phrase, ‘it can't happen here', has been a harbinger of trouble in the nuclear industry”.

In the wake of Fukushima, at the very least it should be clear that no reactors should be built in regions that have experienced serious seismic shocks. This is the case with the proposed Jaitapur project in the Konkan region which falls in a moderate/severe seismic zone and has experienced tremors in the past. Again, one lesson of the earthquake in Japan is that previous history is no definitive guide to how large an earthquake can be experienced in a region. Another lesson is that multiple reactors in a single location can be dangerous for, if a natural disaster strikes it can,
as in Fukushima, affect all the reactors. In Jaitapur the plan is to have as many as six reactors, making up the world’s largest nuclear power complex.

The people who have been most affected by the nuclear accidents at Fukushima are, of course, the workers who have been braving explosions and high levels of radiation exposure to try and maintain control over the reactor and associated facilities. Next to them are the inhabitants of the areas near the plant, nearly 2,00,000 of whom have been forced to leave their homes. This reminds us, again, that those who live near hazardous facilities face grave risks and therefore their opinion should be given greater weight in decisions to build nuclear reactors. Instead, in India, we have seen the locals in Jaitapur being subjected to repression (“State Repression in Jaitapur”, EPW, 22 January 2011).

Prime Minister Manmohan Singh told the Lok Sabha that the “Department of Atomic Energy and its agencies, including the Nuclear Power Corporation of India, have been instructed to undertake an immediate technical review of all safety systems of our nuclear power plants”. While a review is certainly necessary, getting agencies who have a vested interest in assuring people that all is safe with our nuclear power plants to conduct this review is hardly sagacious. The people of India deserve better.