

What India can learn from Fukushima

By Pallava Bagla

Noted nuclear metallurgist, Siegfried Hecker, is one of the most sought after nuclear scientists in the world. He headed the key American nuclear weapons design facility, the Los Alamos National Laboratory in New Mexico, for over a decade till 1997. He continues to be an emeritus director and is simultaneously a professor at Stanford University. During a recent visit to India, he told Pallava Bagla why he admires India's nuclear programme, what its failings are and how both India and the U.S. can benefit by cooperating in nuclear energy. Excerpts from the interview:

You once said Indian atomic energy scientists were better than those in the U.S. Do you still believe that?

I have visited both the Bhabha Atomic Research Centre and the Indira Gandhi Centre for Atomic Research. The technical people I found absolutely first-rate, these are world-class scientists and engineers, and in my opinion on par with those of the United States.

In fact, India is ahead since you have never stopped the serious research related to nuclear energy and technology. If anything, the Indians accelerated it after the 1974 nuclear blast because they were sanctioned and realised that if they were going to carry out their plan for this very ambitious three stage atomic programme, they would have to do it themselves.

So they continued all aspects of those research programmes. In the U.S., after the Three Mile Island accident, it was clear that nuclear power was not going to expand in the country. So the research dropped, the funding dropped. For a while, universities dropped out of the nuclear research business. But India never stopped. So India has an overall nuclear energy research programme that is significantly superior to the U.S.

This is the point that I brought back to Washington — that it would be to the U.S.'s advantage to actually work with the Indians because there are things the Indian nuclear complex can do in their facilities that we no longer can do. There are people that they have and programmes that they have that we have abandoned.

As the U.S. looks seriously to get back into the nuclear energy business, it should look towards India as to how to do cooperative research for the benefit of the Americans. On the Indian side there is always benefit by any technical cooperation when it comes to safety and security.

What do you think of the Indian Fast Breeder Reactor programme?

The Indian programme is one of the most innovative and also the most ambitious. The Indian nuclear complex has indeed done a lot of the type of work that needs to be done to be able to design, manufacture and then operate the fast breeder reactors. So, I think the rest of the world has a lot to learn, because I think at this point the Indians are going to put into operation the first new fast breeder in quite some time. But on the safety side, I would feel

much better if the Indian complex had much closer connections to the world community. And so, technically it is very interesting, it is really ambitious, and is quite a safety challenge.

Have you been following the debate on the liability legislation?

Of course I know that there have been problems but I think eventually the biggest challenges will be internal. As I follow the public demonstrations against uranium mining or the opening of nuclear power plants, I think the Indian government could learn a lot from other countries as to how to overcome the concerns and the suspicions of the public, how to deal with the public in the sort of democracy that India is. China may end up being the only country that puts major new reactors out there because it has a way to control its people. India has no such controls. It has to convince its people that nuclear power has to be a significant part of the answer. There is a lot of experience in the U.S. on how not to do it, in France how to do it, now in Japan how not to do it.

After the Fukushima accident, do you think nuclear power is still safe?

The Fukushima accident is again a wake-up call that the nuclear industry appears to need to remind it of just how important safety and a safety culture are. In the retrospective analysis of Fukushima it became quite clear that Japan didn't do all those things it needed to do to make nuclear power safe enough. After Three Mile Island, the U.S. learned an enormous amount and improved its nuclear safety. And then after Chernobyl, much of the world learned that there is work to be done. Yet, the people who have analysed this would say that the Japanese did not learn much from Chernobyl.

Of course the Fukushima reactors are different, but that is not the issue. The issue is much more about a higher structure in the nuclear environment. How you have independence of a regulatory system, how you do emergency response. And so Japan now had this accident, and now the rest of us must learn. What I would do in India is to make sure I really study what happened in Fukushima. Can we still safely generate nuclear power?

I think nuclear power is safe since compared to all of the other forms of generating power that put significant electricity on the grid, nuclear still has among the best of the real track records in safety.

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