

# Thoughtso's Weblog

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## Top scientist: Fukushima displayed robustness of nuclear safety

Last week saw the locals intensifying their protests at the under-work Kudankulam and Jaitapur nuclear power station sites. Even as the protestors hardened their stance with indefinite fasts and public hearings, the Department of Atomic Energy (DAE) and allied organisations were hardly heard and seen, thus much less understood. I must add that *this situation came about despite persistent efforts to seek their views via their communications departments.*

But this search for a voice also provided an opportunity to discover and interact with **Sudhinder Thakur, Distinguished Scientist & Fellow at the Nuclear Power Corporation of India Limited (NPCIL)**. Unlike his departmental colleagues, Thakur did not shy away from a Q&A session. In fact, he accepted the request at a very short notice. Following are the excerpts:

**Q:** Apart from that in Jaitapur and Kudankulam, there is local opposition even at Mithi Viridi in Gujarat, Haripur in West Bengal & in Haryana, where nuclear plants are to come up. It can't be overlooked.

**A:** You must realise that there are different types of protestors. First are those who are opposed to atomic energy, so they will oppose any project we undertake. Then there are those who oppose developmental projects of any kind. It can be a railway line or a nuclear plant, they all are to be opposed by them. Lastly are those who are affected in terms of displacement or losing of land. Such people need to be duly recognised and compensated. **It is a fact that in a post-Fukushima world, public perception is against having nuclear plants in their vicinity.**



'Ready to answer', Sudhinder Thakur of the NPCIL. Photo: Jugal R Purohit

**Q:** Do you think these concerns are genuine?

**A:** Well, those who oppose us should visit our existing plants. That will allay their fears. **About Fukushima, I believe it to be a classic case of misinformation. The tsunami there killed 30,000 thousand people and what happened at the plant did not kill even one person! But still the focus of coverage remains on the core meltdown and pool damage at the plant site.** No doubt people were displaced and hopefully they will return sooner than later. But the point is that if anything, **the Fukushima incident was a display of the robustness of nuclear safety!**

**Q:** That is not a view we hear often. Can you please elaborate?

**A:** It showed that no matter how bad the situation, the systems are designed to give you enough time to extricate yourself. That is what happened at Fukushima. Nothing, in this business happens instantly.

**Q:** Another issue that is common in these protests is that of proximity of existing settlements to nuclear plants, which are coming up. People are not comfortable about plants in their vicinity, as you mentioned.

**A:** Five decades ago, when we embarked on this road, we decided on a **self-imposed distance of 1.5km from the centre of the reactor for abundant precaution.** This is known as an **exclusion zone – no human habitation of any kind is allowed** here. Let me tell you that **this is a typical Indian concept. Abroad, farmers till their lands right outside the nuclear reactors!** Very soon, this distance will be reduced to 1km given the difficulty in acquiring land and enhancements in safety features which have come about.

**Q:** That means you will end up bringing people closer to your plants. Will this not aggravate the situation further?

**A:** No. There is no problem to worry about. At the boundary of our **existing plants, the radioactivity measured is 1000th time lesser than the permissible level** specified by the Atomic Energy Regulatory Board (AERB). There is a **natural background radiation that all of us are exposed to, which is to the annual tune of around 2400 millisieverts (mSv).** **In our exclusion zones, the measured value was 2410-2420 mSv. Hardly any difference.** We are not causing any damage, please note. Those opposing should understand that our men and women too are working inside these facilities on a 24-hr basis for years now.

That apart, we **also observe a sterilised zone in a radius of 5km from the reactor site where existing settlements are allowed.** And for a **distance of 16kms from every reactor site, we draw up emergency evacuation plans** to be prepared, just in case.

**Q:** What do the guidelines specify in this regard?

**A:** Firstly, **these specifications of the AERB are preferable** in nature. They stipulate that **5km from a reactor site – inside the sterilised zone – not more than 10,000 people should be allowed** to stay. Further, in **10km distance from the site, not more than 1,00,000 people should be allowed**. These rules were **framed two decades ago and since then the population has risen** but the **amount of land available has shrunk and will shrink**. The crux for all these figures and plans is to **have an effective emergency plan in place. And if we focus well on that drill, rest will fall in place.**

**Q:** A Norwegian environmental NGO claims to have a leaked copy of a Russian governmental report stating that on a general level the Russian reactors – which will be imported in the Kudankulam plant – are **‘under-prepared for both natural and man-made disasters ranging from floods to fires to earthquakes or plain negligence.’** ([http://www.bellona.org/articles/articles\\_2011/rosatom\\_report](http://www.bellona.org/articles/articles_2011/rosatom_report)) Please respond.

**A:** For Kudankulam, we have gone in for the Russian VVER 1000Mwe Pressurised Water Reactors (PWR). Apart from what the reactor offered in terms of safety features, we have incorporated additional ones which are being seen as landmark features. For example, we have the passive heat removal system. It keeps the temperature inside the reactor within limits using environmental factors. Even if power generation and diesel emergency sets fail, we won't suffer because the cooling will take place effortlessly. In fact on the internet too, we have got some very good reviews about it. **The Russian VVER 1000 reactors thus are very safe Generation 4 reactors** – comparable with other PWRs anywhere in the world.

**Q:** Coming back to Fukushima, what has come out of the safety review that was undertaken. How many recommendations have been incorporated?

**A:** The **situation at Fukushima is still evolving**. We are monitoring it and are also in touch with International Atomic Energy Agency (IAEA) and WANO (World Association of Nuclear Operators) over this. Purpose of a review is to understand what needs to be done immediately and what needs to be done on a long-term basis. The immediate factors have been addressed.

**Q:** Given the world scenario with powers like **Japan and Germany having pulled out of the nuclear race and the growing local opposition**, what is the **future of nuclear energy in India?**

**A:** We need nuclear energy. Local opposition in some part is understandable. Hopefully, with a new land acquisition bill, issues like acquisition, compensation and rehabilitation will be better handled. Also **please note that when seen in context of land requirement in terms of power generation, we need the least amount of land** among all modes of power generation. There too, say we acquire about **500 hectare for a plant. Of that, for actual construction, our requirement won't be more than 100-150 hectare. Rest is left as it is for exclusion zone.**

Even with regards to damage to environment on per KiloWatt basis, nuclear energy is the least damaging. In sectors like **thermal or gas power, accidents and deaths take place in transportation. Such instances are unheard of in nuclear energy business.**

**Every year so many people die in road and rail accidents, but people accept them. There are risks with every technology. But in nuclear technology, risks are minimal.** I am sure people will understand this.

**Q:** There is a feeling that India is trying to embrace nuclear energy at a time when the world is looking beyond the atom. Your views please.

**A:** Let us take the case of the **USA. It may be a fact that no new nuclear plants have opened there after the early seventies. But it is also a fact that they have upgraded their existing nuclear power centres for better output and longevity.** I believe there is some work going on in that country towards opening newer plants too. So they are far from shunning it. And so are the other developed nations. After all, it is a fact that **when compared with solar, wind and even thermal, nuclear power is the most efficient in terms of its output.**

**Q:** I would like to end by asking that when such a raging debate is taking place worldwide on nuclear matters, there is little aggression on your part in advocating your cause. It will obviously be seen as if you have nothing to counter or something to hide.

**A:** I do feel that in this day and age, **we simply can not work the way we used to. Our old methods need to be reformed. Our out-reach needs to grow exponentially. We need to wake up to a newer and much better connected world.**

**8 Responses to “Top scientist: Fukushima displayed robustness of nuclear safety”**

*Sanket* Says:

[September 18, 2011 at 2:45 pm](#)

It's always so enlightening to hear the other side. That brings us to another question that why does the govt behave like a snob who feels he is not answerable to anyone. The same kind of explanations could have come out officially from govt agencies.

*Smita Deshmukh* Says:

[September 19, 2011 at 10:47 am](#)

Very interesting...actually, got clarity on many issues. One thing is sure – we need nuclear energy but we also need inclusive development. The locals must be informed and made partners in such sensitive projects before they fall prey to some disinformation campaign. Good work, Jugal  
*thoughtso* Says:

[September 19, 2011 at 12:41 pm](#)

Comment arrived on mail:

Mr.Thakur has told us so many things we dont know.Good work.

*Prem* Says:

[September 19, 2011 at 12:59 pm](#)

Many doubts has been removed and is agreed with some pleas given by Mr. Thakur , yes of course many people die with road accidents daily are unnoticed but living with fear near these power plants and even a single accident met due to this plant is going to be visible for decades.....people are never against development but they have lost faith in system ,whether concerned will be able to follow high – norms without any corruption....the need of the day is to first instill faith in system then everybody will follow the decision without any question.....

*thoughtso* Says:

[September 19, 2011 at 1:15 pm](#)

Comment arrived on mail:

We need to give space to views of scientists as much as we do to assorted environmentalists and others of similar ilk. this does not mean i support one group or the other but just that voices within our scientific community rarely get heard while those who protest too much make front news...

*Lokesh Kumar Says:*

[September 20, 2011 at 6:12 am](#)

Each and every point raised in the Q&A session has been clarified in the simplest language with full honesty. I am sure that public by and large shall understand the merits of nuclear power and also will appreciate that how important it is for growth of the nation. Mr. Thakur has nicely and in a very straight forward manner has answered all the points which a common man desires to know about nuclear power. Excellent work

*Pramod Jain Says:*

[September 20, 2011 at 12:23 pm](#)

I agree with Lokesh . Mr Thakur has done an excellent job .

*thoughtso Says:*

[September 20, 2011 at 6:39 am](#)

Comment arrived on mail:

Quite erudite and well stated case. I have not studied the risk factors, ameliorating practices and consequential effects. None the less, the Western, advanced countries would hardly have taken decisions on political considerations, particularly when they are oil deficient, energy hungry and with little alternate energy sources. If we are to have an exponential growth, let it be indigenous and not designed to support foreign economies. It is difficult to gloss over Fukushima as a Media sensation. We were lucky that there wasn't another Chernobyl! I wonder when people who were evacuated, will be able to return! Besides the technology to dispose the waste has not yet been adequately developed! For me, develop alternate energy sources which are clean!