

**“Nuclear Safety: Post Fukushima”**  
**6:00 pm – 7:00 pm: 13 December, 2011**  
**WWF Auditorium, 172-B, Lodi Estate, New Delhi**



With the issue of nuclear safety coming into prominence once again post the earthquake in Japan and the subsequent consequence on the Fukushima Dai-ichi nuclear reactor, Aspen Institute India in collaboration with Council on Energy, Environment and Water (CEEW) organised a session on Nuclear Safety: Post Fukushima with Prof. Sanjoy Banerjee, CUNY Distinguished Professor of Chemical Engineering and Director of the Energy Institute, New York. The session was chaired by Dr. Arunabha Ghosh, CEO, Council on Energy, Environment and Water.

Dr. Arunabha started the session by highlighting some of the issues that India and the world is facing on nuclear energy. He said that there are around 435 nuclear reactors around the world and there are plans to increase by almost the same number. But, in the last twelve months, the Fukushima Dai-ichi incident has put a pause on such expansion plans and in some cases a stop. The same question India is facing, whether it should stop or continue with its civil nuclear plans and with what kind of regulatory mechanisms in place. The other aspect is the difference between responsibility and liability. Who takes on the liability and where the responsibility lies in the first place? Another aspect is the choice of technology, to what extent Generation 3 reactors are viable?

Prof. Banerjee explained the anatomy of different types of reactors like Boiling Water Reactor, Heavy Water Reactor and Pressurized Water Reactor. He explained the Fukushima plant in particular and what led to the nuclear accident there. He said “the Fukushima plant is or was the early version Boiling Water Reactor”. The plant was designed to resist tsunamis up to 5.6 metres but the tsunami that hit the reactor was around 14 meters. This resulted in the shutting down of all the external powers, all the generators and all the batteries. The emergency devices were knocked out and the plant didn’t have any power at all after the batteries ran out after eight hours. He added that one of

lessons learned from this is to have either passive cooling system in place or have some source of power always running no matter what happens.

He also added that the Fukushima incident was the second serious after Chernobyl. However, there were no immediate deaths in Fukushima as was in the case of Chernobyl. The radiation was 1/10<sup>th</sup> the amount of Chernobyl. And, what we learned from Fukushima is that the future designs of nuclear plants should be on the basis of estimating accidents and to withstand floods, tsunamis etc.

In the Q&A session, Prof. Banerjee explained the difference of perception among countries in lieu of their nuclear energy program. In the United States, none of the plants have been shut down. However, all the reactors are going through re-evaluation. There are nine new plants proposed in which three are very advanced and they are purely passively cooled plants. In China, the plan is to not to stop construction but to re-orient on purely passively cooled concept. And in general, future plans have moved from actively to passively cooled concept. When asked about his views on Germany which wants to phase out nuclear program by 2020 and the other countries like China which want to continue their nuclear program, he said “the opposition in Germany is very strong and heavy. There is a difference in political climate and the divide is basically political”

The video can be viewed here:

<http://www.youtube.com/watch?v=UBH2huNWyp4&list=UUlvdd1ncT8Z9OtE6gEXc8HQ&index=1&feature=plcp>