

# Kaiga Incident: Wake Up Call Or Tempest In Teapot?

Bangalore: (IANS) Whoever spiked the water cooler in the Kaiga atomic plant with radioactive tritium on Nov 24 has not been original.

A simple Google search will reveal that the incident is a replay of what happened in 1990 at the Point Lepreau Nuclear Generating Station in Canada.

Reports then said that an employee at the Canadian station obtained about "half a cup" of heavy water from the primary heat transport loop of the nuclear reactor and loaded it into a drink dispenser in the employee canteen.

Eight workers drank some of the contaminated water. The incident was discovered when they began leaving bioassay urine samples with elevated tritium levels.

The media then reported that the episode was intended to be a "practical joke" whereby the affected employees would be required to give urine samples daily for several days!

The Canadian incident was dismissed as a prank and forgotten because it happened prior to 9/11 and 26/11.

Only an ongoing enquiry will tell if the Kaiga incident is the handiwork of a prankster or a "malevolent" act as described by Indian science minister Prithviraj Chavan — or just a plain mistake that has been blown out of proportion.

Nataraja Sarma, retired nuclear physicist and author of the book "Nuclear Power in India" says it could be just a human error - not uncommon at the Bhabha Atomic Research Centre (BARC). He points out that in the 1980s a vast area in the BARC campus got contaminated by radioactive effluents accidentally discharged from the plutonium plant and the soil had to be decontaminated.

In another incident, scrap metal in Mumbai's "chor" (thieves) bazaar that was found radioactive was traced to the plutonium plant at BARC. A worker had sold some discarded plant parts. K.S. Parthasarathy, former secretary of the Atomic Energy Regulatory Board told IANS he is aware of a case when a worker actually drank some heavy water containing tritium, in the hope he would get a few days off from work. "He was crazy."

Tritium is the radioactive isotope of hydrogen but the beta radiation emitted by it is of such low energy it cannot even penetrate the human skin. In other words tritium can cause harm only if it enters the body through food or water but its intake must be in large amounts to pose a significant health risk.

Though tritium has a long a radiological half-life (12.3 years) its biological half life — time it takes for half of the activity to be physically removed from the body — is about 10 days which can be shortened to 2-3 days by drinking a lot of fluid.

Some tritium is naturally formed in the upper atmosphere by cosmic rays. The air also contains tritium left behind by atmospheric weapons testing between 1954 and 1962. But most tritium

in the environment today is discharged from Kaiga-type reactors that use heavy water as moderator and coolant.

Heavy water is chemically the same as regular (light) water, but with the two hydrogen atoms replaced with atoms of deuterium — another isotope of hydrogen.

During reactor operation, deuterium in heavy water is activated by fission neutrons to form tritium. It is an important material in nuclear weapon design for boosted fission weapons and also has civilian applications - for instance in watch dials that glow in the dark. If not recovered from the used heavy water, tritium is discharged from reactors in its elemental form as a gas through stacks or in the form of tritiated water into the lakes and the sea.

Irrespective of how tritium entered the Kaiga water cooler, the incident highlights the need for vigilance in nuclear plants, says Parthasarathy. "Traditionally we have been thinking of securing nuclear plants from earthquakes and tsunami but the Kaiga incident has added another dimension to it."

A retired director of one of the nuclear stations, who does not want to be named, agrees.

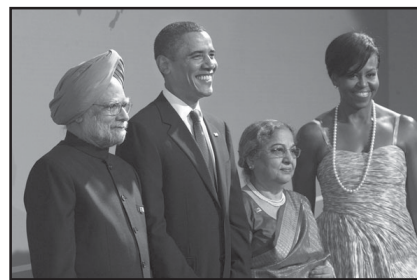
"Security today means checking handbags and inspecting vehicles and vigilance is all about who takes bribe," he said. "Our security at this level is good but is unprepared to deal with potential threats from scientific staff." A nuclear reactor has several hotspots and tampering with any of these can cause a radioactive accident a lot more severe than the trivial incident at the water cooler, he said.

"Scrutiny of staff is totally missing in our power stations," he warned, adding that this calls for urgent attention considering that hundreds of new jobs will be created in the coming years with the projected expansion of India's nuclear program.

"At present our plants are guarded by persons supplied by the Central Industrial Security Force (CISF) and they take orders from their own boss in Hyderabad or Delhi and not from the station director," he said. "The nuclear plants should have their own security staff with some training in reactor operation."



# Manmohan Charmed By Michelle



Aboard Air India One: (IANS) Prime Minister Manmohan Singh says he was charmed by US First Lady Michelle Obama and the conversation he had with her on the same table at the White House dinner last week were among the memorable parts of his trip to the US last week.

"I shared the table with Michelle Obama. And the conversation I had with her was one of the most memorable part of the evening," Manmohan Singh told IANS when asked what was the most cherished moment of his four-day US visit that ended last month.

He was speaking while returning from Trinidad and Tobago, where he had gone to attend the Commonwealth summit, Sunday night.

Earlier in Port-of-Spain Manmohan Singh had described the White House dinner as "magnificent" and "a unique experience" to remember. The much written about state dinner - described by the New York Times as a "glittering gala with distinctive touches" - hosted at an elegantly designed white tent erected on the South Lawn of the White House was attended by top Obama aides, powerful senators, Hollywood moguls, billionaire tycoons and successful Indian-Americans.

Manmohan Singh and his daughters Amrit Singh and Upinder Singh sat with Michelle Obama at the state dinner. Dressed in a glittering champagne-coloured gown designed by Indian-born, US-based designer Naeem Khan, Michelle Obama was the talk of the town. Ahead of the dinner, in a conversation with school children at the White House, Michelle Obama showered praise on India and asked the students to imagine a day when they will be studying in Mumbai or New Delhi or Bangalore to deepen ties between the world's greatest democracies.

"The prime minister has great admiration for President Obama and Michelle. They were very warm and hospitable throughout the trip. The conversation at the table was great," according to senior Indian officials who were among the privileged few who attended the first state dinner of the Obama presidency. Manmohan Singh's spouse Gursharan Kaur shared the table with US President Barack Obama, former Democratic presidential candidate John Kerry and Pepsi CEO Indra Nooyi.

## Delhi Metro: Billion Passengers & Counting



New Delhi: (IANS) The Delhi Metro has achieved another feat. The mass transport system has in the seven years of its existence ferried one billion passengers, which is virtually India's population.

"The Delhi Metro achieved a historic milestone when it crossed the one billion mark for the passengers who have travelled by the Metro since it became operational, which is almost equivalent to the population of the country," Delhi Metro Spokesman Anuj Dayal said Friday.

The Delhi Metro began its journey Dec 25, 2002 on a small stretch of 8.5 km from Shahadara to Tis Hazari. At that time, about 35,000 passengers were using it daily. Now, with the network touching nearly 90 km, spanning three lines, the average daily ridership has touched 900,000 on an average. "With the massive expansion in the last seven years, the number of people who have availed Delhi Metro services touched a record 1,014,955,894 Thursday," Dayal added.

## Priest Sex Scandal Rocks Kancheepuram

Kancheepuram: A sex scandal involving a temple priest in the famed pilgrim town of Kancheepuram has shocked devotees.

The public is aghast that his sexual escapades took place in the sanctum sanctorum of the Machaesa Perumal temple, a Vaishnavite shrine. According to reports a priest Devanathan (36) — a father of 2 children, used to engage in sexual acts while the devotees waited outside to perform puja. The pervert priest even used to record his sexual acts on his mobile phone.

Police picked up the man in first week of November after they got hold of a CD showing his sexual exploits within the temple's precincts. Copies of the CD had apparently sold like hot cakes in the town famous for its 'kancheevaram' silks.

## India Hopes To Join Cryogenic Rocket Engine Club January 2010

Chennai: (IANS) India's heaviest rocket - the 49-metre tall, 414-tonne Geosynchronous Launch Vehicle (GSLV), powered by the indigenous cryogenic engine, will be launched in January 2010, making it a member of the select club of countries possessing this technology.

Officials of Indian Space Research Organisation (ISRO) say the space agency will start the new year in style, launching the GSLV-D3 carrying the two-tonne communication satellite GSAT-4 sometime next month and not December as hoped earlier.

Speaking to IANS on the condition of anonymity, an ISRO official said: "The launch is ex-

pected in January. From the time the satellite reaches the spaceport, one needs at least 30 days' time for checking the systems prior to the launch. The satellite is yet to reach the spaceport."

The GSAT-4 was supposed to reach ISRO's spaceport Sriharikota last month, but is now expected during the middle of this month.

ISRO's director for Publications and Public Relations S.Satish told IANS from Bangalore: "Twenty days' time is sufficient for checking the satellite systems at the spaceport." However, he declined to comment on the probable month of launch. ISRO's chairman Dr.K.Radhakrishnan was not available for comment on the subject.

GSAT-4 will carry a multi-beam Ka-band bent pipe and regenerative transponder and navigation payload in C, L1 and L5 bands. The satellite can guide civil and military aircraft.

GSAT-4 will also carry a scientific payload, TAUVEK, comprising three ultra violet band telescopes developed by Tel Aviv University and Israel space agency (ELOP) for surveying a large part of the sky in the 1,400-3,200 angstrom wavelengths. An ISRO official told IANS the test results are being reviewed by experts to be doubly sure about its efficiency so that rocket's third stage can deliver the satellite into geo transfer orbit (GTO) from where it will be taken to an altitude of 36,000 km above earth and then positioned.