

Our nuclear power programme is not vulnerable: Kakodkar
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By T.S. Subramanian

CHENNAI, DEC. 6. "We are not vulnerable in our nuclear power programme. Our domestic programme based on self-reliance is robust," Anil Kakodkar, Chairman, Atomic Energy Commission, has said. He made this observation when his reaction was sought on Russia expressing its inability to extend the supply of low enriched uranium (LEU) fuel to the first two nuclear power reactors at Tarapur.

Russia has also said that it would not provide two more reactors for Koodankulam in Tamil Nadu.

Answering a question on whether Tarapur 1 and 2 depended only on the low enriched uranium as fuel and whether they could not be run on the mixed oxide (MOX) fuel which India has already developed, Dr. Kakodkar said: "If we get low enriched uranium, it is the preferred option. If you don't get it, you have to find alternative solutions. We have kept an open approach. Let us see how things move."

Asked what was the problem in running Tarapur 1 and 2 on the MOX fuel, he said: "We have already proved the MOX fuel. We have made MOX fuel bundles and we have sort of used them in Tarapur. But we have to check out the technology. We have to reengineer the reactor core to make use of the MOX. Of course, we can do that."

The AEC Chairman said that "we have plans at this moment" to use the MOX fuel for the series of fast breeder reactors that India wanted to build. "So, we can take Tarapur in our stride."

Asked if India would build its own reactors at Koodankulam since Russia had decided not to supply more for the site, he said that "it is good to have similar reactors at the same site. We can build our Pressurised Heavy Water Reactors at Koodankulam and also somewhere else." The PHWRs that India would build at Koodankulam or elsewhere would generate 700 MWe.

"The point is that we have always looked upon external inputs to our nuclear power programme as additionalities. But our domestic programme is based on self-reliance. These two are separate things. We have a policy and we will stick to that policy," he said.

Tarapur 1 and 2 in Maharashtra run on low enriched uranium. Russia provided 50 tonnes of LEU in 2001 to keep them running. At Koodankulam, two reactors called VVER-1000 from Russia, each with a capacity of 1,000 MWe, are under construction. Russia had earlier lobbied hard for selling two more reactors for Koodankulam.

In an interview to The Hindu in New Delhi on Sunday, Alexander Rumyantsev, Director of the Russian Federal Atomic Energy, expressed Russia's inability to resume the supply of LEU for Tarapur 1 and 2. He also scotched speculation that Russia would provide two more reactors for Koodankulam.

Mr. Romyantsev said that the guidelines of the Nuclear Suppliers' Group stood in the way of Russia continuing to supply enriched uranium to Tarapur and selling more reactors for Koodankulam. Russia is a member of the NSG.

DAE surprised over Russian stand on nuclear fuel

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By T.S. Subramanian

CHENNAI, DEC. 6. Russia's decision not to extend the supply of low enriched uranium (LEU) fuel to the first two nuclear reactors at Tarapur and also not to sell two more reactors for Koodankulam has surprised the Department of Atomic Energy (DAE). For Russia till the other day had been lobbying hard for selling two more reactors for Koodankulam, where two Russian reactors called VVER-1000 are already under construction. E.A. Reshetnikov, Deputy Minister for Atomic Energy, Russian Federation, said at Koodankulam on March 21, 2002 that Russia would like to sell two more reactors for Koodankulam in Tamil Nadu. He kept pointing out on that day — when the construction of the Koodankulam Nuclear Power Project (KNPP) began — that Koodankulam was a big site and that it could accommodate four more reactors.

The Tarapur Atomic Power Station-1 and 2, and the KNPP have had a chequered history. Tarapur, 100 km from Mumbai, in Maharashtra was chosen in 1960 as the site to locate India's first atomic energy project. Homi Bhabha, founder of India's nuclear power programme, decided to opt for Boiling Water Reactors (BWRs) there. Under an agreement between India and the United States, a contract was signed on May 8, 1964 in the U.S. for the construction of two BWRs of 230 MWe each at Tarapur. The fuel was LEU. Light water was both coolant and moderator. The General Electric of the U.S. built the reactors. Bechtel were the architect-engineers. Under an agreement, the U.S. was to supply LEU for 30 years for the two reactors. The two reactors started generating electricity on February 1 and 27, 1969.

MOX fuel

The TAPS ran into several problems. The United States, which was to supply LEU for 30 years, stopped the supply from 1981 after India conducted its peaceful nuclear experiment at Pokhran in May 1974. France stepped in to supply fuel for 10 years. This was under a tripartite agreement where apart from the U.S. and India, the International Atomic Energy Agency (IAEA) was fully involved. The French supply stopped in 1992. The reactors were also derated to 160 MWe. Meanwhile, scientists and engineers of the Bhabha Atomic Research Centre (BARC) developed the mixed oxide (MOX) fuel on which the TAPS reactors could be run. The Nuclear Fuel Complex in Hyderabad produced the MOX fuel. It is a mixture of uranium and plutonium, which partly replaced enriched uranium. The fuel, which was inserted in both TAPS - 1 and 2, gave several successful cycles. After France stopped the supply, China gave enriched uranium to TAPS.

Then Russia provided 50 tonnes of low enriched uranium to TAPS in 2001.

Russia now says that it would not continue the supply of enriched uranium to TAPS, quoting the Nuclear Suppliers' Group (NSG) rules.

These rules insist that India should accept full-scope safeguards on all its nuclear facilities to inspection from the IAEA to see whether there is any diversion of fissile material to make nuclear weapons.

This is a big anathema to India. Among others, Russia, the U.S. France and China are NSG members.

The Koodankulam Project too witnessed several ups and downs. On November 20, 1988, the Prime Minister, Rajiv Gandhi, and the Soviet President, Mikhail Gorbachev, signed an Inter-Governmental Agreement (IGA) for the construction of two Russian VVER-1000 reactors of 1,000 MWe capacity each at Koodankulam. It was to be a turnkey project, with the Russians doing everything. But the project proved to be a non-starter because of the disintegration of the Soviet Union. Differences arose over the rupee-rouble payment ratio. In the 1990s, the then Atomic Energy Commission Chairman, M.R. Srinivasan, tried hard to breathe life into the project. Finally, it came alive when a supplementary agreement was signed to IGA in New Delhi on June 21, 1998. Then AEC Chairman, R. Chidambaram, and the Russian Minister for Atomic Energy, Yevgeny Adamov, were the signatories.

Under the supplementary agreement whose terms were totally different from IGA, while Russia would give the designs of the two reactors and supply the equipment, the Nuclear Power Corporation of India Limited (NPCIL) would build them. Russia would supply LEU for the entire life of the two reactors.

Reshetnikov and officials of Atomstroyexport, the Russian nuclear power engineering company, had said that they were keen on providing two more reactors at Koodankulam besides the first two which are under construction. So, there is surprise in the DAE that Russia now does not want to sell two more reactors for Koodankulam.

The TAPS -1 and 2 are under safeguards. Koodankulam- 1 and 2 too will come under the IAEA safeguards.

Russian fuel for Tarapur ruled out

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By Amit Baruah & R. Ramachandran

NEW DELHI, DEC. 5. Russia, which provided 50 tonnes of enriched uranium to keep the Tarapur nuclear power plant going in 2001, has expressed its inability to supply much-needed nuclear fuel again for the plant.

Speaking to The Hindu in New Delhi, Alexander Yuryevich Rummyantsev, Director of the Russian Federal Atomic Energy Agency, pointed out that Russia was bound by the

guidelines of the Nuclear Suppliers Group (NSG), which prevented it from providing the fuel.

He scotched speculation that Russia would be providing two additional 1,000 MW reactors for the Koodankulam nuclear plant that is under construction. Again, Mr. Rummyantsev said, it was Russia's NSG commitments that kept it from expanding nuclear cooperation with India.

On Tarapur, when reminded that the Russian side was able to supply fuel for the nuclear plant in 2001, despite the fact that it was bound by NSG guidelines, he said it was provided for "safety" reasons — in an extreme case — and could not form part of "usual cooperation."

And what was the extreme case then? "India at that time had no fuel. This was the extreme case," he replied. "You know there was a very negative reaction from the NSG."

Mr. Rummyantsev indicated that the 2001 action was part of an understanding with the NSG that fuel would not be supplied again. Mr. Rummyantsev was aware that even now Tarapur was encountering the same problem it faced in 2001. "Yes, I know. This is the pain of my soul. But what can we do?"

He stated categorically that more enriched uranium would not be coming to India from Russia for Tarapur. According to him, 50 tonnes of enriched uranium were required to keep the power plant going.

Asked what was the response to Russia's 2000 proposal to allow India to enter the NSG as a nuclear weapons' state or an associate member, Mr. Rummyantsev answered that the Group came up with a very negative response.

Although India created its own nuclear weapons, Russia was following its international obligations. "But, I am sure this question will be solved — India will be a member of the nuclear club." If India were to bring all its nuclear facilities under the safeguards regime of the International Atomic Energy Agency (IAEA), that is, accept full-scope safeguards, "it will be all right," Mr. Rummyantsev said. "But, you know, India cannot show all facilities," he added.

A.Q. Khan case

Describing the A.Q. Khan-led smuggling ring as a "nuclear black market," Mr. Rummyantsev, however, said Dr. Khan was "no longer active." He said intelligence officers of several countries were involved in shutting down the Khan operation.

Pointing out that the Khan ring was a violation of the nuclear non-proliferation treaty (NPT), he said the Russian reaction to this was extremely negative. "In reality, this is a black market of nuclear technology and, most probably, nuclear materials."

He stressed that Moscow was critical of the actions of Pakistan. "You know that [the] Pakistani Government took some action against Dr. Khan and stopped this activity and proliferation of centrifuge machines."

Proliferation cases

Asked about the "different" responses to nuclear proliferation charges relating to North Korea, Libya, Pakistan, and Iran, the Director, who came to India as part of the Russian President, Vladimir Putin's delegation, agreed that there were "hot questions" in North Korea and Libya. "I did not notice any weapons' programme in Iran. I know Iranian facilities and we are building a nuclear power plant [in that country]. We are acquainted with the facilities of Iranian nuclear industry. We did not see the ... fingerprints of the nuclear programme."

Mr. Rumyantsev said the NPT was a formal document and "we have no right to decide in our mind that this country is good and this country is bad." The NPT rules are valid for all countries.