



CBRN South Asia

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CBRN South Asia is an online monthly bulletin of the Nuclear Security Programme of the Institute of Peace and Conflict Studies, providing a coverage of commentaries and news reports relating to chemical, biological, radiological and nuclear weapons material and substances in South Asia.

The bulletin also flags important reports that appear worldwide on the subject and features exclusive interviews.

IPCS is now partnering with the Nuclear Security Project of the Nuclear Threat Initiative (NTI), working towards global nuclear security.

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France, Russia, Canada, Kazakhstan and other countries are rushing to capitalize on India's nuclear-power programme, after the United States pressured the 45-nation Nuclear Suppliers Group to end India's nuclear isolation in September 2008. The decision led to the landmark nuclear deal with the United States representing the centerpiece of their bilateral relations. Indications are that deals with both the United Kingdom and Australia are in the pipeline and that Japan is progressing towards similar relations with the recent launch of a defence action plan with India. In particular, the Indo-Russian nuclear cooperation is significant and goes much further than the agreement between the United States and India as the pact provides for uninterrupted uranium fuel supplies from Russia even in the event of termination of bilateral ties in this field for any reason; it also has provisions for the transfer of enrichment and nuclear technology which is denied in the agreement with the United States.

Not only has India been endowed with a large supply of "yellow cake" from several nations, but there is speculation leading up to the NPT Review Conference 2010 that it might get a parallel position equivalent to that of a "Nuclear Weapons State." These murmurs have emerged from several sources; Secretary of State, Hillary Clinton, herself has declared that President Obama's administration is looking forward to working with India to come up with a 21st century version of the NPT; another has stated that a revolt is waiting to happen and that Prime Minister Manmohan Singh has already broached the idea of India's de jure recognition as a nuclear weapons state with two of the five nuclear weapons states. It is said that India's recent decision to vote against Iran for violating its commitments as a signatory to the NPT is an effort to convince the "nuclear haves" to consider amending the NPT to include India. Lastly, a more probable suggestion came from a report by the International Commission on Nuclear Non-

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Proliferation and Disarmament which clearly states that every effort should be made to achieve India's participation in parallel instruments and arrangements which apply equivalent non-proliferation and disarmament obligations as the NPT.

This middle path may be the only way to correct the injustice that was made to the "nuclear have-nots" and to apply the NPT to the current global reality. It is also apparent that more nations will find it economically prudent to join the bandwagon and gain profit from nuclear commerce with India. It is obvious that as the NPT Review Conference approaches there will be voices representing all sides of the debate. Though the message is evident, a reinvented NPT is necessary to prevent nuclear proliferation and a nuclear catastrophe. It will be interesting to see how the issue shapes up in the coming months and whether any lasting changes will be established.

The Kaiga Conundrum: Question of Nuclear Security

Jasbir Rakhra Research Officer, Institute of Peace and Conflict Studies

The Kaiga Nuclear Power Plant is back in the news again. This time on a serious note – the security of our nuclear installations is at stake. Over 50 workers at the Kaiga nuclear plant have been hospitalized after drinking tritium infested water from a water cooler at the facility. Tritium is a radioactive form of hydrogen, which if inhaled or consumed can lead to cell damage and increase the risk of cancer. Though the radiation was of low magnitude and did not cross the vast expanse several questions on the security of nuclear assets have been raised in the aftermath of this incident. Are we prepared enough to prevent such mishaps? Especially, after the 26/11 terror attacks the security stakes of our nuclear assets have been raised. The other major concern revolves around the existing procedure of employee verification and the effectiveness of the intelligence network.

Just three days before this incident, we observed the first anniversary of the 26/11 Mumbai terror attacks, the most unfortunate event in recent years. After the FBI's revelation that the 26/11 incident is linked with suspected Lashkar operatives David Headley and Tahawur Rana, concerns on nuclear security have deepened. Two weeks before the Kaiga incident, a high alert was sounded pertaining to the security of nuclear installations. This actually was the fallout of the Headley case. It has been reported that between 2006 and 2009, Headley visited the areas where the nuclear assets are located. Though Indian nuclear assets are physically secure with better access controls, the fear of sabotage, whether in terms of material or personnel, cannot be negated. This is quite evident from the mishaps at Kaiga.

An effective intelligence ring both inside and outside the perimeters of the nuclear installations is the need of the hour. As far as personnel reliability procedures are concerned, we did have well placed procedures but the incidents at Kaiga and a similar act at Tarapore atomic power sub-station a few years ago, where radiation spread through a small quantity of radioactive waste deliberately stored by an employee in a tiny bottle, set off alarm bells. Just a day ago, two contract workers, who attempted to steal two computers containing data and were successful in passing through the first security check, were held by the Central Industrial Security Force (CISF) at Tarapur Nuclear Station. Therefore, greater emphasis must be placed on employee verification, especially when we have provisions to employ contract workers. A periodic assessment of these procedures is necessary. An armed attack on our installations would be thwarted. A possible option for any terrorist group would be sabotage through an insider. CISF is responsible for the security of nuclear assets in India. They have been well trained and imparted with specialized

training to meet any catastrophe. CISF can play a vital role in preventative vigilance through its own intelligence network. Intelligence inputs could further be disseminated to other agencies along with the Department of Atomic Energy (DAE). Inter-agency intelligence sharing is substantial, given the fact, that we lacked this attribute in the past.

Authorities at Kaiga remained unwary after a series of incidents. Kaiga is marred by controversies. This is the third incident this year at Kaiga, which has puzzled the investigating agencies. The first incident relates to Ravi Mule, a non-technical employee, who died under mysterious circumstances in Kaiga Township. The second incident relates to the death of Loganathan Mahalingam. Mahalingam's body was found five days after he went missing. He was working on simulators and involved in training young scientists. He had more than twenty years of experience and before Kaiga he worked at the Kalpakkam

“The debate on nuclear terrorism is quite audible in the wake of the growing strategic partnership with the United States in the aftermath of the 26/11 Mumbai terror attacks. It has been well understood that the strategy is to inflict maximum damage and instability in the neighbourhood, where fundamental extremist ideology is spreading like wild fire, could well effect the security of India.”

Nuclear Power Plant, which too is outside the purview of International Atomic Energy Agency (IAEA) safeguards and can be utilized for military purposes. This was the second time he went missing, the first being at Kalpakkam. There are different theories propagated by the investigating agencies. Kaiga too is outside the safeguard agreement and strategically important. Moreover, it is important due to its close proximity to India's largest naval base – INS Kadamba. Mystery still shrouds over Kaiga. Three major incidents in one year need a thorough investigation and a comprehensive review of security arrangements.

The debate on nuclear terrorism is quite audible in the wake of the growing strategic partnership with the United States in the aftermath of the 26/11 Mumbai terror attacks. It has been well understood that the strategy is to inflict maximum damage and instability in the neighbourhood, where fundamental extremist ideology is spreading like wild fire, could well effect the security of India. India has growing energy needs and has entered into a landmark deal with the United States on civil-nuclear cooperation. Very recently, India has successfully negotiated with Canada to ink a deal on nuclear cooperation. It is an opportunity for India after a decade of nuclear isolation to establish nuclear relationships and revive nuclear trade with the Nuclear Suppliers Group (NSG). Incidents like Kaiga only serve to provide an opportunity for adversaries to malign the image of India at international forums. All we need at this juncture is to assure the cooperating nations of our adherence to international norms concerning nuclear nonproliferation and security. This can only be achieved through a comprehensive security apparatus mounted on an excellent intelligence network with the key word being 'coordination' between all the security agencies.

Agni-II Night Trial Failure Brings Defence Flaws to Light

Kriti Singh, Research Associate, Institute of Peace and Conflict Studies

Dashing the high hopes pinned on it by the defence forces, the Indian missile fraternity and the entire nation, the maiden night trial of the nuclear weapon capable Agni-II failed recently. The mission's aim was to test the missile's reliability in adverse conditions, however, the missile failed to pass the test. The term failure is not new to us. We have perhaps become used to this word, especially when it comes to defence equipment and trials of other indispensable armory that makes a country self-reliant on the defence front. Here Light Combat Aircraft [LCA] and the much-troubled Main Battle Tank [MBT] deserve a special mention.

With the government spending tens of millions of taxpayer's money, these recurring failures raise serious concern and questions in the minds of the defence and scientific fraternities and also in the minds of common people regarding the fact that despite tens of millions being pumped into these programmes and government assurances that the best technology is in use, these failures continue to reoccur. As pointed out by one of the analysts, the debacle highlights serious, structural problems within the Defence Research and Development Organisation (DRDO), and its chronic inability to overcome them.

Pointing out the inefficiency of the DRDO despite a whopping annual budget of US\$670 million, Admiral L. Ramdas, a former chief of staff of the Indian Navy revealed that the DRDO isn't the world's most reliable weapons R&D agency. The Indian armed services' experience with DRDO-made armaments has not been a happy one. Their reliability is often extremely poor. 'We often used to joke that one had to pray they would somehow work in the battlefield.'

The arena of science and defence technology is very dynamic, constantly changing and of course not a cake walk. One failure can have several reasons and no experiment comes with the guarantee of a hundred percent success rate. In the past we witnessed an example of scientific disappointment in 2006 during the launch failure of Indian Space Research Organisation's (ISRO) Geostationary Satellite Launch Vehicle (GSLV) carrying the Insat-4c communications satellite. Moreover, Agni-II's last test on 19 May was not fully successful either.

But what makes the failure of Agni-II so important that the entire media has been flooded with the news of its failure? The answer is threefold; first the test launch was significant from India's strategic point of view as it was the first time since the beginning of DRDO's missile development programme that a missile was tested in the night. It was a major step towards making it fully operational in the Strategic Forces Command (SFC), which unfortunately was a failure. Second, the recent report indicating that Pakistan, with the help of China and North Korea, has surpassed India in the

missile arena is a cause of worry. Third, General Kapoor's announcement, hours before India tested the nuclear enabled missile Agni-II, that the Indian sub-continent is prone to nuclear war, meant that the test failure put our preparedness with regard to how we are going to deal with this kind of conflict and instability into question.

This brings us to the question of how much this failure harms the image of the country, which aspires to be a superpower one day. These kinds of failures can prove to be intensely embarrassing for the nation's prestige and raise doubts about India's military-industrial high-tech capabilities. It also highlights our inefficacy in learning from our past shortcomings and political limitations and prevents India from fulfilling its ambitions to pursue a military capability, which would give it a superpower standing.

With its military capability being questioned, embarrassment on the international front and disappointment on the domestic front, what immediate steps can be taken to rectify these enormous errors? One of the answers lies in DRDO's accountability and transparency. As a taxpayer, citizens have the right to know how their hard earned money is being used. If the organization undertaking the enormous responsibility to work on these programmes fails to accomplish the objective it should be accountable to one billion Indians. The nation is not looking for a statement full of scientific jargon but a statement that states that why we failed and who is taking responsibility for it and how the error is going to be rectified. There is an urgent need to overhaul the entire DRDO machinery. The DRDO should come out with facts, for they relate to the country's security and tax payer's money.

In addition to this, the government should take a serious look into the matter as reoccurrences of this kind do not improve the image of the country's defence system either in the domestic stratum or on the international pedestal. The need of the hour demands that the government looks into concrete measures to stem the rot in the existing system as the country's territorial integrity and security is at stake with these kinds of failures. Not only is Agni missile success indispensable in providing a strong strategic position for India but it is also an answer to China's striking capability to hit the Indian gangetic plain from Tibet. It is also capable of hitting any part of Pakistan, which is plagued by political instability and fear of a Taliban managed coup. Looking at the current scenario where power respects power and meek remains weak, such events should be dealt with, with extraordinary swiftness and absolute commitment so that there is no room for error in future.

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Indo-Canadian Civil Nuclear Deal: Rediscovering Partnership

Larissa Wagner, Research Intern, Institute of Peace and Conflict Studies

Despite being one of the first countries to support India's nuclear programme, Canadian shipments of nuclear equipment and material were abruptly suspended by Ottawa after India's first test in 1974. Even though the two countries have always had a very deep and dynamic relationship due to "common values and shared traditions of democracy, the rule of law and pluralism", Canada severely criticized the nuclear test and expressed its deep disappointment in view of the fact that India used Canadian nuclear technology to build a bomb.

The original bilateral deal included an agreement that India would only use Canadian nuclear support for peaceful purposes and would therefore be provided with a CIRUS (Canada India Research US) which is a nuclear reactor using heavy water supplied by US. Canada sold two CANDU (Canada Deuterium Uranium) reactors to India in 1963 and 1966, which have been cloned since then. This isolation has never been total because Canadian scientists were still "permitted to meet their Indian counterparts as part of the CANDU Owners Group, an informal club of CANDU operators, in order to share public information on safety." Furthermore, the fact that today one million Canadians are of Indian origin connects India and Canada in a special way. It could be argued that renewed civil nuclear cooperation was therefore inevitable, since the Indo-US nuclear deal of 2005 re-opened the doors for nuclear cooperation between India and the international community. Canada finally joined the group of seven countries already having a civil nuclear deal with India, namely: Argentina, France, Kazakhstan, Mongolia, Namibia, Russia and the United States and is thus bridging the 33-year gap of negotiations between the two countries.

The Indian and Canadian Prime Ministers discussed their nuclear issues during Stephen Harper's visit in early November, and while meeting on the sidelines of the Commonwealth Heads of Government Meeting (CHOGM) in Port of Spain, where they finally reached an agreement for a civil nuclear deal which is to be completed in 2010 during Manmohan Singh's visit to Canada. Since the 45-nation National Suppliers Group (NSG) lifted a 34-year old ban on New Delhi to join international nuclear trade last year, there are no significant stumbling blocks, which could hinder further collaboration on the nuclear issue. It has always been in the Canadian interest to deepen its ties with India due to its importance as an emerging economic market, where Canada could risk losing its niche to a competitor like France. The fact that Canada is the world's largest producer of uranium and sells about US\$ 500 million worth of uranium per year, of which 85 per cent is

exported, shows its relevance for India's nuclear programme.

It is becoming clear that Prime Minister Stephen Harper's favourable attitude towards India represents more than a "diplomatic handshake", with Canadian sales set to expand the US\$5 billion-a-year trade between Ottawa and New Delhi in the following years. Even though both the Prime Ministers praised each other for their work and negotiations on the impending civil nuclear deal, it seems that the memories of the betrayal of Canadian confidence are still fixed in some minds and disarmament advocates are calling for India to sign a moratorium on fissile material and to agree on the Comprehensive Test Ban Treaty (CTBT). However, there are also voices defending Indo-Canadian nuclear cooperation, such as Ernie Regehr of Project Ploughshares. He states that "there is a special problem with nuclear proliferation. If [Canada sells] uranium to India, the danger is not that it will be used for building weapons. But it will ease the pressure on India's domestic resources so it can use its own (uranium) for its military program." Additional support is coming from Carleton University's expert on nuclear arms and disarmament, Trevor Findlay, who affirms that "the real benefit for Canada is its heavy water technology. Only two countries in the world, India and Canada, use it. They've been in two separate tracks, but now there's an opportunity to get together and sell technology."

Support for the Indo-Canadian civil nuclear deal therefore clearly exists and will lead to its completion in 2010. The deal does not just represent a tremendous change in Indo-Canadian relations, but also stands for another step out of nuclear isolation for India after its nuclear test explosions of 1974. However, points of concern remain with regard to a new civil nuclear deal for India, with Pakistan feeling more and more isolated by the international community. Further deals could threaten the stability of the South Asian region due to the fact that Pakistan is developing the sentiment of a need for nuclear start up in order to catch up with India. Such a situation would complicate the trilateral relations of China, India and Pakistan, unbalancing their current status and therefore affecting the global community as well.

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The Logic of the 'Sundarji Doctrine'

Ali Ahmed, Security Analyst, New Delhi

Deterrence theory has understandably been imported into South Asia with the onset of nuclearization in the late eighties. It, having contributed to keeping the Cold War 'cold,' has much to offer on how the nuclear equation is to be managed. Simply put deterrence posits making a credible threat of nuclear retaliation to ensure that the enemy desists from using nuclear weapons in first place. Official Indian nuclear doctrine has predicated deterrence on assured nuclear retaliation that promises to be 'massive' to enemy first use. This is a controversial extension of the promise of inflicting 'unacceptable damage' that had been suggested by the earlier Draft Nuclear Doctrine. Unacceptable damage does not require 'massive' numbers, when 'sufficient' would do. Both, 'massive' nuclear retaliation and infliction of 'unacceptable damage' have been queried by this author in earlier contributions here ('The illogic of massive punitive retaliation' and 'The illogic of 'unacceptable damage'). It is only fair that an alternative be suggested. This article makes such an attempt.

The doctrinal options for India that practices No First Use are: 'massive' nuclear retaliation as currently posited; infliction of 'unacceptable damage' with 'sufficient' numbers as in the Draft Nuclear Doctrine; 'flexible' nuclear retaliation depending on nature of enemy first use, desired effects and demands of in-conflict deterrence; and lastly, ending a nuclear exchange at the lowest possible level. As argued earlier, inflicting 'unacceptable damage' on the enemy without also degrading his means of retaliation could result in receiving like 'unacceptable damage' in its counter strike. In conflict, deterrence would have it that the power to destroy the enemy with the remainder of one's arsenal would deter his infliction of unacceptable damage on us. Such self-deterrence in the enemy after receiving 'unacceptable' levels of damage is wishful. Since a counter of like proportions is virtually assured, and would be unacceptable to us also, it makes sense not to get into a position of receiving such a counter strike. This means our retaliatory strike should not be of the order as to provoke a counter that inflicts 'unacceptable damage'.

'Flexible' nuclear retaliation, implying a measured retaliatory strike, suggests itself as a suitable option. It is permissive of a wider range of options than strikes causing 'unacceptable' levels of damage. The problem with this is that there is no guarantee against escalation and termination of exchange(s). It is here that the less-discussed 'Sundarji doctrine' has advantages. This requires termination of the exchange(s) at the lowest levels of escalation. It explicitly states the intent not to escalate by promising to remain at the lowest level and promising to

end the exchange earliest. This gives incentives to the enemy to stay at the lower end himself and not to go in for further exchanges, hoping to give us similar incentives. This is at variance with deterrence philosophy that is instead a competition in showing resolve and willingness to face even 'unacceptable' punishment. Such a doctrine makes better sense for India. Firstly, India, just as its putative nuclear adversaries, has vulnerabilities that aggravate 'unacceptable damage'. It would not be able to cope with the aftermath, even if emergency is invoked. It has repeatedly been demonstrated that India's disaster response mechanisms are weak. While these will strengthen over time, Cold War experience indicates that protection through anti missile defences and shelters etcetera is an expensive chimera.

Secondly, the poor would suffer more, especially the long term impact. Unprecedented breakdown of order, in multiples of the Partition experience, would occur. India though powerful, is also a 'weak' state. The verities of national life, as we know it, will be challenged. The impact on polity could be a lurch towards the Right and authoritarianism. In case of Pakistan being the nuclear adversary, internal communal harmony may not withstand the strain of misplaced perceptions and those taking political advantage of the situation. Thus, even if the enemy is 'finished', 'India' as we know it, would also cease to exist. Receipt of 'unacceptable damage' would be equivalent to shocks administered by Timur, Nadir Shah and Abdali in history.

Lastly, provinces that have borne the impact of an 'unacceptable damage' in the form of loss of an urban centre would be miffed. The balance of ethnicities and communities that is India in reality would be upset. Appraisal of the changed local balance would be likely to make the groups effected disillusioned enough to reopen sovereignty issues. In deterrence theory, self-deterrence occurs due to such negative prognostications. Therefore, theory has it that political 'resolve' has to be cultivated and demonstrated. Doing so reinforces deterrence. But consideration as to the response when deterrence for some reason or other has broken down, requires moving away from the promise of inflicting punishment to preserving oneself from unacceptable punishment.

In this light, the Sundarji doctrine recommends itself. It would help preserve India, even while sparing the nuclear opponent the temerity to break the nuclear taboo. Its expectation that nuclear escalation can be avoided needs debate. Measures that need to be instituted for its success, such strategic dialogue in a permanent nuclear risk reduction and management mechanism, can then be emplaced.

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Major Events in South Asia—December 2009

Nuclear Disarmament/Proliferation/ Security

PAKISTAN

2 December 2009

Obama Warns of Pakistani Nukes Falling Into Terror Hands

US President Barack Obama described the Pak-Afghan border as the "epicentre" of violent extremism and said stakes are higher within a nuclear-armed Pakistan with the danger of its nuclear weapons falling into the hands of terror groups. "Our security is at stake in Afghanistan and Pakistan", Obama said while unveiling his much-awaited Af-Pak policy. "This is the epicentre of violent extremism practiced by al Qaeda. It is from here that we were attacked on 9/11, and it is from here that new attacks are being plotted as I speak. This is no idle danger; no hypothetical threat," he warned. Obama sounded the alarm of nuclear weapons in Pakistan falling into wrong hands." (*The Indian Express*, 2 December 2009)

6 December 2009

U.S. Believes Pakistan Nuclear Arms Are Secure: Gates

The United States has helped Pakistan improve security arrangements for its nuclear arms and is "comfortable" the weapons are secure, Defense Secretary Robert Gates said in an interview aired on Sunday. The Pakistani government has come under repeated attack from Taliban extremists, most recently on Friday when two suicide bombers eluded security and blew themselves up in a mosque in Rawalpindi, home to the country's military establishment, killing some 40 people. The attack raised concerns about how the bombers penetrated what should have been one of the country's most secure areas. In light of the blasts, Gates faced questions about the security of Pakistan's nuclear arms. (*Reuters*, 6 December 2009)

27 December 2009

Pak N-site was target of American jihadis

Taliban insurgents had planned to use five Americans detained in Pakistan, who had contacted the militant group through the internet, to carry out attacks inside the US ally, a police official said on Saturday. Usman Anwar, police chief in Sargodha, where the men were arrested this month, said emails revealed plans for the young men from Virginia to travel to a Pakistani nuclear power plant. "We believe that they were supposed to be used inside Pakistan," Anwar said. "In their last email to the Taliban, we found they mentioned the Chashma Nuclear Plant and that's why they were going to Mianwali (district)." Anwar declined to give details of the case because police were still interrogating the suspects. The possibility of militants attempting to attack Pakistan's nuclear weapons alarms Western powers, although analysts say it is highly unlikely. (*The Times of India*, 27 December 2009)

29 December 2009

Pyongyang nukes received Pakistani support: Post

North Korea may have opened an alternative way to clandestinely build nuclear weapons as early as 1990s with the help

of Pakistan and its rogue scientist A Q Khan, who ran a one-stop shopping mall for nuclear technology. A report in the Washington Post said North Korea had constructed a plant to manufacture a gas needed for uranium enrichment as early as the 1990s. "Khan has said that North Korea may have been enriching uranium on a small scale by 2002, with maybe 3,000 or even more centrifuges, and that Pakistan helped the country with vital machinery, drawings and technical advice for at least six years," the Post article said. (*The Economic Times*, 29 December 2009)

INDIA

2 December 2009

The Kaiga warning

The recent incident of water in one particular water cooler at the Kaiga Nuclear Power Plant in Karnataka being spiked with a small dose of heavy water serves as a wake-up call on industrial safety, days before the 25th anniversary of the Bhopal gas tragedy. We need higher safety standards and their rigorous implementation at locales dealing with hazardous substances. Employee sabotage at a nuclear plant is shocking, but not implausible, and so must be taken into account in the security protocol. Of course, the Kaiga incident in which 55 employees had to be hospitalised is nowhere on the scale of the Bhopal tragedy. But given the huge expansion that has been envisaged in the nation's nuclear programme, foolproof safeguards against any untoward incident become all the more vital. (*The Economic Times*, 2 December 2009)

4 December 2009

Centre reviews nuclear plants' working

The government on Thursday said it is reviewing processes and procedures at all nuclear power stations following the contamination of drinking water at the Kaiga Atomic Power Station (KAPS) in which 92 employees suffered radiation. Minister of state in PMO Prithviraj Chavan, who made a statement on the deliberate contamination of drinking water at the nuclear plant, however, said there was no security breach or damage to KAPS. "All the plant systems are operating safely," he told the LS. An interim report of an internal probe by NPCL indicated the possibility of "mischief by an insider", he said. The minister said the local and central agencies are at work and the evidence like log books, close circuit TV footage, analysis of water samples, etc., are being used to ascertain the facts. (*The Economic Times*, 4 December 2009)

14 December 2009

N-capable missile Dhanush test-fired successfully

India successfully tested a nuclear-capable ballistic missile 'Dhanush', a naval variant of Prithvi with 350 km range, from a warship in Bay of Bengal off the Orissa coast. The single-stage ship-based missile was flight-tested around 11.31 am from INS Subhadra ship, 35 km off shore the Integrated Test Range (ITR) at Chandipur near here, defence officials said. Describing the trial as successful, ITR director S P Dash said, "It has met all the mission objectives and all

the events occurred as expected and also monitored by the range of sensors. It was a text book launch and a fantastic mission has been accomplished." 'Dhanush' has a payload capacity of 500 kg and is capable of carrying both conventional and nuclear warheads. It can hit both sea and shore-based targets. (*The Indian Express, 14 December 2009*)

15 December 2009

Saraswat dismisses doubts over India's nuclear deterrence

Rejecting doubts raised by some scientists over India's nuclear deterrence, DRDO chief V K Saraswat today said the country is "self-sufficient" and has the capabilities it "needs to have". "In terms of deterrence, India has the capability, which it needs to have. Any deterrence is the function of what is the threat against which you are creating it and in that particular aspect, we are totally self-sufficient," he told reporters on the sidelines of a DRDO seminar here. Saraswat was asked about the effectiveness of India's nuclear deterrence after doubts raised over it by nuclear scientists K Santhanam and P K Iyengar. "In terms of capability, what matters is the efficacy of your deterrence and not the numbers. I can assure you that in terms of efficacy, we are at par with whatever adversaries we are looking at," he added. (*The Press Trust of India, 15 December 2009*)

Kaiga nuclear leak: Investigators zero on five employees

Investigators probing the radiation contamination of a drinking water cooler unit in Kaiga atomic plant in Karnataka have zeroed in on five employees from whose department the heavy water could have been smuggled out. Sources privy to the investigations said today the contamination incident described as an "internal sabotage" had links to the department from where moderator heavy water is supplied for the nuclear reactor. The laboratory examination of the water from the cooler showed only presence of tritium—a radioactive isotope of Hydrogen—and no other chemical. Tritium is used in a type of heavy water which is used to moderate the high temperatures of the nuclear reactor while the coolant comprises tritium and other chemicals to cool temperatures in the reactor. (*Business Standard, 15 December 2009*)

Doubts still haunt Pokhran-II claims

The controversy over Pokhran-II refused to go away with nuclear scientists K Santhanam and P K Iyengar contesting Anil Kakodkar's claims on the nuclear tests. Mr Santhanam, a retired DRDO scientist who was associated with Pokhran-II, accused the former chairman of the Atomic Energy Commission (AEC) of 'ignoring facts' on the yield of the Pokhran-II tests. "Figures don't lie, but liars will figure. He chose to ignore facts for his own reasons," Mr Santhanam told an agency. Former AEC chief and nuclear scientist P K Iyengar also questioned the yield of the thermonuclear device and said Mr Kakodkar did not address any of the concerns on the efficacy of Pokhran-II. (*The Economic Times, 15 December 2009*)

16 December 2009

Disarmament panel puts India, Pak in same category

An international commission on disarmament and non-proliferation has criticised the Indo-US civilian nuclear deal and clubbed India and Pakistan in the same category. A report of the International Commission on Nuclear Non-Proliferation and Disarmament has proposed cutting down the world's nuclear weapons from 23,000 to 2,000 by 2025 and suggested that all nuclear states should have a 'no first use' stance. The commission is actually the brainchild of Japan and Australia. But what has caught India's attention is the strong criticism of its civilian nuclear programme and the nuclear deal. The report draws the conclusion that civilian nuclear expansion is only going to lead to nuclear proliferation. The other issue is that the report also puts India in the same category as Pakistan in spite of India's stellar record on non-proliferation. (*The Economic Times, 16 December 2009*)

Armed forces lose sleep over delivery systems

Instead of being all aflutter over the raging controversy on whether India has a credible thermonuclear or hydrogen bomb, the armed forces are more worried about the delivery systems — the yet-to-be-fully proven Agni missiles and the still-to-be-developed SLBMs (submarine-launched ballistic missiles). "Nuclear weapons are not war-fighting weapons. But without reliable and secure ICBMs (intercontinental ballistic missiles) and SLBMs, it's difficult to even brandish a credible deterrent," a top military officer said on Tuesday. "Even a small stockpile of nuclear warheads, whether they are 25 kiloton fission bombs or the much-larger thermonuclear ones, is enough to deter an adversary only if you have tried and tested delivery systems and command and control structures for an effective second-strike," he added. (*The Times of India, 16 December 2009*)

20 December 2009

'No question' of false claims on Pokhran II: AEC Chief

Atomic Energy Commission (AEC) chairman Srikumar Banerjee on Saturday defended the claims made by the government after the Pokhran II nuclear blast, and emphasised that they were true. Banerjee was in the city to deliver the keynote address at the 2nd global reunion of the alumni of the College of Engineering, Pune (CoEP). His statement comes in the backdrop of the recent controversy over former DRDO scientist and one of the key figures in India's 1998 thermonuclear test, K Santhanam, alleging that former AEC chairman Anil Kakodkar had bluffed the armed forces, saying that the country has a credible Hydrogen Bomb deterrent. When asked about Santhanam's remarks, Banerjee said as the tests were fully analysed, the official claims of the country remain the same. (*The Indian Express, 20 December 2009*)

Nuclear Energy/Environment

13 December 2009

Capping nuclear liability is a non-starter

One of the vital guarantees in our Constitution is the protection of the Right to Life enshrined in Article 21. Our Supreme Court by creative interpretation ruled that the expression 'life' does not connote merely physical existence but embraces the

right to live with "human dignity and all that goes along with it, namely, the bare necessities of life such as adequate nutrition, clothing and shelter over the head." Thereafter it further expanded the concept of the right to live with human dignity to encompass within its ambit, the protection and preservation of environment, ecological balance free from pollution of air and water. Our Constitution evinces great concern for environment. Article 48-A of the Directive Principle mandates that the state shall endeavour to protect and improve the environment. (*The Hindu*, 13 December 2009)

20 December 2009

Advanced systems key to self-reliance in nuke power: AEC chief

India has a huge potential for becoming totally self-sufficient in nuclear power generation by way of utilising the vast reserves of Thorium at her disposal, said Srikumar Banerjee, Chairman, Atomic Energy Commission (AEC), here on Saturday. However, to achieve such self-reliance, all efforts ought to be directed at developing advanced nuclear power systems meant for conversion of fertile materials like Thorium into fissile materials, Uranium-233, and utilise the latter for producing energy, he said. "We are moving in that direction," he said. Banerjee, also secretary to the department of atomic energy (DAE), was speaking on Realising Homi Bhabha's dreams' at the inaugural session of the College of Engineering Pune's (CoEP) Alumni Fest 2009 and the 2nd Global Reunion, which commenced on Saturday. (*The Times of India*, 20 December 2009)

28 December 2009

'India to promote large capacity nuclear power parks'

India will push for building large capacity integrated nuclear energy parks to step up nuclear power production to meet increasing power demands, Atomic Energy Commission Chairman S Banerjee said today. The integrated energy parks will have some imported reactors of very high capacity ranging from 6000MW to 15,000MW and this is essential in the wake of energy demand in India going up to 600,000MW by 2032, Banerjee, also the Secretary, Department of Atomic Energy, told reporters on the sidelines of a function here. The energy parks will have several high-capacity reactors. "The advantage of energy parks is that sharing of infrastructure, energy evacuation can help bring down the cost of production which is reflected in the tariff", he said. (*The Press trust of India*, 28 December 2009)

Nuclear Cooperation/Treaties/ Agreements

1 December 2009

Iran vote: India prompted by safeguards pact with IAEA

The government's decision at the IAEA to vote in favour of a resolution referring the Iran nuclear programme again to the UN Security Council was prompted by the fact that any other decision would have brought into question India's

own safeguards agreement with IAEA. Having just formalised the safeguards agreement by notifying its facilities through a separation plan to the IAEA, India did not want to give out a message that would be seen undermining the nuclear watchdog's safeguards mechanism which is what was the charge against Iran. Tehran's delay in informing IAEA about the Qom facility — the information was given in September 2009 while plans were afoot since 2006-07 — was the key provocation for this resolution. (*The Indian Express*, 1 December 2009)

2 December 2009

UK Keen To Partner India In Nuke Power Plants

The United Kingdom is keen to have a share of trade in the nuclear power plants, which will be built in India, Press Trust of India (PTI) reported a British envoy as saying here Tuesday. "If the question is will UK build nuclear power plants in India, the answer is no. But we are keen to have partnership in providing technology and expertise for building these nuclear power plants," Deputy High Commissioner Western India, Vicki Treadell, said. Treadell is leading a 15-member business delegation to explore the possibilities of trade partnership with business community here. "AMEC, a British company, has recently signed a Memorandum of Understanding (MoU) with HCC for joint partnership in providing design expertise to build nuclear power plant in India," Treadell said. (*Bernama*, 2 December 2009)

3 December 2009

India, Russia finalise new nuclear agreement

India and Russia have finalised the text of an overarching framework for nuclear cooperation which will ensure that no ongoing nuclear power project or uranium fuel supply arrangement with the Russian side would be affected or stopped in the event of termination of bilateral cooperation for any reason. This assurance, which mirrors a similar provision in the Indo-French nuclear cooperation agreement, is considered by India a major improvement over the '123 Agreement' it had signed with the United States. That agreement provides for not just termination of ongoing cooperation but also for the return to the U.S. of already supplied components and fuel in the event of the agreement being terminated. (*The Hindu*, 3 December 2009)

A Treaty to Nowhere (Amitabh Mattoo)

Almost every week for the last few months, a star-studded international conference has been organized to garner support for the nuclear non-proliferation treaty. The venue of the conference may change (New York, Helsinki, Amman, Vienna or Beijing) but the message is the same: the NPT is needed to prevent an apocalyptic nuclear nightmare. The reason for this flurry of activity is simple. In May 2010, the NPT will be reviewed by its nearly 190 members, and there is growing apprehension within the NPT-approved nuclear-weapon states (N-5) that a revolt is waiting to happen. After 40 years of submitting themselves to the double standards, bad faith, arm-twisting and even humiliation by the United States of America, Russia, the United Kingdom and, more recently, France and China, a critical section of the non-nuclear weapon states may finally have had enough. (*The Telegraph*, 3 December 2009)

4 December 2009

US team coming next week to boost N-ties

In a bid to strengthen the nuclear ties, a high level US delegation comprising nuclear companies will visit India to hold crucial deliberations with its Indian counterparts, senior officials of the government and key parliamentarians. The five-day visit, beginning December 7, comes in the wake of the US and India committing themselves to implement the civil nuclear deal. The proposed visit is crucial at a time when India plans to increase its nuclear capacity to 63,000 mw by 2032 from the present level of 4,120 mw after the ratification of Indo-US civil nuclear deal has gathered a momentum. The visit is being organised by the US India Business Council (USIBC). GE Hitachi, Westinghouse, Babcock & Wilcox and a couple of other US companies would be part of the delegation. (*The Financial Express, 4 December 2009*)

8 December 2009

India and Russia sign civil nuclear agreement

India and Russia have sealed a breakthrough long-term pact for expanding civil nuclear cooperation that is free from any restrictions on India and guarantees it against any curbs in the future. Under the agreement signed on Monday during Prime Minister Manmohan Singh's visit to Moscow, Russia will set up more nuclear reactors in India, transfer the full range of nuclear energy technologies and ensure uninterrupted supply of fuel. "Today we have signed an agreement which broadens the reach of our co-operation beyond the supply of nuclear reactors to areas of research and development and a whole range of areas of nuclear energy," Dr. Singh told a joint press conference in the Kremlin. (*The Hindu, 8 December 2009*)

14 December 2009

Russia eyeing 12-14 reactors in India, says envoy

Russia Monday said it has no issues about transferring enrichment and reprocessing technologies (ENR) to India and set an ambitious target of setting 12-14 nuclear reactors in India, days after the two countries inked an accord on civil nuclear cooperation. "We don't have domestic laws as strict as in some other countries. We don't see many problems in this field," Russian Ambassador Alexander Kadakin told reporters here when asked about Moscow's stand on the transfer of the sensitive ENR technologies to India. Praising India's record in non-proliferation as "flawless", the Russian envoy said Moscow will act according to international conventions, but these will not impede cooperation with India in the full nuclear cycle. (*The Economic Times, 14 December 2009*)

17 December 2009

India to miss New Year US nuclear gift

Barack Obama's good wishes to Manmohan Singh for 2010 will not be accompanied by the New Year gift which the US President had hoped to send to the Prime Minister in the form of a nuclear deal, completed and ready to be put into operation. Elements within the Obama administration opposed to the principles behind the nuclear deal, although

unable to stop it or roll it back, have managed to delay a round of talks that would have led to the finalisation of a bilateral agreement for the reprocessing of spent US nuclear fuel by India, which is the next step towards operationalising the controversial deal. The delay is embarrassing for the Prime Minister, who had declared at his news conference in Washington at the end of a state visit on November 25 that "I am confident that in the next couple of weeks we can sort out these things" and complete the deal. (*The Telegraph, 17 December 2009*)

18 December 2009

Mamata, G8 ban cast shadow on Indo-Russian nuclear deal

Indian officials put on a brave face earlier this year when the G8 decided to ban the sale of enrichment and reprocessing (ENR) technology to countries that had not signed the NPT, insisting the resolution was not binding and that members of the rich nations club remained free to sell sensitive nuclear items to India. But when negotiations to finalise a broad-based nuclear compact were held in Delhi earlier this month, all attempts by the Indian side to include ENR items and technology in the areas of cooperation envisaged by the new agreement drew a firm nyet from the visiting delegation. "Russia's hands are tied because of the G8 decision," they told the Indian negotiators. The matter was eventually resolved by introducing permissive language on ENR in Article 6(3) of the India-Russia inter-governmental agreement, allowing for the transfer of sensitive nuclear technology and facilities and components of such facilities pursuant to a subsequent agreement. (*The Hindu, 18 December 2009*)

Australia may keep its uranium

After signing a landmark nuclear agreement with Russia, India is on its way to signing nuclear deals with Britain and Canada. Sources said negotiations with Britain over a nuclear pact are now complete after rounds of negotiations. India and Canada had concluded negotiations during the Commonwealth Heads of Government meeting in Port of Spain last month. India will now ink the agreements with Britain and Canada during high-level visits from both countries which are expected to take place early next year. Sources indicated that during negotiations, India had blocked any attempts to bring in NPT elements in the agreements. Both Canada and Britain want a share of the Indian civilian nuclear sector. Early this year, nuclear teams from the two countries visited India to scout for opportunities with the lifting of all curbs on civilian nuclear trade with India. (*The Economic Times, 18 December 2009*)

India, Britain likely to sign civil nuclear deal

India and Britain are likely to sign a civil nuclear agreement during British Business Minister Peter Mandelson's six-day visit that starts on Friday. The Department of Atomic Energy had written a cabinet note on the subject, after it was informed by the Prime Minister's Office that the text of the agreement had been finalised about a month ago, said official sources. The negotiations from the Indian side had been conducted by the National Security Adviser MK Narayanan. Peter Mandelson, the number two in the British government and Secretary of State for Business, Innovation and Skills, arrives in Banga-

lore on Friday on a six-day, two-city visit to India. He will meet Prime Minister Manmohan Singh and other senior Indian ministers after he reaches Delhi Saturday. (*The Economic Times, 18 December 2009*)

20 December 2009

India firm on right to nuclear fuel reprocessing'

Srikumar Banerjee, chairman of the Atomic Energy Commission (AEC), said here on Saturday that the country was firm on securing the right to reprocessing nuclear fuel under the Indo-US civil nuclear deal. The deal is in the final stages of getting operationalised. Speaking to reporters on the sidelines of the College of Engineering, Pune's (CoEP) second global reunion, Banerjee said, "We have to be sure that we have the right to reprocess spent fuel, which will be generated by the nuclear reactors." Referring to the Indo-US negotiations for a reprocessing agreement, Banerjee said, "We are working on this aspect." Negotiations on the reprocessing deal began in July. Among other things, the reprocessing agreement is critical to enabling American companies enter the civil nuclear sector in India. (*The Times of India, 20 December 2009*)

21 December 2009

N-operator liability capped at \$64 mn in draft bill

In a controversial move, India has capped the legal responsibility for an operator of a nuclear installation to settle damages for any accident at just Rs.300 crore (\$64.2 million) in a draft legislation that is likely to get a stormy reception in parliament. The passage of a civil nuclear liability bill is one of last steps in implementation of the landmark US-India civil nuclear agreement. The text was approved by the cabinet Nov 20 and it is expected to be tabled in parliament in the next session. A copy of the draft Civil Liability for Nuclear Damage Bill 2009 bill, which is yet to be made public, is with IANS. It stipulates in Chapter 2, section 6, that while the "maximum amount of liability in respect of each nuclear incident" shall be Rs.2,208 crore (300 million special drawing rights or \$471.38 million), the operator's legal responsibility for damages is capped Rs.300 crore. (*The Economic Times, 21 December 2009*)

UK presses wary India for N-deal

The United Kingdom is pressing India to sign a civilian nuclear cooperation agreement quickly but New Delhi is holding out, seeking modifications in the agreement to cover its stand on non-proliferation. The British are keen to wrap up discussions and sign the agreement during the on-going visit of first secretary of state Peter Mandelson, the number two man in prime minister Gordon Brown's cabinet. Since the India-US nuclear deal in October 2008, India has signed nuclear cooperation agreements with France, Russia, Mongolia, Kazakhstan, Argentina and Namibia. In a letter to the Ministry of External Affairs, British High Commissioner Richard Stagg said Mandelson personally asked him to convey "deep disappointment" over the delay, a senior official told HT. (*The Hindustan Times, 21 December 2009*)

28 December 2009

India, Japan to launch defence action plan, no N-deal for now

India and Japan will launch a defence action plan to firm up their strategic partnership that includes jointly combating maritime piracy and give a push to negotiations over a key economic agreement that can multiply their bilateral trade manifold. The two sides on Monday signed agreements to build eco-friendly cities along the Rs.3.6 lakh crore (\$72 billion) Delhi-Mumbai industrial corridor, setting the tone for talks between Prime Minister Manmohan Singh and his Japanese counterpart Yukio Hatoyama on Tuesday. Hatoyama began his three-day visit to India Sunday and arrived in the Indian capital for talks Monday afternoon. However, a civil nuclear deal looks unlikely with a Japanese official Monday urging India to sign the Comprehensive Test Ban Treaty (CTBT), opposed by New Delhi which regards it as "unfair and discriminatory." (*Hindustan Times, 28 December 2009*)

29 December 2009

India step closer to getting N-sub

India got closer to deploying a nuclear-powered submarine by mid-2010 after the Russian Navy formally inducted the Akula-II class attack submarine 'K-152 Nerpa' on Monday. The over 12,000-tonne Nerpa is to be leased to Indian Navy for a 10-year period under a secret contract inked between India and Russia, along with the \$1.5 billion package deal for refit of aircraft carrier Admiral Gorshkov and 16 MiG-29K fighters in January 2004. Incidentally, the bitter wrangling over huge cost escalation in Gorshkov's refit has also been virtually settled now, with India agreeing to shell out around \$2.5 billion instead of the earlier \$974 million earmarked for it. The Nerpa saga, too, has been quite chequered. Though Nerpa's construction at the Komsomolsk-on-Amur shipyard in Russia began way back in the early 1990s, it was derailed by the financial crisis after Soviet Union's collapse. (*The Times of India, 29 December 2009*)

Nuclear Commerce

10 December 2009

Government open to private investment in nuclear power

The government would be open to considering private sector involvement in the nuclear power sector, Planning Commission Deputy Chairman Monetk Singh Ahluwalia said on Wednesday. While the government was committed to providing all necessary resources for the nuclear power programme, particularly the fast breeder reactor programme, it would welcome private investment as well as the sector expanded, he said addressing an international conference on infrastructure systems and services being held at the SSN College of Engineering here. Speaking through videoconference from New Delhi, Mr. Ahluwalia pointed out that India's nuclear power capacity today was only 3,500 to 4,000 MW. However, many experts projected that it would be 5,00,000 MW by 2050. (*The Hindu, 10 December 2009*)