



The Civil Nuclear Liability Bill

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Summary

The basic principles of the Bill are as per international norms and seem adequate. Since the government is going to the sole operator in the immediate-, near- and even the medium-term, the legislation, with the proposed liability limits as interim figures (and some needed language changes in a few places), should be enacted at the earliest while discussions and debates on the more contentious issues, the liability limits in particular, can be carried on subsequently.

Even before its introduction in the Parliament in the just concluded first half of the Budget session, as the government was keen to, the Civil Liability for Nuclear Damage Bill (2010) has run into rough weather with both the left Parties and the Bharatiya Janata Party (BJP) being united in their strong opposition to the Bill in its present form. On the morning of March 15, the penultimate day of the session, when the Bill was listed to be tabled in Lok Sabha, the Cabinet is understood to have met and taken a decision to defer its introduction. This was, according to the Minister of State for Science, Technology and Earth Sciences, Prithviraj Chauhan, "in view of notices received from some members of their intention to oppose the Bill."

The minister also stated in the House that the issues raised were being examined and that the government would try to meet these objections formally or informally. But the subsequent meeting of the National Security Adviser (NSA), Shiv Shankar Menon, with BJP leaders to answer their criticisms was not successful. Though the government would have liked to pass the Bill before Prime Minister Manmohan Singh left for the United States to attend the Conference on Nuclear Security convened by President Barack Obama on April 10, this was not to be. Following the Indo-US nuclear deal and the 123-Agreement, the United States was keen that India passed a suitable legislation in conformity with prevalent international conventions and other national laws, which would ensure that US suppliers of nuclear equipment will not be liable for any nuclear accident in US-supplied reactor systems.

The opposition parties have demanded that the Bill be referred to a select Parliamentary Standing Committee. It has also been reported in the media that the Cabinet approval process did not pay heed to objections voiced by the Ministry of Finance and the Ministry of Environment and Forests with regard to the cap on total liability and the time limit for claiming compensation. But the keenness of the government to have the Bill introduced and passed at the earliest is obvious from the fact that the NSA had briefed select Congress MPs earlier and circulated a note on the Bill to them so that the Treasury bench is prepared for the imminent debate when Parliament is reconvened in April.

One of the charges being levelled against the government is that the legislation is being enacted only to suit US suppliers. But this is completely misplaced and wrong because, one, its provisions are not US-specific and they will apply to all suppliers. Two, contrary to what critics and media commentators have consistently held, nuclear cooperation agreements with France and Russia have specifically provided for protecting the supplier against any liability claims in case of any damage due to nuclear accident. Clauses of Article VIII of the Indo-French civil nuclear cooperation agreement of October 21, 2009, concern civil nuclear liability:

1. The Parties or persons designated by the Parties with implementing this Agreement shall deal with liability issues, including civil nuclear liability, in specific agreements.

2. The Parties agree that, for the purpose of compensating for damage caused by a nuclear incident involving material, nuclear material, equipment, facilities and technology [transferred under this Agreement], each Party *shall* create a civil nuclear liability regime *based on established international principles*. (emphasis added.)

The Indo-Russian inter-governmental agreements (IGAs) on nuclear cooperation of 1988 and 1998 for the Kudankulam (KK) -1&2 nuclear power plant (NPP) project as well as the 2010 one for subsequent plants to be built with Russian assistance have, however, not been made public. But according to the minister's remarks at a conference on nuclear energy organized by the ASSOCHAM on March 17, the Indo-Russian IGAs too provide for liability being channelled exclusively to the operator and thus guard against the supplier being made liable. In fact, the idea of enacting a suitable nuclear liability regime in the country was initiated soon after the KK project got underway in 2000 given the concern of a possible fall-out on Sri Lanka in case of a nuclear accident at Kudankulam due to the geographical proximity of the island country.

Given the likelihood of trans-border impact from an accident at KK, the project brought in an international element to the whole issue, necessitating a suitable national law in keeping with international practice. Indeed, as the 'Statement of Objects and Reasons' of the Bill says "At present, the NPPs and facilities in India are owned by the Central government or its PSUs. Therefore, any incident or accident that happens in these installations, and the liability issues arising therefrom, are the responsibility of the Central government. This, however, leaves any trans-boundary liability to uncertainty."

Further, as the Statement notes, there is no provision for nuclear liability or compensation against damage due to a nuclear accident in the Indian Atomic Energy Act (AEA) 1962. No other national law deals with it either.¹ A two-member committee comprising S. Rajagopal of the National Institute of Advanced Studies (NIAS), Bangalore, and V. B. Coutinho, Professor at Government Law College, Bangalore, was, therefore, set-up in 2000 to evolve a suitable liability regime based on legislations in other countries. Unfortunately, their report, which was submitted in November 2001, too has inexplicably remained under wraps. But what is clear is that even without the Indo-US nuclear deal, and the amended provision in the Nuclear Suppliers Group (NSG) guidelines that allows India to engage in international nuclear trade, the need for India to enact an appropriate law is imminent especially with one of the KK-1&2 units due to go on stream in a few months' time.

¹ The Public Liability Insurance Act (1991), which provides immediate relief to persons affected by accident "occurring while handling any hazardous substance and for matters connected therewith or incidental thereto," specifically excludes all nuclear - including radiological - accidents.

The internationally evolved and accepted basic principles of liability in case of a nuclear accident requiring compensation against damage caused, including to the environment, are:

- Strict liability of the operator of a nuclear installation, which relieves the victim from burden of proof;
- Legal channelling of liability exclusively to the operator regardless of the accident's cause – 'absolute liability' – except for acts of armed conflict, hostilities or insurrection;
- Mandatory financial coverage of the operator's liability through insurance coverage or any other means of financial security; and,
- Exclusive jurisdiction to the courts of the State where the nuclear accident occurs.

The strict and absolute liability of the operator is, in fact, in keeping with the 'Polluter Pays' principle of international norms of environmental law. (However, as we will discuss, by limiting the operator's liability amount, this principle is being met only partially.) This exclusive liability of the operator has been criticized on the grounds that it frees the supplier of nuclear equipment of any liability whatsoever even if the incident had arisen because of defective equipment or design flaw in the reactor system. This aspect will also be discussed later.

Before we begin the discussion, the important thing to note in the Indian context is that only government-owned public sector undertakings (PSUs), namely the Nuclear Power Corporation of India Ltd. (NPCIL) and Bharatiya Nabhikiya Vidyut Nigam Ltd. (BHAVINI), are the NPP operators and, in case of any accident, the government would have had to bear the *total* liability under the general tort law of the land based on 'Polluter Pays' principle. It is pertinent to point out in this context that Indian private suppliers of equipment to indigenous NPPs, like L&T Ltd. and Walchandnagar Industries Ltd., are also protected from liability claims against damage. Unlike a tort-based compensation, what the Nuclear Liability Bill provides for is *immediate* compensation *irrespective of the cause of the accident*.

At the international level there are four instruments for nuclear liability that share these common principles: the OECD's Paris Convention of 1960 (entered into force in 1968), which was strengthened by the Brussels Supplementary Convention (BSC) in 1963, the IAEA's Vienna Convention of 1963 (entered into force in 1977), and the yet to come into force Convention on Supplementary Compensation. To enable a common geographical scope for the two Conventions, they were linked in 1988 by a Joint Protocol. Towards striking a balance between operator's liability and promoting investment in nuclear power, the operator's liability is generally limited. However, to bridge the compensation gap beyond the operator limit, the conventions envisage a three-tier liability structure: operator liability, installation state liability, and liability of contracting parties to the convention (channelled through a contributory international fund). In principle, however, depending

upon the convention adhered to, or an appropriate national legislation, operator's liability may be kept limited or unlimited.

The Vienna Convention, amended in 1997, sets only a lower limit of 300 million of IMF's Special Drawing Rights (SDRs), equal to •360 million, and the upper limit may be set by individual national legislations. The Paris Convention initially set a maximum liability of SDR 15 million, equivalent to •18 million. But this was increased under BSC up to a total of SDR 300 million (•360 million), including contributions from the installation state's public funds amounting to the difference between SDR 175 million (•210 million) and the operator's liability fixed by national legislation and a third tier comprising SDR 125 million (•150 million) to be made available from funds contributed jointly by all the parties to the BSC based on a 65 per cent installed capacity plus 35 per cent GDP formula. The 2004 amendment to BSC provides for higher compensations and sets the limits for the three tiers at •700 million, •500 million and •300 million, respectively, totalling •1500 m. But this amendment is not yet in force.

In 1997, the IAEA adopted a stand alone Convention on Supplementary Compensation (CSC), which requires the installation state to ensure a minimum liability of SDR 300 million but compensation beyond this will be met through an international fund. The fund is established through contributions from contracting parties collectively on the basis of installed capacity and a UN rate of assessment (essentially @ 300 SDRs per 1 MWTh). States may ratify the CSC regardless of whether they are parties to any other existing liability conventions or have nuclear installations in their territories.

For the CSC to enter into force at least five nuclear installation states with a combined capacity of 400 GWTh should have ratified the Convention. Till date, only four states with a combined capacity of about 350 GWTh have ratified it. Significantly, the United States, which is not party to any other convention but has its own liability regime defined by the Price-Anderson Act (PAA) of 1957, ratified the CSC in May 2008. With 104 NPPs and an installed capacity of over 100 GWe (equivalent to about 300 GWTh), the contribution of the United States alone is close to the total required. India (with an installed capacity of about 15.5 GWTh) is not a signatory to any of the international instruments including the CSC. To bring the CSC into force, ratification by any one from among France, Japan, Korea and Russia alone, or by India/China plus the United Kingdom, would suffice.

As is clear from the Statement of Objects of the Bill, apart from providing for compensation against nuclear accident, a reason for enacting a domestic legislation is the "necessity of joining an appropriate international liability regime." Only international instruments provide for trans-border liability and, as is clear, all of them require a national law to be enacted. For non-OECD countries, between the Vienna Convention and the CSC, only the latter provides for an international fund to draw from. Therefore, it would be natural for India to think of joining the CSC, as the Government is indeed planning to do. But a

prerequisite for joining the CSC is enacting a domestic legislation that conforms to specified provisions in the Annex of the CSC. So, given the proposed rapid increase in NPPs based on imported technology and equipment, enacting a liability law at the earliest becomes quite imperative.

Now there are 30 countries (excluding Taiwan) that operate a total of 436 NPPs in the world. Twenty-eight of these have nuclear liability regimes in force that conform to the general principles stated above. Twenty-two of them are party to either the Vienna Convention or the Paris Convention. The remaining – Canada, China, Japan, Republic of Korea, South Africa and the USA – have domestic laws on nuclear liability. Besides India, the only other country without a liability regime is Pakistan though the Pakistan Nuclear Regulatory Authority has the responsibility for dealing with nuclear liability issues. The national legislations of Canada, China, Japan, Republic of Korea and South Africa follow the international principles of absolute and exclusive liability on the installation operator as well as exclusive jurisdiction of the court in the country's territory. The US law, namely the Price-Anderson Act (PAA), is slightly different.

In the current controversy about the proposed Bill, the most contentious issues have been with regard to financial and temporal limits of liability that have been provided for. Article 6 provides for maximum liability as well as the limit of operator's liability. Clause 6 (1) fixes the "maximum amount of liability in respect of each nuclear incident" at SDR 300 million, which is equal to about \$ 460 million or Rs. 2100 crore. As regards the maximum liability of an operator, Clause 6(2) fixes it at Rs. 500 crore. Article 8 states that the operator shall, before beginning operation, obtain insurance cover or financial security covering the operator liability. In case claims exceed the limit of operator's liability of Rs. 500 crore, Article 7 provides for meeting the deficit from public funds. It is in this sense that the 'Polluter Pays' principle is only partially satisfied.

Let us compare the above with the liability limits in various countries (see Table). As can be seen, there are countries that have limits of liability (operator's or total) less than those proposed in the Bill (notably Argentina, China, Canada), those that have limits of the same order (Austria, Brazil, Czech Republic, France, Hungary, Korea, Morocco, Romania, South Africa, Sweden and the UK) and some much higher (Germany, Japan, The Netherlands, Spain and the USA). In all the cases of high compensation, there is equivalent financial cover and/or state contribution. Only in the case of Korea, interestingly, operator's liability is not covered by financial security. The high liability limit of the United States, currently at \$ 11.6 billion, has often been cited to point out that the Indian proposal is a pittance in comparison. The US limit, therefore, needs to be explained.

Country	Operator Liability Limit	Financial Security Limit	Other Compensation: State + Int. Fund
Argentina	\$ 80 m	\$ 80 m	—
Brazil	\$ 160 m	\$ 160 m	—
Austria	\$ 406 m + 10% (I+L)*	\$ 406 m + 10% (I+L)*	—
Belgium	\$ 433.2 m	\$ 433.2 m	0 + \$ 197.6 m
Canada	\$ 70.7 m	\$ 70.7 m	—
China	\$ 43.9 m	\$ 43.9 m	\$117.1 m + 0
Czech Republic	\$ 445.7 m	\$ 445.7 m	—
Finland	\$ 276.6 m	\$ 276.6	0 + \$ 197.6 m
France	\$ 133.3 m	\$ 133.3 m	\$144 m + \$197.6 m
Germany	Unlimited	\$ 2.5 b	\$ 2.5 b + \$ 197.6 m
Hungary	\$ 158.1	\$ 158.1	\$ 316.2 + 0
Japan	Unlimited	\$ 1.3 b	—
Korea	\$ 474.2 m	\$ 43.2 m	—
Morocco	\$ 158.1 m		\$ 7.9 m + 0
The Netherlands	\$ 495.3 m	\$ 495.3 m	\$ 2.8 b + 197.6 m
Romania	\$ 237.1 m	\$ 237.1 m	\$237.1 m + 0
Russian Federation	None specified	\$350 m	—
South Africa	\$322.4 m	\$322.4 m	
Spain	\$ 1 b + \$ 1b (env.damage)	\$ 1 b + \$1b (env.damage)	0 + \$197.6 m
Sweden	\$ 474.2 m	\$474.2 m	0 + \$197.6 m
Switzerland	\$ 960.7 m + 10% (I+L)*	\$ 960.7 + 10% (I+L)*	
UK	\$ 227.6 m	\$227.6 m	\$49.6 m + \$197.6 m
US	\$ 11.6 b	\$ 11.6 b	—

* I+L: Interest and legal charges

Source: NEA Data, December 2009

The main purpose of the PAA, which has been revised several times and has been recently extended till 2026, is to partially indemnify the nuclear industry against liability claims arising from nuclear accidents while still ensuring that a large pool of funds is available, without dipping into public funds or state exchequer, to compensate the general public no matter who might be liable. The Act provides for “economic channeling” of liability exclusively to the nuclear facility operator. Even though suppliers to nuclear facilities can be “legally liable” for damages, that liability is channelled to the operator in financial terms through an omnibus insurance or financial security cover that the US Nuclear Regulatory Commission (NRC) requires all NPP operators to maintain. A facility operator purchases this protection from the American Nuclear Insurers (ANI), a consortium. The ANI also insures a supplier to an NPP through what is called the nuclear liability ‘Facility Form Policy’ but the operator purchases this insurance as well. So, even if a supplier is legally liable, the claimant has to sue only the operator as the supplier’s liability has been financially channelled to the operator and the supplier is not required to compensate the operator in any manner. In this sense, the operator’s liability is absolute.

It must be kept in mind that the United States has the largest number of NPPs and it has an extremely well developed private owned nuclear industry as well as insurance services. India, in comparison, has only state owned operators and there is, therefore, no insurance cover. The insurance industry too has, therefore, not evolved to deal with the nuclear industry. Indeed, Article 8 of the Bill specifies that a government operator need not take any insurance policy.

The PAA works like this. It requires NPPs to obtain the maximum amount of insurance against any nuclear accident that is available in the insurance market, which at present is \$375 million per plant. Any claim that is less than this amount is paid by the insurers. The Price-Anderson Fund (PAF), which in effect is financed by the NPP operators themselves, is then used to make up the deficit when claims exceed this amount. Each reactor company is obliged to contribute with retrospective effect up to \$111.9 million in the event of an accident. Actual payments are actually capped at \$ 17.5 million per year till the claims are met or the individual’s cap is reached. For about 100 NPPs, therefore, PAF effectively total \$11190 million plus \$ 375 million. If the claims are likely to exceed the Price-Anderson value, the President is required to submit proposals for the State to bear the excess. It should be clear from the above that the comparison with the United States is grossly misplaced.

It is instructive to note that since the PAA came into effect, the insurance pools have paid out only about \$151 million, about \$ 70 million of which is related to the Three Mile Island accident claims. Similarly, the total liability in the 1999 Tokai-Mura fuel plant criticality accident was about ¥ 14.5 billion (about \$160.5 million). The Chernobyl accident was of a different magnitude in an old graphite-based plant that did not have any radiation confinement structure around it as has been the norm in later generation NPPs even prior

to Chernobyl days and such an accident is extremely unlikely to occur in any modern plant. The exact figure for the total liability for Chernobyl is not available. But estimates vary from tens to hundreds of billions of dollars.

Of course, once enacted, the liability law will be subject to amendments and the maximum liability amounts proposed in the Bill can be debated and changed. A case for increasing the operator's liability limit can certainly be made in the present context of the possibility of the entry of private parties in the operation of NPPs. If required, the Rajagopal-Coutinho study can be revisited and reevaluated. Many countries have altered the liability limits in their legislations over time.

At present, however, no FDI or private ownership, which requires an amendment to the AEA, is envisaged and this was categorically stated by Minister Chavan on March 17 at ASSOCHAM. Any private party can at present only have a minority stake in a joint venture with NPCIL or BHAVINI. In the wake of the amendment to NSG guidelines, the two PSUs (or their JVs) would only be importing equipment or have plants set up on a turn-key basis. So, at present, as well as in the near future, the government will be the sole operator, in which situation the Centre has to bear the total liability, whatever it proves to be. From that perspective, availability of the IAEA managed CSC Fund would be helpful if India joins it and the Convention comes into force, which seems imminent.

The other controversial issue is the time limit of ten years for the right of compensation, as provided for in Article 18. It has been argued that it is too low as teratogenic and mutagenic effects of radiation can manifest themselves after much longer periods. In this context, the data of the genetic study over 50 years on the survivors of Hiroshima and Nagasaki (in 1995 over 100,000 survivors were still alive) and their children are of relevance. Although there is clear evidence of an increase in incidences of cancer among the survivors (and this is true of Chernobyl as well), no long-term genetic effects have been detected in a large sample (about 80,000) of offspring. "The data," according to Itsuzo Shigematsu and others of the Radiation Effects Research Foundation (RERF) at Hiroshima and Nagasaki, "suggest that humans are not usually sensitive to the genetic effects of radiation and, further, are probably not as sensitive as had initially been extrapolated from experiments in mice." In Chernobyl too no genetic defects, including still births and congenital malformations, that are attributable to radiation have been found. These scientific findings presumably have formed the basis for the 10-year limit provided in all the conventions. In any case, if it should be increased, one should be able to say by how much.

The 'right of recourse' provided for in Article 17 of the Bill is also common to all the conventions and the various national laws. This clause provides for the operator to have the 'right of recourse' when such right is specifically provided for in a contract with, say, the supplier of equipment or material, or where the nuclear incident has resulted from a wilful act or gross negligence on the part of the supplier. It has been argued that through this the supplier can be made legally liable for an accident. But such contractual provisions

are unlikely to cover defective equipment or design deficiencies. The former will be covered only up to the warranty period of the sale when the defective part would be replaced. The latter cannot be invoked in retrospect in the event of an accident as this is something one should have evaluated before entering into any purchase contract. The Bhopal chemical accident at the Union Carbide India Ltd. plant is often cited as an example for channelling the liability to the supplier. The comparison with the nuclear case is again not valid because in the Bhopal case Union Carbide was the operator through the company's Indian subsidiary. So the liability is legally channelled to the parent company by the 'Polluter Pays' principle.²

In sum, therefore, the basic principles of the Bill are as per international norms and seem adequate.³ Since the government is going to the sole operator in the immediate-, near- and even the medium-term, the legislation, with the proposed liability limits as interim figures (and some needed language changes in a few places), should be enacted at the earliest while discussions and debates on the more contentious issues, the liability limits in particular, can be carried on subsequently.

² In the absence of any separate Indian law for industrial/chemical accidents, only the Public Liability Insurance Act (1991) provides for immediate relief to the victims of a hazardous accident, which is a maximum of Rs. 25,000 per person plus reimbursement of medical expenses up to a maximum of Rs. 12,500.

³ P.S.: In the context of the recent radiological accident in Delhi in April 2010, it must be pointed out that the proposed Civil Nuclear Liability Bill explicitly excludes such cases. 'Nuclear material', as defined in the Bill, "does not include radioisotopes which have reached the final stage of fabrication so as to be usable for any scientific, medical, agricultural, commercial or industrial purpose." So there is no provision in the Indian legislature for immediate relief to such victims. Relief or compensation will be only through the general tort law provisions.