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About the Author

Mr. Rakesh Sood joined the Indian Foreign Service in 1976 and has served in Indian missions in Brussels, Dakar, Geneva and Islamabad in various capacities and as Deputy Chief of Mission in Washington DC. At the Ministry of External Affairs, he served as Director (Disarmament) and set up the Disarmament & International Security Affairs Division, which he led for eight years until the end of 2000 as Joint Secretary. During this period, he was responsible for multilateral disarmament negotiations (among them, CWC, CTBT, and BWC Verification Protocol), bilateral dialogues on CBMs with Pakistan, strategic and security dialogues with other countries particularly after the nuclear tests in 1998, and India's role in the ARF. As India's first Ambassador and Permanent Representative to the Conference on Disarmament (2001-04), he also chaired a number of working groups, including the negotiations on landmines and cluster munitions. Mr. Sood served on the UN Secretary General's Disarmament Advisory Board (2002-03).

He has served as Ambassador to Afghanistan (2005-08), Nepal (2008-11), and France (2011-13), following which he retired from the diplomatic service after a career spanning 36 years. In September 2013, Mr. Sood was appointed Special Envoy of the Prime Minister for disarmament and non-proliferation issues; he held this position till May 2014.

He completed his postgraduate studies in Physics at St Stephens College, University of Delhi, and subsequently pursued postgraduate studies in Economics and Defence Studies.

Solving India's Nuclear Liability Conundrum

The issue of 'nuclear liability' generates enough controversy that there has been very little common understanding on defining the problem, let alone identifying options for a politically feasible solution. For an objective analysis, therefore, it is necessary to place the issue in a wider perspective. This paper is divided into five sections:

- The first section explains the rationale of why India needs international cooperation for nuclear power and, consequently, the need for nuclear liability legislation.
- Section Two identifies those elements of India's Civil Liability for Nuclear Damage Act (CLNDA) passed in 2010 and the Rules issued in the following year that have generated concerns.
- Section Three examines the reasons behind these concerns in the context of the evolution of the international nuclear liability regime.
- The fourth section looks at the different suggestions that have been put forward by different stakeholders and the reasons why none of them have made much headway.
- Section Five concludes with a recommendation for a coherent and comprehensive approach which should help resolve the liability conundrum, as well as contribute to the process of restoring India's position in the world of international nuclear trade and commerce.

Section I Why Nuclear Liability Now?

In the years after Independence, the Indian nuclear establishment was closely engaged with the international nuclear community, both bilaterally and multilaterally in the IAEA. The first research reactor CIRUS, set up with Canadian assistance, went critical in 1960. This was followed by the 2x210 MW power reactors set up at Tarapur with US cooperation which went into operation by 1969. All this changed after the 1974 PNE and India was excluded from civilian nuclear trade, commerce and technology sharing. Perforce, the Indian nuclear establishment had to develop its indigenous capabilities. However, progress was slow and the target of generating 10,000 MW of nuclear power by the year 2000 was missed by a wide margin. In fact, installed nuclear power capacity stands at only 4,800 MW as of January 2015.

Nuclear dialogue with the US began only after the 1998 nuclear tests when India declared itself a nuclear weapon state. Expectedly, India's primary aim at this stage was to get the newly imposed sanctions lifted. The long-term goal was to develop a better appreciation of India's security concerns and threat perceptions in the US and gradually restore India's legitimate place in international civilian nuclear trade and exchanges. It was also necessary to highlight the fact that India's commitment to non-proliferation was second to none and these systems would be further strengthened. Gradually, many of the entities began to be taken off the sanctions list. The contours of a 'strategic partnership' began to emerge with the launching of the NSSP process in 2003.

The major breakthrough occurred in 2005 when the US agreed in principle to support civilian nuclear cooperation with India. This required a modification of US legislation as also a special waiver from the Nuclear Suppliers Group of which the US was a founding member; on the Indian

side it required the delineation between the civilian and the strategic components of the nuclear programme, placing additional facilities under IAEA safeguards, strengthening export controls, and bringing in nuclear liability legislation consistent with CSC (the 1997 Convention on Supplementary Compensation for Nuclear Damage). The process has proven to be complex and more time-consuming than was originally envisaged. Yet it was necessary because with growing concerns about climate change and global warming, developing nuclear energy was seen as vital for maintaining growth rates; domestic expansion plans were perceived as inadequate.

The Integrated Energy Policy (IEP) was the first comprehensive document linking energy policy with sustainable development; covering all sources of energy, their use and supply, access and availability, affordability and pricing; environmental concerns; and energy security. This document was first released in August 2006 as a draft and formally approved by the Cabinet in end-2008. Some aspects, pertaining to figures and projections, may still be refined in the coming years. Broadly speaking, however, the analytical basis of the IEP retains its validity.

With a population of 1.2 billion, the tenth largest economy in terms of GDP, and the third largest in PPP terms, India today is the world's fourth largest primary energy consumer, after China, US, and Russia. Yet, in per capita terms, India's consumption is 585 kilograms of oil equivalent (KGOE); the global average is 1800, China stands at 1700 while the US leads with 7000+. Incidentally, Japan comes in at approximately 4000 KGOE—which only goes to show that there is considerable elasticity even at the level of highly developed economies.

Though the Indian economy has grown annually at an average rate of seven percent since 2000, approximately 35 percent of the national

population still lives below poverty level. Nearly a quarter of the population lacks access to electricity and energy poverty has been identified as a hindrance to economic development. In India's current energy mix, nuclear energy accounts for approximately one percent; in terms of power generation, with an installed capacity of 4.8 GW, it accounts for slightly over two percent of the total installed capacity, estimated at 225 GW covering thermal, hydel, and renewables.

The IEP estimates that India's primary energy supply will need to increase by four to five times and electricity generation capacity by six to seven times – in order to deliver a sustained growth rate of nine percent up to 2035. What does this imply in terms of figures? It means that in the most optimistic scenario, nuclear power generation could go up to 80 GW, out of a total of 1,200 GW, i.e., less than seven percent. Incidentally, the IEP projection is based on the assumption that by 2011, India's nuclear generating capacity would have been 11 GW, twice of what it is today. In other words, nuclear power will continue to account for only a small fraction of India's energy mix.

However, energy security is also a key element of the IEP and defined as follows: “We are energy secure when we can supply lifeline energy to all our citizens irrespective of their ability to pay for it as well as meet their effective demand for safe and convenient energy to satisfy their various needs at competitive prices, at all times and with a prescribed confidence level considering shocks and disruptions that can be reasonably expected.”

Moreover, even with this growth rate, India's per capita electricity consumption currently at approximately 600 KWH will only rise to approximately 2,600 KWH which, incidentally, is China's per-capita consumption today. In contrast, the current OECD average is more than

8000 KWH per capita. Given that the fuel mix for power generation in 2035 would remain fairly similar to what it is today—with fossil fuels being the dominant resource—it implies, in turn, a growing import dependency. Therefore, even though nuclear energy will remain a small part of the overall energy mix, it is a critical component in addressing our energy challenges, mitigating carbon emissions and enhancing energy security in terms of reducing dependence on foreign energy sources.

India's present nuclear power capacity is 4.8 GW, consisting of 20 reactors all of which are primarily indigenous PHWRs except for the two initial LWRs at Tarapur and the two VVERs at Kudankulam. Seven more reactors, including a prototype fast breeder reactor, are expected to more than double the capacity by 2017. The Twelfth Five Year Plan foresees a major expansion in the nuclear power generation with more than 10 indigenous PHWR reactors and as many as 10 LWR reactors with international collaborations with France, Russia, and US. This would be a major transition because it would also involve the technology demonstration marking the second stage of India's long-declared Three Stage Nuclear Programme. The nuclear civilian cooperation agreements signed in recent years have enabled us to improve generation at the existing nuclear plants on account uranium imports, thereby improving fuel supply. It is expected that by the end of stage 2, India would have an installed capacity of nearly 30 GW, ready to undertake the transition to stage 3, which is the thorium generated U-233 cycle, self-sustaining in view of our extensive thorium reserves.

This explains India's need for access to additional Russian power reactors and the more modern, higher-capacity Westinghouse, GE, and Areva reactors. Tentative site allocations for nuclear islands for each of these companies have been done and preliminary negotiations with the foreign vendors are at different stages of progress. Begun after the NSG waiver in

2008, these negotiations have slowed down after the CLNDA was passed into law in 2010. All the foreign vendors have expressed concerns about India's nuclear liability law. Equally significant is the fact that domestic vendors for the indigenous PHWR reactors have also expressed concerns about the ambiguously worded notion of 'supplier liability' in the CLNDA which has had an adverse impact on NPCIL's ability to negotiate new contracts with them. The reason is quite simple. Before 2010, NPCIL contracts with domestic vendors would include a 'hold harmless' clause which absolves them of civil liability except where specified in the contract, which was limited both in terms of value and time frame. After the CLNDA came into force, it is no longer possible to employ the 'hold harmless' clause as the CLNDA expands the scope of supplier liability. Since the legislation and subsequent rules create a degree of ambiguity, insurance coverage has not proved possible.

Section II Analysing the CLNDA

The fundamental purpose of the CLNDA is to provide prompt and adequate compensation to the victim, through a straightforward legal process. This is a standard feature in all nuclear liability laws and, in the CLNDA, has been ensured in Section 4 which states: “The liability of the operator of the nuclear installation shall be strict and shall be based on the principle of no-fault liability”. This ensures that irrespective of who is at fault for the damage caused, the operator shall be liable and the victim is not obliged to prove negligence. The term 'nuclear damage' is defined in Section 2 (g) and covers loss of life or personal injury, loss to property, economic losses on these accounts as well as on account of loss of income, restoring any impairment of the environment, etc. Nuclear damage arises out of a 'nuclear incident', also defined in Section 2 (i) and the responsibility for notifying a nuclear incident and ensuring that 'wide publicity' is given to the notification of the event, is vested with the Atomic Energy Regulatory Board (Section 3). Section 9 provides for the establishment of a Claims Commission for adjudicating on claims pertaining to nuclear damage. The Claims Commissioner enjoys the same powers as vested in a Civil Court for discharging his responsibilities.

The balancing side of the operator accepting strict and no-fault liability is that it is capped (as is the case in all nuclear liability regimes), in Section 6 at Rs 1500 crores (then the equivalent of 300 million SDRs). This ceiling is subject to review and can be modified by the Central Government by simple notification. Further, under Section 7, where the liability exceeds the ceiling prescribed for the operator in Section 6, the Central Government is liable for the excess amount, and for this purpose, the Central Government 'may establish a fund to be called the Nuclear Liability fund' by charging such amount of levy from the operators, in such manner, as may be prescribed'. However, this is yet to be established.

These provisions are widely accepted as integral to nuclear liability laws and are also consistent with the CSC. The original draft Bill, as cleared by the Cabinet in November 2009, for being introduced in Parliament by the UPA-government led by Prime Minister Dr Manmohan Singh was based on the model legislation annexed to the CSC. During the deliberations in 2010, both in the Standing Committee and in Parliament, a number of amendments were made to the original text. Some of the new elements introduced at the insistence of then Opposition have proven to be controversial and need to be resolved if India's nuclear power sector has to grow. Realising the implications, the Indian government has refrained from ratifying the CSC, after having signed it in 2010. The reason is that the CSC mandates that any state acceding to the CSC must ensure that its domestic legislation is consistent with the provisions of the CSC, and there were concerns that queries could be raised about the Act.

Much was made during the debates in Parliament and the mass media in 2010 that the liability law should safeguard against a repeat of the 1984 industrial accident at the Union Carbide factory in Bhopal, which left more than 10,000 dead and 500,000, injured. This debate, however, generated more heat than light. The basic tragedy with Bhopal was that the victims were denied prompt and adequate compensation. It has taken more than a quarter of a century to award compensation of \$ 470 million, which is widely perceived as being inadequate. There were no disputes regarding operator/supplier liability. However, there was a widespread sentiment that the administration of the day did not give primacy to the interests of the victims because a US multinational was involved. This concern has been sought to be addressed by bringing in new provisions into the CLNDA. The guiding principle of prompt and adequate compensation to the victims has already been safeguarded in the CLNDA as explained earlier. There are two provisions that have led to questioning by the domestic and the international supplier community though there

are some other legal and administrative anomalies that also need to be ironed out. These provisions are in Section 17 (b) and Section 46.

Section 17 deals with 'Operators Right of Recourse' and states: “The operator of the nuclear installation, after paying the compensation for nuclear damage in accordance with section 6, shall have a right of recourse where –

- (a) Such right is expressly provided for in a contract in writing;
- (b) The nuclear incident has resulted as a consequence of an act of supplier or his employee, which includes supply of equipment or material with patent or latent defects or sub-standard services;
- (c) The nuclear incident has resulted from the act of commission or omission of an individual done with the intent to cause nuclear damage”.

While Sections 17 (a) and (c) are standard formulations (including in the CSC), Section 17 (b) introduces the notion of 'supplier liability'. The terms 'patent or latent defects' have been imported from other liability instruments but hardly stand legal scrutiny in this case where the NPCIL is unlikely to accept an item that suffers from a 'patent defect'. The issue is further complicated by Section 46 (Act to be in Addition to Any Other Law) which states: “The provisions of this Act shall be in addition to, and not in derogation of, any other law for the time being in force, and nothing contained herein shall exempt the operator from any proceeding which might, apart from this Act, be instituted against such operator”. This introduces the notion of concurrent liability, under general tort law as well as under criminal law. Taken together, these two provisions can give rise to a supplier liability which is both ambiguous and open-ended. It implies, or

at the very least does not preclude the possibility, that claims can be directly brought by the victims against suppliers for nuclear damage. If the purpose of the CLNDA was that only the operator would have recourse to the suppliers, and that too after paying compensation to the victims (as provided for in the beginning of Section 17 and in terms of giving primacy to victim's interests), then Section 46 is ambiguous to the extent that it exposes the nuclear suppliers to potentially unlimited amounts of liability under ordinary principles of tort law.

To give meaning to Section 46, Section 35 (Exclusion of Jurisdiction of Civil Courts) was also amended and now reads thus: “Save as otherwise provided in Section 46, no civil court (except the Supreme Court and a High Court exercising jurisdiction under articles 226 and 227 of the Constitution) shall have jurisdiction to entertain any suit or proceedings in respect of any matter which the Claims Commissioner or the Commission, as the case may be, is empowered to adjudicate under this Act and no injunction shall be granted by any court or other authority in respect of any action taken or to be taken in pursuance of any power conferred by or under this Act”. While the High Court and the Supreme Court have inherent powers to shape relief to victims, the CLNDA actually provides a specific right to these Courts to intervene. Therefore judicial intervention is almost a given, in the context of current political reality.

Realising that some of these provisions of the CLNDA could raise concerns, the Central Government sought to address these when it promulgated the Rules under the Act in 2011. The significant effort was in Rule 24 which explains the magnitude of the Right of Recourse of an operator vis-a-vis the supplier as –“(1) A contract referred to in clause (a) of section 17 of the Act shall include a provision for right of recourse for

not less than the extent of the operator's liability under sub-section (2) of section 6 of the Act or the value of the contract itself, whichever is less.

(2) The provision for right of recourse referred to in sub-rule (1) shall be for the duration of initial license issued under the Atomic Energy (Radiation Protection) Rules, 2004 or the product liability period, whichever is longer”.

However, it is clear that these limitations only apply to Section 17 (a), where the operator's right of recourse is 'provided for in a contract in writing'. These restrictive terms cannot be extended to the other parts of Section 17. An interpretation to this effect offered by the late former Attorney General Vahanvati was dismissed rather unceremoniously. Rule 24 adds a further limit on the right of recourse in the Explanatory Note provided that “an operator's claim under this rule shall in no case exceed the actual amount of compensation paid by him up to the date of filing such claim.” Clearly this upper limit too would only be applicable to Section 17 (a). Therefore Rule 24 circumscribes the operator's recourse to the supplier but only under 17(a) and no other provisions.

Rule 24 also tries to address the lacuna that while the term 'operator' is defined in Section 2 dealing with Definitions, the term 'supplier' is not. Accordingly, in Explanatory Notes a 'supplier' is described as a person who 'manufactures and supplies, either directly or through an agent, a system, equipment or component or builds a structure on the basis of functional specification; or provides build to print or detailed design specifications to a vendor for manufacturing a system, equipment or component or building a structure and is responsible to the operator for design and quality assurance; or provides quality assurance or design services'. The second part would imply that NPCIL is the 'supplier' as it provides the design and also tests and certifies the equipment but such an

interpretation creates the situation that NPCIL ends up being both the supplier and the operator. The afterthought of explaining the term 'supplier' therefore has not been found satisfactory.

Section III Evolution of International Nuclear Liability Regimes

The unique feature about international nuclear liability law is the concept of 'channelling' of liability. Initially, under the US Atomic Energy Act of 1946, the US government maintained a monopoly on nuclear technology and the US Atomic Energy Commission would include a 'hold harmless' clause in its contracts with private suppliers and contractors. This was a means of channelling the liability towards the State. This was also the practice followed by NPCIL prior to 2010 because it is a fully government-owned entity.

In 1954, the US government changed its position and permitted private-sector entities to both own and operate nuclear reactors while retaining the regulatory aspects of licensing. Naturally, this shifted third-party liability towards industry which was uncertain (as was the insurance market) about how to deal with the concept of nuclear risk. Deliberations between industry and government led to the 1957 Price Anderson Act which brought in the concept of 'economic channelling' of liability towards a single entity, namely the nuclear operator. In order to protect the interests of the victims, it was a strict and no-fault liability that the operator accepted. The quid pro quo was that the liability was capped in terms of amount and restricted in terms of a time frame. This made an insurance cover possible. Further the Price Anderson Act also set up a Fund for settling liability claims over and above the capped amount. Contributions to the Fund were made by the nuclear industry and today, the Fund stands at over \$ 13 billion.

Economic channelling meant that victims could file damage claims against the operator as well as the supplier or designer though it was the operator who was obliged to take out comprehensive insurance to cover the third-party liability of these vendors. However, the operator would, in

turn, have the right of recourse against the vendors. Economic channelling therefore maintains the sanctity of tort law. An example is the 1979 Three Mile Island accident where the victims sued the operator (Metropolitan Edison General Public Utilities), the designer (Babcock and Wilcox) and the construction firm (United Engineers and Construction). The liability of all three entities was covered through the operator's omnibus insurance. However, the operator Metropolitan Edison separately sued the designer Babcock and Wilcox in right of recourse and the dispute was settled out of court.

By the late 1950s, US companies were in a position to export nuclear designs, technology and equipment to West European countries but were worried about nuclear risks and liability implications. Harvard Law School and the Atomic Industrial Forum jointly produced a report in 1959 to introduce the concept of 'legal channelling'. The basic argument was that a well-designed piece of equipment or machinery could be badly run or maintained and since the supplier had little control over it after its delivery, only the operator should be held liable. The concept of 'economic channelling' was now tightened by restricting liability exclusively to the operator, without recourse to the supplier, through the instrument of 'legal channelling'.

The OECD-based Paris Convention (1960) and the IAEA-based Vienna Convention (1963) have both enshrined the concept of 'legal channelling'. Article 6 of the Paris Convention states that “the right to compensation for damage caused by a nuclear incident may be exercised only against an operator.” The same provision further states that “no other person shall be liable for damage caused by a nuclear incident.” Similar language exists in Article II of the Vienna Convention, which states that “except as otherwise provided in this Convention, no person other than the operator shall be liable for nuclear damage.” Both the Paris

Convention and the Vienna Convention provide for a limited right of recourse by the operator against the supplier, if it is specifically provided for in the contract or if there was a deliberate attempt to cause a nuclear incident. These two provisions are identical to Section 17 (a) and (c) of the CLNDA. The rationale of 'legal channelling' was to avoid multiplicity of lengthy lawsuits, escalation of nuclear insurance costs and make it easier for the victim by providing jurisdiction to a single court. However, the primary reason was protecting the commercial interests of the US nuclear industry as it expanded into Europe and a number of countries (notably Germany, Austria, Switzerland and Greece) tried to amend these provisions. They, however, eventually fell in line. During the 1990s when the West European companies began to expand into Eastern Europe, they also insisted on adherence to the Vienna Convention by these countries.

The shortcoming of varying and limited memberships of these two regimes became apparent after the 1986 Chernobyl accident. These regimes did not cover the issues of cross-boundary effects and environmental damage. Finally, in 1997, the free standing CSC was negotiated, incorporating many of the reforms that were needed. It also creates an international fund where a state's contribution is calculated based on the state's installed nuclear capacity. This is intended to kick in after the national liability of 300 million SDRs is surpassed in terms of liability claims. The US, which was not a party to either the Paris or the Vienna Conventions, has become a party to the CSC. Even though the CSC also enshrines legal channelling the US was able to adhere to the CSC by means of a grandfather clause that does not require it to change its policy of economic channelling. However, this grandfather clause does not help India as its domestic legislation is after the CSC was opened for signature in 1997. In short, the US is the only major Western country that has maintained its domestic legislation on the basis of economic

channelling while other countries have had to accept legal channelling on the basis of their adherence to one of the international regimes. While the Vienna Convention has 15 states parties and the Paris Convention has a similar number, the CSC is yet to enter into force. France is a party to the Paris Convention; Russia, to the Vienna Convention; and Japan, another key country for India, is planning to adhere to the CSC.

Clearly, the CLNDA is not consistent with the existing international nuclear liability regime because while accepting the 'strict and no fault liability' principle which is intended to safeguard the interests of the victims, the CLNDA also expands the right of recourse of the operator vis-a-vis the supplier. Further, it does so in a somewhat ambiguous and open-ended manner as explained in Section II. A key reason cited to justify the concept of 'channelling' through the 1950s was that this was a new business field and neither the private companies nor the insurance sector had much know-how about nuclear risk and probability calculations. Therefore, liability provisions needed to be looked at afresh and modified if the nascent industry had to grow. There is a growing body of international legal opinion which feels that the situation today is different. Legal channelling may have been justified then but today the nuclear industry has grown out of its infancy and the insurance sector has gained considerable expertise on nuclear energy risk estimations (though this still does not hold true for Indian insurance companies).

Reactor technology has also advanced considerably. Most nuclear power reactors operating in India are second-generation (Gen II) while the new Russian VVER, the French EPR and the Westinghouse AP 1000 (all three under consideration) are Gen III, with much more advanced systems integration technologies and safety features. India is also seeking to integrate Gen III technological features in its development of the Advanced Heavy Water Reactor (APHR). Internationally, research is

already underway into the Gen IV reactors with further improvements in terms of safety, waste minimisation, higher reliability, reduced maintenance costs, and internalisation of a larger number of emergency responses. Reactor lifetimes have also grown from the earlier lifespan of approximately 30 years to nearly double today. In India, the lifetime of the Tarapore units which went operational in 1969 was also extended after undertaking a comprehensive ageing management review, installing new safety features and replacing certain pieces of equipment. The Atomic Energy Regulatory Board undertakes a thorough review of the entire installation every five years before renewing NPCIL's operating license for a unit.

In addition, valuable lessons have been learned from the world's three major nuclear accidents: – Three Mile Island in 1979; Chernobyl in 1986; and Fukushima in 2011. What clearly emerges is that there was no single piece of equipment that created the crisis but it was a sequence of equipment malfunctions, design related problems and workers' errors that generated the crisis. For example, in the Fukushima accident, the power generation shut down as the earthquake occurred in keeping with the safety design and the diesel generators, should have kicked in for cooling reactor cores but these failed to do so because the tsunami waves flooded the areas where the generating sets were located thereby disabling them, thus leading to a reactor meltdown. Similar lessons have also been learnt from other, lesser nuclear incidents.

Therefore the sharing of liability between operator and supplier may be a concept that is inconsistent with existing international nuclear liability regimes but it is certainly an idea which is in consonance with the spirit of the times and in keeping with the technological developments that have taken place in the nuclear reactor industry.

Section IV Current State of Play

Realising that the CLNDA as approved by Parliament following the amendments in the Standing Committee had created ambiguities, the Central Government tried to first address this through the notification of Rules, to which reference has already been made in Section II. However, this proved to be inadequate. Sporadic discussions have since taken place, within the Central Government and with the Indian suppliers, and bilaterally with the Russian, French and US governments and their vendors. An India-US Contact Group has been set up to seek an early resolution. So far, none of these efforts have proved successful. A key reason behind this lack of progress is that there has been a lack of transparency—and therefore a lack of clarity—about the framework and the parameters. Here the primary responsibility should lie with the current Central Government but realising that since in 2010, it had discharged the dharma of the Opposition and was responsible for some of the ambiguities, it is reluctant to take an initiative.

The Department of Atomic Energy and NPCIL are both of the view that the CLNDA only needs a bit of adjustment and should then be acceptable. One section of the nuclear establishment feels that if definitional adjustments can satisfy the domestic suppliers, it should suffice and the international vendors will fall in line. In their view, the problems lie in the fact that there is no nuclear insurance product yet available in the market and the efforts by the Central Government has to be in this direction with the GIC. New terms to substitute 'suppliers' ('suppliers' and 'vendors' have been used interchangeably in this paper) by 'fabricators' and 'contractors' have been put forward. The logic is that since NPCIL is the designer of the components and also dictates the alloys and special steels to be used in the manufacture of the components of a reactor and also certifies the end product before acceptance, the

domestic Indian 'supplier' is only a 'fabricator' (not a supplier) and therefore not liable under Section 17. This would require additional refinements in the section on Definitions which currently does not use the term 'fabricators'. Such an approach would then make NPCIL both the 'supplier' and the 'operator' and raise the legal issue of whether this approach was in keeping with the liability-sharing principle behind the CLNDA. PIL groups would certainly challenge such a definitional approach.

Secondly, this would need further creativity to deal with foreign suppliers' concerns, since in such cases, the technology and designs would be provided by Russian, French or US entities. Since NPCIL as the operator would work with the foreign suppliers, the design and resulting specifications will become a 'shared' end product and NPCIL would not be purchasing a 'hermetic' design. In other words, NPCIL would once again assume the role of supplier together with the foreign vendor and if 50 percent of the fabrication was done under NPCIL's watch, then the Rs 1500 crores cap would be split in the same proportion, thus lowering the premium costs for the foreign supplier.

Regarding the open-ended nature of liability claims, the introduction to the CLNDA is cited which states that the domestic framework for the nuclear industry has been established within the framework of the Atomic Energy Act (1962), and 'there is no provision in the said Act about the nuclear liability or compensation for nuclear damage due to nuclear accident or incident and no other law deals with the same'. However, as explained in the second part of this paper, Section 46, in its present form conveys a different sense. This, in turn, creates a contradiction.

Another question arises from Section 8 which states the requirement for the operator to take out 'insurance policy or other such financial security

or combination of both, covering his liability under sub-section (2) of Section 6', which is defined as Rs 1500 crores. Section 8 (3) adds that these insurance requirements 'shall not apply to a nuclear installation owned by the Central Government'. The implication then is that since all the power reactors are operated by NPCIL which is government-owned, all reactors too are government-owned and therefore will not need insurance. The same logic would apply to the fast breeder reactor programme where the operator is BHAVINI. In other words, no insurance need be taken out and in any case, GIC too is a government owned entity.

An additional dilemma with this is that while some power reactors are under IAEA safeguards as declared under the separation plan in 2006, others remain outside the IAEA purview. Every insurer would insist on site visits and access to safety codes and drills in force but the NPCIL is reluctant to allow these for the unsafeguarded facilities. This would lead to a situation where the safeguarded reactors could be reinsured (standard practice in nuclear insurance pools) but international reinsurance would not be possible for unsafeguarded reactors.

These are some of the approaches being currently explored within the DAE, NPCIL, and other concerned relevant Ministries. However, it is unlikely that these fixes can succeed or withstand legal scrutiny because they fail to address the key question: Should the CLNDA retain some element of 'supplier liability', or completely do away with it?

Within the nuclear supplier community, there are two distinct views. The domestic industry would be happy if the Definitions could be adjusted so that they no longer attract the liability attributed to suppliers. However the suggestions registered through industry organisations is different and pitched higher. These recommend the deletion of Section 46 and the addition of the word “and” in Section 17 between sub-paragraphs (a) and

(b). This would imply that the restrictions contained in Rule 24 would apply in both cases since they are now joined together. This would be tantamount to a rejection of shared liability as envisaged by the spirit of the CLNDA. Its political feasibility is also doubtful.

A legal NGO, Vidhi, has undertaken an exhaustive analysis of the issue and made a set of recommendations. For example, it suggests retaining Section 17 (b) on the grounds that it is consistent with the 'polluter pays' principle and feels that India's accession to the CSC could be undertaken with a reservation to this effect. The NGO also recommends that Rule 24 be deleted as it imposes limitations on the operator's right of recourse vis-a-vis the supplier which is inconsistent with the spirit of the CLNDA, which is to safeguard the interests of the victims. Certain changes should be made in the Sections 5 and 9 in order to clarify that this special legislation would deal with all civil liability claims arising out of nuclear damage, thereby suspending application of general tort law and restricting the applicability of Section 46 only to 'criminal liability'. Finally, Vidhi also suggests taking out insurance for the government-owned reactors, creating insurance pools and bringing in the suppliers as contributors to the Nuclear Liability Fund envisaged under Section 7.

All the three approaches outlined above reflect clear differences. The industry approach does away with 'supplier liability', while the Vidhi approach retains it; the DAE approach, meanwhile, ducks this issue, perhaps for political reasons.

Section V A Way Forward

In order to find a solution out of this conundrum which is coherent, for the long-term, and politically feasible, the government has to be clear about its red lines and adopt a more transparent approach in order to carry conviction to the different stakeholders – the public at large, media and civil society, industry associations and foreign suppliers, foreign governments, and the nuclear establishment. The process has been driven primarily by the nuclear establishment but today, it has two sides: a civilian part which needs to accept an international peer group driven degree of transparency, accountability and public scrutiny; and the strategic or military part which is sensitive in nature and will remain highly classified. After the 1974 PNE, the 'nuclear option' was part of the overall nuclear programme which was declaredly civilian, and the nuclear establishment understandably reacted to its isolation by shrouding the entire nuclear programme under the blanket of 'national security'. A key political objective behind the nuclear tests of 1998 was to move from being a state with a 'nuclear option' to a declared nuclear weapon state. It was clear this would require changing the 'secrecy' culture of the civilian part of the nuclear establishment whose development needed to be accelerated with access to innovations and best practices being developed in other countries.

The objective of the CLNDA is clearly to provide for speedy and adequate compensation to victims in case of a nuclear accident and this is ensured by the adoption of the principles of strict and no fault liability. There is also a broader perspective reflected in the Introduction to the CLNDA about nuclear energy which is expected 'to form an important part of the energy-mix of the country'. This is why the India-US nuclear deal also envisaged India becoming a member of the Nuclear Suppliers Group, thus firmly ending India's isolation and ensuring India's position

as a responsible member of the grouping that sets the rules for nuclear commerce and exchanges in the context of non-proliferation benchmarks. With the current impasse, this process has also slowed down and needs to be revived.

The victim of a nuclear accident is not concerned about whether his compensation comes from the operator or the supplier, his interest is in speedy and adequate compensation. CLNDA recognises this reality and Section 17 ensures this by providing for operator's right of recourse only 'after paying the compensation in accordance with section 6'. In setting out the conditions for the operator to exercise his right of recourse vis-a-vis the suppliers, the CLNDA has been guided by contemporary thinking rather than the thinking in 1950s; these distinctions need to be suitably explained.

To retain the principle of supplier liability, the government has to ensure that its ambiguities and open-ended nature are ironed out. Multiple and concurrent liabilities need to be avoided and a clearer understanding that Section 46 applies to criminal liability needs to be established. The reference in it to other laws or proceedings that could be instituted is in contradiction to the framework of the Atomic Energy Act (1962) which makes the CLNDA the sole legal instrument for entertaining civil nuclear liability claims. This clarity would address a major uncertainty.

Another shortcoming is the lack of clarity about the extent of supplier liability. Clearly, indefinite liability for an indefinite period of time cannot provide guidance for insurance. Further, should each supplier be equally liable irrespective of the financial value of his equipment or services provided for the nuclear plant? The attempt to link Rule 24 to this was clumsy. The way out would be to use the cap of Rs 1500 crores and work on the Probabilistic Risk Assessment (which NPCIL is doing together

with GIC). Such assessments are carried out by the US Nuclear Regulatory Commission too because, as explained earlier, the US domestic law does not have legal channelling and allows the operator's recourse to suppliers.

Once a ceiling and proportionate supplier liability is worked out, developing an insurance pool with possibilities of international reinsurance to spread the risk will become far easier. During this exercise, care needs to be taken that insurance costs which will add to the cost of nuclear power should be such as do not render nuclear power economically unviable. For this, suitable financial provisions will need to be explored in order to set up the Nuclear Liability Fund. Contributions to this Fund should be drawn from the nuclear industry (which includes suppliers) and not just the operator (which in India is NPCIL or the government). The issue of the government-owned NPCIL not taking out insurance with GIC which also government owned and not needing to contribute to the Fund—which is also government-administered—creates legal anomalies and diminishes confidence in the CLNDA. A simple way out that can be justified as a measure to enhance confidence would be for NPCIL to take out insurance for its reactors.

The distinction between safeguarded and unsafeguarded nuclear power reactors will require political initiative and technical finesse. Clearly some access will need to be provided but this can be worked out as is done for safety related visits without compromising the guidelines of the 2006 separation plan. Some definitional clarity about patent and latent defects also needs to be developed. Latent defects will have to be linked to the product liability period. Since each reactor's operating license is renewed every five years only after an exhaustive review, such a fact-based approach can be explored to bring in insurance cycles as product liability periods are rolled over.

Resolving the nuclear liability conundrum is best done through a politically led, open and transparent process which addresses the supplier community's legitimate concerns while retaining the core principle, enables India to accede to the CSC, and revives the India-US nuclear dialogue so that India's membership of the NSG can be completed without further delay.

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