Civil Liability for Nuclear Damage Act, 2010

A Primer for the British Nuclear Industries.

Report to British High Commission

Civil Liability For Nuclear Damage Act, 2010 – A Primer for the British Nuclear Industries

Center for Study of Science, Technology and Policy

Table of Contents

Introduction

India is an emerging economy. It is in the process of rapid industrialisation and growth. There is exponential demand in various infrastructural sectors especially in energy. Nuclear power is an important source of energy and the government has assigned high priority to it. The growth of nuclear power was constrained after India conducted its first Peaceful Nuclear Explosion (PNE) in 1974. India did not violate any treaty obligations of Non Proliferation Treaty (NPT) since it had not acceded to it due to its discriminatory nature. Following PNE, sanctions and denials were imposed that resulted in the isolation of India from international trade in nuclear technology, materials and fuel. The denial regime continued till 2005 when negotiations started between US and India, which ultimately culminated in the Indo-US deal, which was signed in 2008. India has drawn up an ambitious programme (1) of installing around 500GWe by 2050 out of which about 40 GWe will be by import over a period of decade commencing from 2012. The plan to import has suffered primarily due to cost and civil liability issues.

This report aims to provide an analysis of the Indian Civil Liability for Nuclear Damage Act (CLNDA), 2010 (Refer Annex 1) and its impact on the UK nuclear industries. In this context, a visit to UK Trade and Investment (UKTI) meeting held in London in January 2014 helped in getting to understand the concerns of some of the industries. It also revealed that certain gaps existed in the understanding of the act due to lack of clarity. The report studied the areas of concern and what could be done to harmonise the Indian Act with other international liability laws to facilitate nuclear trade as envisaged by Indo-US agreement.

Background to the Indian Civil Nuclear Industry

India embarked on its nuclear programme in the late 50's. The first nuclear power plant with two Boiling Water Reactors (BWR) of 210 MWe each, was constructed on turnkey basis with General Electric (US). This went into operation in 1969, one followed by the other. Subsequently India collaborated with Canada in constructing two Pressurised Heavy Water Reactors (PHWR) of 220MWe each, but the collaboration was terminated due to India conducting a PNE in 1974. From then on India has been on its own, constructing PHWRs. Currently 21 reactors (18 PHWRs) with a cumulative installed capacity of 5780 MWe are under operation with an enviable record of safety. India not only has competence in building reactors indigenously but also builds and manages the entire fuel cycle activities. Several Indian industries were developed to meet the stringent nuclear standards in both private and government sectors to meet the demands of the nuclear programme, which was a great challenge. However, the growth of the programme was rather slow due to denials and sanctions imposed on India consequent on it conducting a PNE in 1974 and a repeat in 1998. The credit goes to Indian industries and government for sustaining the programme in an extremely hostile environment. During the period from 1960's till 2010 when CLNDA came into force, the Indian government indemnified all suppliers of all risks in the interest of promoting and

nurturing nuclear power, very similar to what US did when it enacted Price Anderson Act (PAA) in 1957.

In 2008 when the Indo-US deal was signed India had decided on implementing a large addition of nuclear capacity, including 40GWe of Pressurised Water Reactors (PWR). To activate the Indo-US deal as well as the Nuclear Supplier's Group (NSG) waiver, it was necessary for India to become a member of one of the international conventions. India made the choice of Convention on Supplementary Compensation (CSC – refer Annex 3) and this in turn necessitated the framing of CLNDA, which is a national legislation. It should also be stated here that the Indian programme was modest and the Indo-US deal opened the possibility of accelerating the programme which was also essential from the point of view of energy security and least carbon source.

Development of Nuclear Liability Legislation Internationally

The 1957 Price Anderson Act (PAA) of the US was the first civil liability act enacted to protect the interest of the victims of a nuclear incident, operators and suppliers. The US government realised that such an act was essential to encourage private sector participation for the promotion of civilian nuclear power by way of construction of nuclear power plants and allied activities.

The objective of the PAA was to infuse confidence in the public at large by making available adequate funds and at the same time limit the financial risks to the operator. It was realised that many of the companies which provide equipment and support services would not participate in the nuclear programme without some liability limitation. To promote nuclear power and nurture the same therefore requires the government participation in a significant way.

With this objective, the liability under Price Anderson Act was initially borne by the US government. Over a period of time, as the power base grew and insurance became possible, not only the amount for liability increased manifold, but the liability itself got transferred to nuclear industries (operator). International conventions which followed the PAA (the Paris Convention of 1960 (PC), the Vienna Convention of 1963 (VC) and the Convention on Supplementary Compensation of 1997 (CSC)) were driven by the objectives of the PAA though there were some changes. **Traditionally the international conventions while protecting the interest of the victims by legally channelling the liability to the operator have not apportioned any liability to the supplier**. This could be interpreted as a step to protect the industries. This step was perhaps necessary in 1957 when neither the government nor the suppliers had a clear understanding of the extent of risks involved in nuclear business. In today's mature nuclear industries there is some debate around whether and to what extent liability should rest with the supplier.

Indian Civil Liability for Nuclear Damage Act, 2010

Background and Context

In 2008, India and the US signed a historic deal for cooperation in civilian nuclear power. The Nuclear Suppliers Group agreed to give an India specific waiver, which allowed India access to international nuclear trade and commerce. Subsequent to this development, several countries expressed their interest to trade with India in nuclear technology, equipment and fuel, including construction of nuclear power plants.

After signing the Indo-US agreement in August 2008, India declared that it would join one of the three international liability conventions and opted for CSC. Since India was not a member of either Vienna or Paris conventions, it became necessary for India to have a national law conforming to the annex of CSC. Since India did not have a national civil nuclear liability law, it decided to come up with a draft law for presenting to the parliament for approval. When the draft was presented there were serious differences of opinion expressed in the parliament, recalling the Bhopal disaster and the difficulties experienced for compensating the victims. Hence a parliamentary committee under the Ministry of Science and Technology was assigned the responsibility of looking through the draft bill, seek opinion and come up with a revised recommendation. This activity was completed and presented to the parliament, which passed the Bill in 2010. Subsequently, the President of India assented to the Bill which became an Act in 2010. Despite taking all the steps with meticulous care, suppliers of nuclear plants (US, France, Russia) expressed disappointment at suppliers being charged for liability and also pointed out that the Act does not conform to CSC as claimed by India.

Objectives of the Act:

Like all international liability conventions/Act the objectives of CLNDA are as follows:

1. Strict (no fault) liability imposed on the operator : strict liability means that the victim is relieved from proving fault (2)
2. Legal channelling of the liability to the operator
3. Limitation of liability in terms of cost and time
4. Insurance for financial security of the operator as prescribed by the Act
5. Establish exclusive jurisdiction of a single court.

Relationship with CSC

The CLNDA, 2010 consists of seven chapters and 49 sections. Out of the above, few clauses have come under the scrutiny of suppliers both domestic and international, though domestic suppliers have not articulated their concern as done by the international suppliers. In this section we focus on those clauses and compare them with CSC. This will help in understanding the differences between CLNDA and CSC. This report is emphasising on CSC since India has signed CSC and plans to ratify it in due

course of time. Table 1 lists the chapters in CLNDA. Brief explanation on the contents of the chapters is given in the Act attached as Annex 1.

Table: 1

Chapter I	Preliminary
Chapter II	Liability for Nuclear Damage
Chapter III	Claims Commissioner
Chapter IV	Claims and Awards
Chapter V	Nuclear Damage Claims Commission
Chapter VI	Offences and Penalties
Chapter VII	Miscellaneous

Operator Liability

As per the international conventions for nuclear damage, liability of a nuclear accident is legally channelled to the operator. The reasons for this include:

1. Avoiding lengthy litigation to determine who is liable for damage thereby making compensation process time consuming for the victims
2. Avoiding pyramidal cost of insurance leading to cost-effectiveness
3. The fact that only operators have full control and authority over the operation of the reactor through its life.

Nevertheless, all the Conventions (PC, VC, and CSC) provide the operator with a right of recourse under certain conditions. In CLNDA, Clause 17 provides the conditions for right of recourse.

The three relevant clauses of the CLNDA are:

1. Clause 6 details the operator's liability for each nuclear incident;
2. Clause 17 describes the conditions of right of recourse and:
3. Clause 46 concerns the application of other laws.

Table 2 lists these clauses and compares the stipulations between CLNDA and CSC.

Table: 2

CLNDA	***CSC***	***Impact on suppliers and the supply chain(CLNDA)***
Clause 6: Limits of Liability ***(1) The maximum amount of liability in respect of each nuclear incident shall be the rupee equivalent of three hundred million Special Drawing Rights or such higher amount as the Central Government may specify by notification: Provided that the Central Government may take additional measures, where necessary, if the compensation to be awarded under this Act exceeds the amount specified under this sub-section.*** ***(2) The liability of an operator for each nuclear incident shall be-*** ***in respect of nuclear reactors having thermal power equal to or above ten MW, rupees one thousand five hundred crores;*** ***in respect of spent fuel reprocessing plants, rupees three hundred crores;*** ***in respect of the research reactors having thermal power below ten MW, fuel cycle facilities other than spent fuel reprocessing plants and transportation of nuclear materials, rupees one hundred crores*** ***Provided that the Central Government may review the amount of operator's liability from time to time and specify, by notification, a higher amount under this sub-section:*** ***Provided further that the amount of liability shall not include any interest or cost of proceedings.***	**Article 4: Liability Amounts** ***1. subject to Article III.1(a) (ii), the liability of the operator may be limited by the installation state for any one nuclear incident, either:*** ***to not less than 300 million SDRs; or*** ***to not less than 150 million SDRs provided that in excess of that amount and up to at least 300 million SDR's public funds shall be made available by that state to compensate nuclear damage*** ***Notwithstanding paragraph 1, the Installation State, having regard to the nature of the nuclear installation or the nuclear substances involved and to the likely consequences of an incident originating therefrom, may establish a lower amount of liability of the operator, provided that in no event shall any amount so established be less than 5 million SDRs, and provided that the Installation State ensures that public funds shall be made available up to the amount established pursuant to paragraph*** ***The amounts established by the Installation State of the liable operator in accordance with paragraphs I and 2, as well as the provisions of any legislation of a Contracting Party pursuant to Article 3.7(c) shall apply wherever the nuclear incident occurs.***	**Impacts directly the operator and indirectly the supplier. A link is established between the operator and the supplier liability through a common cap at the upper limit of 15 billion INR (refer Rule 24(2))** **(For Rules to CLNDA refer Annex 2)**
Clause 17: Right of Recourse **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***	**Article 10: Right of Recourse** ***National law may provide that the operator shall have a right of recourse only:*** ***(a) if this is expressly provided for by a contract in writing; or*** ***(b) If the nuclear incident results from an act or omission done with intent to cause damage, against the individual who has acted or omitted to act with such intent.***	**Impacts the prime supplier* through the operator under right of recourse**

from the act of commission or omission of an individual done with the intent to cause nuclear damage.		
Clause 46: Act to be in addition to any other law ***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.***	**No such clause exists**	**Direct impact on the operator. Indirect impact on the supplier if the victims get an option to sue the suppliers under Tort law.**

* Suppliers and prime suppliers are used interchangeably for the purpose of differentiating between supplier and supply chain

Key Concerns for Suppliers and Sub-suppliers

UK is not a major supplier to India in terms of nuclear equipment, fuel and technology. However, UK has several sub-suppliers, who supply to various companies, which in turn supply to India. Hence the UK supplier's should be more concerned about the likely impact of the Act on the sub-suppliers. CLNDA only deals with the scope of supplier's liability and is silent about the rest of the supply chain. It is expected that the operator, Nuclear Power Corporation of India Ltd (NPCIL), a public sector undertaking of Government of India would be signing contracts with the prime suppliers (AREVA, GE etc.) and not with the entire supply chain. **Therefore, there being no direct contract from the operator (NPCIL), liability of sub-supplier would depend on how the supplier formulates the contract with the supply chain.**

- *Clause 6: Limits of Liability*

Table 2 gives details of the liability of the operator under various conditions. However, the clause also states that "*The Central Government may review the operator liability from time to time and specify, by notification, a higher amount*". This provision in the Act enabling government to revise the operator liability seems to be interpreted by some as unlimited liability. Moreover, the provision of revising the operator's liability from time to time is not compatible with CSC. It is also opined that such provision to revise operator's liability unilaterally is unacceptable under international law and also general law of contract. Since the liability of the supplier is linked to the liability of the operator any revision to a higher value would also impact the supplier as well.

- *Clause 17: Right of Recourse*

The details of Clause 17 of the Act are reproduced in Table 2.

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.

The three international conventions (PC, VC and CSC) that deal with civil liability for nuclear damage channel the liability entirely to the operator with a proviso that the operator has a right of recourse under the following conditions:

a) Such right is expressly provided for in a contract in writing
b) The nuclear incident has resulted from the act of commission or omission of an individual done with the intent to cause nuclear damage.

It can be observed that Right of Recourse (ROR) of international conventions is identical to 17(a) and 17(c) of the Indian Act. The inclusion of clause 17 (b) in the Indian Act is at variance with the provisions of CSC and the suppliers are not in favour of this clause. It is understood that the Governments of US, Russia and France have taken up this issue with the Government of India on behalf of their suppliers. The problem seems to stem out of the perceived incoherency of clause 17 (b), with respect to cost and time which has been subsequently clarified by Rule 24, framed in 2011. Rule 24 states the following:

- Right of Recourse:
    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 or the value of the contract itself, whichever is less
    2. The provision of the right of recourse referred to in sub-rule (1) shall be for the duration of initial license issued under the Atomic Energy rules, 2004 or the product liability period, whichever is longer.

The product liability period is defined as: "The period for which the supplier has taken liability for patent or latent defects or sub-standard services under a contract".

Though the associated Rules (Rule 24) lead to a better understanding of clause 17, the issues that can possibly arise between the supplier and the operator of the nuclear plant could result in varying interpretations. For example, some analysts are of the opinion that Rule 24 (2) links 17 (a) and (b) through reference to "product liability" and its explanation under the Rules and hence 17 (b) is not an independent clause which appears to go against the intent of the Parliament (3). This is evident from the fact that

once the time limit set as in clause 17 (a) expires; the supplier is no longer bound. The Act and the Rules must be worded so that the intentions are made clear and no ambiguity exists.

Another point which lacks clarity is the use of "first license period" (Rule 24(2)) which presently is five years. If the intention is to limit 17 (b) to a period of five years after the commencement of first license, it is not clear how the period commencing from date of supply to commencement of first license period is covered. If the supply is covered by insurance for five years it is not adequate. It should include the entire period from the date of supply including the first license period. It is to be noted that this would cover the construction period as well and this could vary due to delays which are not uncommon in nuclear construction. Hence if the intention of the Act is to limit the liability to five years, it can be stated explicitly rather than the way it is presently worded.

If the clause 17 (b) is deemed to be an independent clause as the parliament desired then the liability would extend to minimum 40 years, the design life of the reactor. If the plant life is extended to 60 or 80 years the liability would also extend correspondingly. When the suppliers are unwilling to accept any liability, the stipulation mentioned above, would only result in the lack of response. Moreover the suppliers feel that it is the operators responsibility to ensure that all the design basis parameters are strictly adhered to, during the entire design life and suppliers have no role to play. The counter to this is the view that the regulators who oversee the operations of nuclear power plant will ensure adherence to design limits.

Clause 46

For details refer Table 2. This clause also does not conform to CSC. The liability law is a stand-alone law specifically formulated to address issues relating to nuclear incidents and associated liability. Its main stated objective is to provide quick relief to victims by channelling the liability to one entity-the operator. To facilitate this, it has a separate Claims Commissioner as well as the Nuclear Damage Claims Commission.

By stating that "*The provisions of this Act shall be in addition to, and not in derogation of, any other law*" without even specifying the laws involved, it has created uncertainty. Some analysts believe that this clause will result in the application of Tort law with the attended delays. Some also believe that this provision will open the channel for victims to directly sue the suppliers, with potential for liability to be passed to sub-suppliers. It is also opined that the Tort law cannot be applied, but Constitutional law can be applied leading to similar results (4) (5). Some consider this linkage as a beneficial step since it facilitates the victims to sue the suppliers (and possibly sub-suppliers) for damages (6). All these lead to lack of clarity, and impact the channelling of liability dealt in the Act. It is understood that the suppliers, especially international, are apprehensive of judicial

delays and fear prolonged litigation. The events subsequent to the Bhopal tragedy have resulted in a cautious approach towards risks and compensation both by government and suppliers.

The clauses 6, 17(b) and 46 are deviation from CSC and they impact the "suppliers" only. UK industries can be categorised as suppliers or as a link in the supply chain. If categorised as suppliers (for definition refer to Rule 24 – explanation 1 (b) attached as annex 2) they would be subject to liability as per Rule 24. This situation may arise if UK industries make a direct supply to NPCIL perhaps for the indigenous programme of PHWR.

If UK forms a part of the supply chain the contract would be between the prime supplier and the sub-supplier. The Act does not cover this aspect. In our opinion it will be left to the supplier to decide on the extent and duration of liability.

Options for Managing Risks

To cover any form of risk the common practice is to take an insurance to the full extent of the liability. In the case of an operator the Act caps the liability at 15 billion Indian Rupees (with a proviso that it can be increased by the government with a proper notification). Rule 24 links the prime suppliers maximum liability to the operator's liability and hence as worded now, would follow the operators liability till it reaches the maximum of 300 million Special Drawing Rights (~ 27.50 billion INR). While Clause 8 of the Act specifies the various modes of acceptable financial security in the case of operator, but there is no mention about a prime supplier. This is understandable since the operator under right of recourse could charge the supplier of liability and hence the acceptable financial security from the prime supplier will have to be decided by the operator. Taking a clue from the Act the prime suppliers could perhaps cover the risks by adopting similar methods stipulated in the Act for the operator. Since the Act specifies that the operator shall first pay the compensation and subsequently proceed against the supplier through right of recourse, the compensation process for the victims will not be impacted.

In the case of AREVA (France) and Atomenergoexport (Russia), the respective governments seem to have agreed to provide financial security backing. This can be one solution to the UK industries, which can request the UK government to support them by providing financial security.

The report rules out the possibility of the Government of India providing indemnity against all risks to the suppliers. However they are in the process of exploring the possibility of an insurance pool to address this issue.

Assessments of effectiveness of the risk management vis-a-vis the modes of risk coverage presently practiced are given in Table 3.

Table: 3

Stakeholders	Modes of Coverage	Limits of liability as per CLNDA	Effectiveness
Operators	Insurance / Financial security	15 billion INR (Refer Clause 6 of the Act)	No insurance available. Effective – Three Mile Island experience. No precise information on Chernobyl. Fukushima – operator TEPCO had private insurance of JPY 120 billion. It is not clear from documents whether TEPCO claimed this amount. (7)
	Government indemnity against all risks	-------	Very Effective but not likely
	Contract Conditions	Act is not clear whether the operator has the option not to impose Right of Recourse. Is 17 (b) an independent sub-clause under clause 17?	Can be effective if government provides clarification on 17 (b).
Prime Supplier	Insurance/Financial security derived from what is specified for the operator by the Act	15 billion INR	No insurance available at the moment.
	Government indemnity against all risks	If effective for the operator then will automatically apply to the prime supplier	Very Effective but not likely
	Contract Conditions	The Act is silent on this issue	Could be effective if properly framed
Sub-Supplier	Insurance/Financial Security	No experience. In the current practice sub-suppliers do not carry any liability	Could be effective
	Government indemnity against all risks	No experience. In the current practice sub-suppliers do not carry any liability	Effective but not likely
	Contract Conditions	No experience. In the current practice sub-suppliers do not carry any liability	Could be effective

Discussion of Potential for Resolving Civil Nuclear Liability Issues

As already stated, a few clauses of the CLNDA are in variance with existing international conventions including CSC. This has led to reluctance on part of foreign suppliers to enter into contracts with the Indian government (NPCIL).

The Act after a prolonged and heated debate in the parliament introduced the concept of charging the suppliers with liability through the Right of Recourse to the operator. The Attorney General of India has opined that "*The failure to provide for and have recourse against the supplier would ultimately impact public funds. This is a serious policy issue and is ordinarily a matter for government to decide*" (8). However the rules framed by the Department of Atomic Energy subsequently; to clarify certain provisions of the

Act as in clause 17 has resulted in confusion and could have been worded with greater transparency and clarity.

The first point of contention is Clause 17, which deals with right of recourse to the operator charging the suppliers under certain stipulated conditions. Clause 17 (b) in particular is unacceptable to the suppliers because it is not in conformance with CSC. The time and cost as interpreted under rule 24 (1) and (2) are considered insignificant in comparison to the designed life for safe operation. Moreover, the insurance cost is expected to be commensurate with the maximum limit specified for a supplier. So it appears that the objection of the suppliers supported by their governments is based on the decision taken in the 60's to protect the suppliers when the nuclear industry had not matured and had a small power base. The US government then took this step to promote and nurture nuclear power by taking on a large proportion of the liability. This was progressively transferred to industries (operator) as they grew in size and capability resulting in no liability to government except as an insurer of last resort. As already stated under section 2, suppliers are much better placed in understanding the risks involved in nuclear business and the measures to mitigate the risks (insurance). It will be good for suppliers to move with time and not anchor themselves to what was the practice when nuclear business started. Nuclear industries should explore the possibility of taking on some portion of the risk limited to cost and time without endangering the health of the industry.

The introduction of clause 46 is another case not consistent with CSC. Though it is said that US will continue with the provisions in Price Anderson Act (grandfathering clause) (9) wherein the victims can directly sue the suppliers. In clause 46 there is a confusion in wording. "Any other law" mentioned without details is an aberration. If the intention is to apply the Tort law then it is bound to result in lengthy litigation and attended delays. But one of the European analysts is of the opinion that since the Claims Commissioner and commission members are appointed by the government and since the operator of nuclear plants is also from government, fairness in deciding compensation may suffer and hence an alternate option through a common law may be good for the victims (10).

The possible options to make the Indian Act conform to CSC are:

1. Amend the controversial clauses if the Indian government is convinced that the arguments put forth by suppliers are genuine. This being a highly political issue, amendment may not be possible. Anyhow this issue can be addressed to the new government by the UK government
2. Indian government to organise a meeting wherein all the stakeholders are invited to participate. This opportunity must be utilised to explain the government's stand on the Act, clarify the provisions of the Act that have given rise to varying interpretations.

Conclusion

Our assessments of the issues relating to the Act are as follows:

The Clauses 6, 17 (b) and 46 of the Act would impact only the suppliers since there is no reference of sub-suppliers. The contract of the operator being with the prime suppliers like AREVA, GE, Westinghouse etc., naturally, the right of recourse will only be applicable to them and not the supply chain. Suppliers may decide to transfer the liability to the supply chain and the decision will entirely rest with them.

To summarise:

1. UK industries should find out whether they come under the classification of suppliers or a link in the supply (Eg :direct supply to NPCIL) then as it stands today they will be governed by CLNDA with the associated risks apportioned to the supplier
2. If they are categorised as sub-supplier the transfer of liability would depend on the prime supplier and this needs to be checked with them
3. The risk associated with the supplier has to be covered by a suitable insurance option
4. International insurance companies have expressed their inability to insure nuclear products exported to India. The two main reasons are: (a) India is yet to ratify CSC and (b) inspection of power plants is not allowed. As and when the issues mentioned above are resolved, only then will international insurance become available
5. India is working on a proposal to form an insurance pool but no definitive timeline is available
6. We do not expect Government of India to indemnify suppliers against all risks as it was the practice. Nevertheless we are not in a position to predict what will be the stand on this issue by the new government.

Bibliography

1. **Bharadwaj, Anshu, Subramanium, Rajgopal and Krishnan, L.V.** *Nuclear Power in India : The Road Ahead.* 2008.

2. World Nuclear Association. [Online] http://www.world-nuclear.org/info/Safety-and-Security/Safety-of-Plants/Liability-for-Nuclear-Damage/.

3. **Gopalakrishnan, Dr A.** *Why the Nuclear Liability Rules need to be modified.* Mumbai : DNA, 2011.

4. **Service, Pre-Legislative Briefing.** *Addendum to A Briefing Document on Civil Liability for Nuclear Damage Bill, 2010.*

5. *Nuclear Energy and Civil Liability- Two way street?* **Shandiliya, Akshay, Roy, Arjyadeep and Singh, Piyush.** s.l. : Delhi Business Review, 2013, Vol. 14 NO 1.

6. *Critical Analysis of the Indian Civil Nuclear Liability Act, 2010.* **Tigadi, Rohan.** s.l. : Social Science Research Network, 2012.

7. **Nuclear Energy Agency.** *Japan's Compensation System for Nuclear Damage.* s.l. : OECD, 2012.

8. **Venkatesan, J.** *Opinion on Liability waiver based on legality, says Attorney General.* New Delhi : The Hindu, 2013.

9. *The Other Side of Nuclear Liability.* **Ramanna, MV and Raju, Suvrat.** s.l. : Economic and Political Weekly, 2010, Vol. XLV NO 16.

10. *The Indian Civil Laibility for Nuclear Damage Act, 2010 - Legislation with Flaws.* **Pelzer, Norbert.** s.l. : International Journal for Nuclear Power, 2011, Vol. 56.

11. **Sorabjee, Soli.** *Green Peace Querist.* [interv.] Green Peace. 2011.

12. **Association, Nuclear Industry.** *Capability of the UK nuclear new build supply chain.* 2012.

13. —. *Capability of UK nuclear new build supply chain, Appendix.* 2012.

14. *The Other Side of Nuclear Liability.* **Ramanna, M.V and Raju, Suvrat.** s.l. : EConomic and Political Weekly, 2010, Vol. XLV No 16.

15. **Government, HM.** *The Nuclear Supply Chain Action Plan - Summary Document.* 2012.

16. **Shandilya, Akshay, Roy, Arjyadeep and Singh, Piyush.** *Nuclear Energy and Civil liability, Two Way Street?* s.l. : Delhi Business Review, 2013.

17. **Association, Nuclear Industry.** *Capability of UK nuclear new build supply chain.* 2012.

18. —. *Appendix- Capability of UK nuclear new build supply chain.* 2012.

19. **Government, HM.** *The Nuclear SUpply Chain Action Plan.* 2012.

20. **Lok Sabha Secretariat, New Delhi.** Committee on Subordinate Legislation. 27th Report on The Civil Liability for Nuclear Damage Rules, 2011.

Annexes

1. *Annex 1: Civil Liability for Nuclear Damage Act, 2010*

http://lawmin.nic.in/ld/regionallanguages/THE%20CIVIL%20LIABILITY%20OF%20NUCLEAR%20DAMAGE%20ACT,2010.%20(38%20OF2010).pdf

2. *Annex 2: Civil Liability for Nuclear Damage Rules, 2011*

http://www.prsindia.org/uploads/media/Nuclear%20Rules/Civil%20Liability%20for%20Nuclear%20Damage%20Rules%202011.pdf

3. *Annex 3: Annex to CSC*

http://www.iaea.org/Publications/Documents/Infcircs/1998/infcirc567.pdf

Center for Study of Science, Technology and Policy

18, 10th Cross, Mayura Street, Papanna Layout

Nagashettyhalli, RMV II Stage, Bangalore-560094

Karnataka, INDIA

www.cstep.in