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ATOMIC ENERGY IN INDIA: Legal Framework

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ATOMIC ENERGY IN INDIA: Legal Framework

Naveen* & Prakash Sharma**

[Abstract: *The atomic energy program initiated in a modest manner and later developed into multi-dimensional organizations under DAE. The spectrum of significant activities includes research and development in nuclear sciences and engineering, exploration and mining of radioisotopes, nuclear energy development and implementation, application of nuclear energy, bio-agricultural research, medical sciences, etc. Though India acknowledged the potential of nuclear energy since independence, yet it has contributed little to its development. It is required to have the huge amount of energy requirement for India, in order to transform into a developed nation. Nuclear power has the potential to offer India's 'energy independence' beyond 2050. Presently nuclear energy accounts for a small fraction of the total commercial energy consumed within India. The liability regimes for nuclear damage share two common features i.e., channelling liability to the operator, capping this liability, and transferring the final responsibility to compensate the victims to the government. Having adhered to the international norms and standards, the laws, regarding atomic energy in India, appears to be in consonance with the prescribed IAEA standards.¹ This essay carefully evaluates and analyses the legal framework pertaining to atomic energy laws in India.]*

I

Introduction

When India's Atomic Energy Commission was established in 1948, in respect of development of atomic energy in the country, it appeared a herculean task for a visibly young nation to even visualize potential benefit from a technology known less to the world. Nevertheless, India did realise (well in advance) the potential of nuclear energy and technology associated with it and swept away every speculation by ensuring world that use of nuclear technology would be directed towards peaceful and constructive purposes. India established Department of Atomic Energy (DAE) in 1954 with Dr. Homi J. Bhabha as the secretary to implement the policies framed by the atomic energy commission.² The Indian

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¹ Prakash Sharma, *Nuclear Energy and its Impact: Outlook from the Perspective of International Nuclear Law Regime*, 2(2) M.S. RAMAIAH JOURNAL OF LAW 1-25 (2016).

² The foundation of nuclear energy programme in this country was laid by establishing the Tata Institute of Fundamental Research in 1945 at Bombay, which concentrated on research on the basic sciences related to nuclear science, such as, nuclear physics,

nuclear power program (INPP) perhaps remains the oldest program starting electricity generation from fission in 1969.

At the same time India maintained significant presence on the global front, when negotiations started between 12 countries during 1955-57, and on 29 July 1957, the International Atomic Energy Agency (IAEA) was created. The establishment of IAEA was the response to the deep fears and expectations generated by the discoveries and diverse uses of nuclear technology. From the beginning, it was given the mandate to work with its member states and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies.³ It has an important responsibility to set the standards for health and safety of humans in collaboration with other international agencies.⁴

In 1965, India along with seven other non-aligned countries presented the resolution on Treaty to Prevent the Proliferation of Nuclear Weapons, which was adopted by United Nations General Assembly.⁵ However, by 1980's the state of INPP witnessed lesser attention due to administrative apathy coupled with corruption and infighting within the scientific community and lack of political vision resulting in loss of talent and opportunities.⁶ There is a thought amongst certain scholars that the inability to justify enormous funding for poor performance of nuclear power and inability to legitimise such investments in the name of nuclear weapons.⁷ And there is another thought that argues that India's utilization of atomic energy programs were meant for the peaceful purposes and INPP suffered largely because of restrictive trade practices, delays, and unilateral

electronics and instrumentation, See M. V. Sankaran, *Indian Nuclear Power Programme vis-a-vis Environmental and Human Health*, in INTERNATIONAL LEGAL CONTROLS ON PRODUCTION AND USE OF NUCLEAR ENERGY 163-176 (S.N. Jain, N.S. Nahar et. al., eds., 1984).

³ Article II, IAEA. The Statute of the IAEA was approved on 23 October 1956 by the Conference on the Statute of the International Atomic Energy Agency, which was held at the Headquarters of the United Nations. It came into force on 29 July 1957.

⁴ Article III, IAEA.

⁵ Resolution No 2028 (XX). See also N.D. Jayaprakash, *Nuclear Non-Proliferation Treaty: The Greatest Con Game*, 43(32) EPW 43-45 (2008) (author quotes that "Bill Epstein, a veteran United Nations official in the area of arms control and disarmament, records that one of the American negotiators conceded privately that the NPT was "one of the greatest con games of modern times.").

⁶ In the early 1950s, the DAE had estimated that it will achieve production of 20,000 MW by the year 1980, whereas it produced a meagre 540 MW when that year arrived; see generally Robert Anderson, *NUCLEUS AND NATION: SCIENTISTS, INTERNATIONAL NETWORKS AND POWER IN INDIA* (2010).

⁷ Benjamin K. Sovacool & Scott Victor Valentine, *THE NATIONAL POLITICS OF NUCLEAR POWER* (2012).

embargoes on nuclear supplies by certain countries.⁸ Nevertheless, the impetus towards nuclear technology received huge boost from 2000 onwards, so much so that by 2018, the DAE's budget got significantly increased.⁹

The atomic energy program initiated in a modest manner and later developed into multi-dimensional organizations under DAE. The spectrum of significant activities includes research and development in nuclear sciences and engineering, exploration and mining of radioisotopes, nuclear energy development and implementation, application of nuclear energy, bio-agricultural research, medical sciences, etc. Though India acknowledged the potential of nuclear energy since independence, yet it has contributed little to its development. It is required to have the huge amount of energy requirement for India, in order to transform into a developed nation. Nuclear power has the potential to offer India's 'energy independence' beyond 2050. Presently nuclear energy accounts for a small fraction of the total commercial energy consumed within India. The liability regimes for nuclear damage share two common features i.e., channelling liability to the operator, capping this liability, and transferring the final responsibility to compensate the victims to the government. Having adhered to the international norms and standards, the laws, regarding atomic energy in India, appears to be in consonance with the prescribed IAEA standards.¹⁰ This essay carefully evaluates and analyses the legal framework pertaining to atomic energy laws in India. Part II of the article discusses, the nuclear industry outlook in India and its comparison with other economies across the globe. Part III briefly encapsulates the laws related to atomic energy in India. Part IV concludes this article by summarising the discussions throughout.

II

The Nuclear Industry: An Outlook from Indian Perspective

⁸ H.N. Sethna, *India's Atomic Energy Programme Past and Future*, 21(5) IAEA BULLETIN 2-11 (1979).

⁹ In 1997-98, DAE received Rs. 200 crores, which increased to Rs. 13971 crores in 2018-19, available at: <https://economictimes.indiatimes.com/news/economy/finance/budgetproposesupto17hikeforscienceministries-depts/articleshow/62746126.cms> (last visited Jun. 04, 2020).

¹⁰ Prakash Sharma, *Nuclear Energy and its Impact: Outlook from the Perspective of International Nuclear Law Regime*, 2(2) M.S. RAMAIAH JOURNAL OF LAW 1-25 (2016).

As on 2018, there were 413 nuclear reactors operating in 31 countries around the world.¹¹ By 2018, 15 countries would be involved in the construction of 50 nuclear power plants.¹² China is involved with the construction of 16 nuclear reactors followed with 7 by India.¹³ In 2017, the big five nuclear generating countries were the United States, France, China, Russia, and South Korea, collectively accounting for 70% of all nuclear electricity in the world.¹⁴ Amongst these two nations i.e., the United States and France alone account for 47.5% of global nuclear production in 2017.¹⁵

With risk element being high and irreparable at times, the development of the world's nuclear industry faces economic, environmental, and safety concerns. So far there have been only a few major accidents in nuclear reactors, in which loss of human lives and damage to the environment has been caused. Of all, the Chernobyl accident remained disastrous. The phenomenon concerning nuclear technology is its usage for ensuring energy requirements. Nuclear energy has been demonstrated as an alternative to clean energy. Many regard it as a cure and answer to climate change.¹⁶ However, there are debates on such narratives, especially when possible misuse appears relatively easier, especially concerns related to environment degradation.¹⁷ Another dimension to such a polarised understanding is how policymakers are going to address means through which justified liability can be imposed on possible defaulters against damages caused through nuclear plants. So far, there are only a few disorganised legal and normative structures to address the liability issue. Nevertheless, it does not deter nuclear industries to remain optimistic and confident about the prospects of nuclear energy.

¹¹ Mycle Schneider *et al.*, *The World Nuclear Industry: Status Report* in MYCLE SCHNEIDER CONSULTING PROJECT, 17 (2018), available at: <https://www.worldnuclearreport.org/IMG/pdf/20180902wnisr2018-hr.pdf>. (last visited Jun. 04, 2020). The number of reactors as on May, 2020 is still same i.e. at 413, see *World Nuclear Power Status*, available at: <https://www.worldnuclearreport.org> (last visited Jun. 04, 2020).

¹² *Id.* at 18 (Bangladesh and Turkey started building their first units from 2018. As of 1 July 2018, 50 reactors were under construction, of which 16 are in China alone).

¹³ *Id.* at 35.

¹⁴ *Id.* at 17.

¹⁵ *Id.*

¹⁶ William Tucker, *TERRESTRIAL ENERGY: HOW NUCLEAR POWER WILL LEAD THE GREEN REVOLUTION AND END AMERICA'S ENERGY ODYSSEY* 165 (2008).

¹⁷ Ernest J. Moniz, *THE CHALLENGES TO NUCLEAR POWER IN THE TWENTY-FIRST CENTURY* 35 (2002); Joseph Cirincione, *BOMB SCARE: THE HISTORY AND FUTURE OF NUCLEAR WEAPONS* 107 (2007); Stephen Tromans, *NUCLEAR LAW* 164 (2010). See also, S. Raju & M.V. Ramana, *The Other Side of Nuclear Liability*, 45(16) EPW 48-54 (2010); Ved P. Nanda, *International Environmental Norms Applicable to Nuclear Activities*, in *UPDATING INTERNATIONAL NUCLEAR LAW*, 185-203 (Heinz Stockinger, Jon M. Van Dyke, *et al.*, eds., 2007).

What maintains such optimism? Perhaps the profound changes in the structure of global energy along with the response to climate change.¹⁸ Of other alternatives (for energy consumption) nuclear energy appears to be a feasible option. Few suggest that the global community must appreciate the value of nuclear energy by gaining awareness of the world's newest trends in nuclear power development.¹⁹ The idea behind such rationale is that the experiences witnessed could facilitate a rational approach and thereafter could inspire ideas as to how nuclear power can expand further. Additionally, India has to realise that mere technological advancement would not be sufficient, technological dissemination equally plays an important role.²⁰

Besides, India has adopted a two-way strategy to remain significant amongst the Nuclear Suppliers Group (NSG). *Firstly*, by supporting DAE's ambitious projections in which nuclear power is expected to grow somewhere in the range of 25-35%.²¹ *Secondly*, since the adoption of high-profile negotiations that resulted in the United States-India nuclear deal and the special waiver in 2008 by the NSG to India, without having signed the Nuclear Non Proliferation Treaty.²² Further, there are certain key takeaways from the constant engagement with nuclear energy, especially when the Indian government offered as part of its Nationally Determined Contribution (NDC) communication to the Paris Conference of Parties to the UN Framework Convention on Climate Change to reduce emissions.²³

Nevertheless, there are reasonable apprehensions that demand a careful relook *viz.*, the sourcing of funds; the attainability of resources; the processing of nuclear waste; the safety issues within nuclear technology; public opinion and social acceptability; the aging of nuclear facilities and professional staff; the difficulty of ensuring nuclear non-proliferation; and of course, competition from renewable

¹⁸ M. V. Ramana, *THE POWER OF PROMISE: EXAMINING NUCLEAR ENERGY IN INDIA* (2012).

¹⁹ Alan M. Herbst & George W. Hopley, *NUCLEAR ENERGY NOW: WHY THE TIME HAS COME FOR THE WORLD'S MOST MISUNDERSTOOD ENERGY SOURCE* 25 (2007). *See also*, Scott L. Montgomery, *THE POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST CENTURY AND BEYOND* (2010).

²⁰ Prakash Sharma, *Climate Change, Technology Transfer and Access to Clean Energy: The Role of Intellectual Property Rights in the Transfer of Environmentally Sustainable Technologies*, in *SOCIO-LEGAL DIMENSIONS OF CLIMATE CHANGE* 51-71 (T.V. Subba Rao, V.S. Mallar, *et. al.*, eds., 2018).

²¹ R.B. Grover & Subash Chandra, *Scenario for Growth of Electricity in India*, 34(17) *ENERGY POLICY* 2834-2847 (2006).

²² Ramana, *supra* note 11.

²³ Article 4(2), The Paris Agreement, 2015 (The Article reads thus: Each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions).

energy sources. For these and many other reasons, the Brookhaven Report²⁴ addressed the risks and consequences of nuclear accidents and determined a background to create certain insurance instruments and preventive measures.

The international nuclear liability regime provides for the approaches based on Paris Convention, 1960;²⁵ Brussels Supplementary Convention, 1963;²⁶ Vienna Convention, 1963;²⁷ Joint Protocol, 1988;²⁸ and Convention on Supplementary Compensation for Nuclear Damage, 1997.²⁹ All Conventions emphasize on the following principles, *viz.*, (a) Strict liability of the nuclear operator; (b) Exclusive liability of the operator of a nuclear installation; (c) Compensation without discrimination based on nationality, domicile or residence; (d) Mandatory financial coverage of the operator's liability; (e) Exclusive jurisdiction (only courts of the State in which the nuclear accident occurs have jurisdiction); and (f) Limitation of liability in amount and in time.³⁰ The nuclear liability regime was intended to provide a coherent compensation system for nuclear damage while facilitating the international trade in nuclear material. But even after the evolution of these Conventions, many nations including USA, Japan, and India developed their own domestic laws while adopting the conventions later on. The following part of the essay will examine in detail, the statutory laws concerning atomic energy in India.

III

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- ²⁴ C.E. Guthrie & J.P. Nichols, *THE THEORETICAL POSSIBILITIES AND CONSEQUENCES OF MAJOR ACCIDENTS IN LARGE NUCLEAR POWER PLANTS* (1964), available at: <https://www.osti.gov/servlets/purl/4089444>. (last visited Jun. 04, 2020).
- ²⁵ Nuclear Energy Agency, *Convention on Third Party Liability in the Field of Nuclear Energy* (1960), available at: https://www.oecd-nea.org/law/nlparis_conv.html. (last visited Jun. 04, 2020)
- ²⁶ *Convention Supplementary to the Paris Convention on Third Party Liability in the Field of Nuclear Energy* (1963) (Brussels Supplementary Convention), available at: <http://www.oecd-nea.org/law/nlbrussels.html> (last visited Jun. 04, 2020).
- ²⁷ IAEA, *Vienna Convention on Civil Liability for Nuclear Damage* (1963), available at: <https://www.iaea.org/sites/default/files/infcirc500.pdf> (last visited Jun. 04, 2020).
- ²⁸ IAEA, *Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention* (1988), IAEA Doc. INFCIRC/402 (last visited 04 June, 2020).
- ²⁹ IAEA, *Convention on Supplementary Convention for Nuclear Damage* (1997), available at: <https://www.iaea.org/sites/default/files/infcirc567.pdf> (last visited Jun. 04, 2020).
- ³⁰ Stephen G. Burns & Ximena Vasquez-Maignan, *Progress towards a Global Nuclear Liability Regime* in *NUCLEAR LAW IN PROGRESS* 633-52 (Rafael Mariano Manovil ed., 2014).

Atomic Laws in India

As discussed earlier, there are two primary international conventions that is a part of the international framework of nuclear liability, i.e., the Paris and Vienna Convention. India is neither party nor signatory to either of these conventions. In 1997, another convention came into existence, which brought the liability regime into focus. As of now the world is benefitted with three international agreements, these are following:

- a) The (IAEA) Paris Convention, 1960 along with additional protocols of 1964, 1982 and 2004;
- b) The (OECD) Vienna Convention of 1963 along with the Protocol to amend the Vienna Convention, 1997; and
- c) The Convention on Supplementary Compensation for Nuclear Damage, 1997.

India remains signatory to the Convention on Supplementary Compensation for Nuclear Damage, 1997.³¹ Besides convention, India has realised the potential of treaty formation too, therefore it has signed significant amount of bilateral agreements with other countries, including United States, United Kingdom, Russia, France, Canada, Bangladesh and Vietnam for co-operation in using of nuclear energy for civilian purposes.³²

The provisions of law in India regarding atomic energy have obtained their strength from the various sources. The primary law-making power with respect to atomic energy rests exclusively on the Parliament.³³ Based on the powers conferred, the Parliament of India has enacted legislations, namely (a) The Atomic Energy Act, 1948 (repealed) (b) The Atomic Energy Act, 1962, and (c) the Civil Liability for Nuclear Damage Act, 2010. Through delegated powers, certain rules and regulations have been framed, *viz.* Atomic Energy (Safe Disposal of Radioactive Wastes) Rules, 1987; the Atomic Energy Radiation Protection Rules,

³¹ India signed Convention on 27th October 2010. For details, See IAEA, available at: <http://www.iaea.org/newscenter/news/2010/indiaconvention.html>. (last visited Jun. 04, 2020).

³² India-United States: Agreement For Cooperation Between India And The United States Of America Concerning Peaceful Uses Of Nuclear Energy; India-United Kingdom: Joint Declaration By India And The United Kingdom On Civil Nuclear Cooperation; India-France: Cooperation Agreement Between The Government Of India And The Government Of The French Republic On The Development Of Peaceful Uses Of Nuclear Energy; India-Russia: India And Russia Sign Civil Nuclear Agreement; India-Bangladesh: Agreement For Civil Nuclear Cooperation; India-Vietnam: Agreement On Civil Nuclear Energy.

³³ Entry 6, List 1, Seventh Schedule r/w Article 246, The Constitution of India, 1950.

2004; the Atomic Energy (Arbitration Procedure) Rules, 1983. Similarly, certain non-mandatory guidelines have been framed through DAE, viz. Guidelines for nuclear transfers (Exports) in the year 2006; Guidelines for the implementation of arrangements for cooperation concerning peaceful uses of atomic Energy with other countries in the year 2010.

INPP has witnessed tremendous growth in the last few decades, riding mostly on the growing concern in international community about global warming. All international liability regimes for nuclear damage share two common features, i.e., channelling liability to the operator and capping this liability and transferring the final responsibility to compensate the victims to the government. Relieving the supplier from all liability in case of a nuclear accident carries with itself high risks, essentially leaving less incentive for the supplier to design safer nuclear plants.

The Atomic Energy Act, 1948

The Atomic Energy Act, 1948 (Act, 1948) was passed soon after India got the independence, and set forth India's objective for the development and utilization of atomic energy solely for peaceful purposes. The Act gave a concrete shape to the atomic energy programme of the country. Jawahar Lal Nehru had a vision for India, to develop it as a technologically advanced nation with necessary impetus in the field of science and technology. Therefore, while piloting the Atomic Energy Bill (in the Dominion Legislature), Nehru observed that, 'We must develop this atomic energy quite apart from war. Indeed. I think we must develop it for peaceful purposes'.³⁴ The Act was drafted in a manner that looks forward. It established the Atomic Energy Commission, comprising of the most prominent Indian scientists of that time.³⁵ However, with rapid advancement in technologies and dramatic changes, witnessed at the international community, the Act became inadequate to meet the needs and challenges of ever advancing world. It was repealed and replaced by the Atomic Energy Act, 1962, passed by Indian Parliament.

The Atomic Energy Act, 1962

The Atomic Energy Act, 1962 (Act, 1962) was enacted for the development, control and use of atomic energy for the welfare of the people of India, and for other peaceful purposes.³⁶ The Act was extended to the whole of India and consists of 32 sections. The Act has been amended thrice, i.e., 1986, 1987, and 2015.³⁷

³⁴ *Supra* note 1 at 163.

³⁵ Section 13, The Atomic Energy Act, 1948.

³⁶ Preamble to the Atomic Energy Act, 1962 (Act No. 33 of 1962).

³⁷ The latest of these amendments was, The Atomic Energy (Amendment) Act, 2015, available at:

Under the Act, *Atomic Energy* is defined as 'energy released from atomic nuclei as a result of any process, including the fission and fusion processes'.³⁸ Also *Radiation* means, 'gamma rays, X-rays and rays consisting of alpha particles, beta particles, neutrons, protons and other nuclear and sub-atomic particles, but not sound or radio-waves or visible, infrared or ultraviolet light'.³⁹ Thus, the radiations from telecommunications towers, being non-ionizing in nature, do not have the capability to ionize the matter with which they interact.⁴⁰ The third essential definition covers *Radioactive Substances* or *Radioactive Material* as 'any substance or material which spontaneously emits radiation in excess of the levels prescribed by notification by the central government'.⁴¹

The central government maintains primary power to produce, develop, use, and dispose of atomic energy by itself, through any authority, corporation established by it, or a public sector company, and to carry out the research in matters connected with atomic energy.⁴² Beyond these powers, the central government is vested with following powers, namely; (a) to manufacture, produce, buy acquire, store, transport, and dispose any prescribed or radioactive substances required for the production of atomic energy;⁴³ (b) to declare any information as restricted information and prohibit it from publishing or making available to the public;⁴⁴ (c) to declare any area or premise as prohibited area where any work relating to research, design or development is carried, with respect to the production, treatment, use, application, or disposal of atomic energy;⁴⁵ (d) to provide for the

https://www.prsindia.org/sites/default/files/bill_files/Atomic_Energy_Act%2C_2015.pdf (last visited Jun. 04, 2020). Under the Act, 1962 a license is required for acquisition, production, use, export and import of any plant designed for the production and development of atomic energy or research. The Amended Act, 2015 makes consequential amendments to state that such license will only be granted to entities such as a government company or a department of central government.

³⁸ Section 2(a), The Atomic Energy Act, 1962 (No. 33 of 1962).

³⁹ *Id.* at section 2(h).

⁴⁰ See *Reliance Infocom Ltd. v. Chemanchery Grama Panchayat*, AIR 2007 Ker 33.

⁴¹ Section 2(i), The Atomic Energy Act, 1962 (Act No. 33 of 1962).

⁴² *Id.* S. 3(i).

⁴³ *Id.* S. 3(ii). Under section 16 the central government can even prohibit manufacture, possession, use, transfer by sale or otherwise, export and import, transport and disposal of any radio-active substances without its written consent.

⁴⁴ *Id.* S. 3(iii). Under section 18 the central government can restrict the disclosure of information related to a nuclear plant or the purpose or method of operation or any process. Further under section 15(3) an obligation is imposed on individuals against disclosing information.

⁴⁵ *Id.* S. 3(iv). Under section 19, the central government is authorised to prohibit entry into prohibited area.

control over radioactive substances or radiation generating plant;⁴⁶ (e) To provide for the production and supply of the electricity from the atomic energy and for taking measures conducive to such production, supply, and for all other matters incidental thereto, either by itself or through any authority, corporation established by it, or a public sector company;⁴⁷ and (f) to do all such things, which, as per the central government, would be necessary or expedient for the exercise of powers conferred to it.⁴⁸

The Act necessitates on persons, who discover or have reason to believe that uranium or thorium occurs at any place in India, to report about their discovery to the central government or any person authorised by the central government, within the three months of such discovery.⁴⁹ The central government is empowered to impose certain terms and conditions on persons engaged in mining substances from which uranium can be isolated or extracted, including whether to pay or not the compensation.⁵⁰ The compensation, if paid, must be based on the principles and procedure.⁵¹ Interestingly, the Act of 1962 ensures that the word arbitration under section 21 shall not be understood as it is defined in any other laws.⁵² It means that the provisions of the definitions of Arbitration and Conciliation Act, 1996 will not be applicable to the arbitration proceedings under Act, 1962.

The disposal of uranium or materials containing uranium in its natural state has to be done with previous permission of the central government.⁵³ The central government is authorised to seek information pertaining to any prescribed substance or plant designed for mining or processing minerals used for the production of atomic energy or any other information.⁵⁴ The Act of 1962 authorises any authorised person to enter any mine or premises or land if she/he has reason to believe that any work is being carried out in connection with any prescribed substances used for the production of atomic energy may enter any premise or mine or land, and inspect, make copies, extract any drawing, plan, or documents.⁵⁵

⁴⁶ *Id.* S. 3(v).

⁴⁷ *Id.* S. 3 (vi), and under S. 22; a notwithstanding clause, which grants the greater power to central government to act beyond anything contained in the Electricity (Supply) Act, 1948 (ActNo. 54 of 1948).

⁴⁸ *Id.* at section 3(vii).

⁴⁹ *Id.* at section 4. Contravening the obligation u/s 4 shall be punished u/s 24(2)(d).

⁵⁰ *Id.* at section 5.

⁵¹ *Id.* at section 21. The compensation is payable with two methods i.e. u/s 21(i)(a) & (b) as per the provisions of the Act, 1962.

⁵² *Id.* at section 21(v).

⁵³ *Id.* at section 6.

⁵⁴ *Id.* at section 7.

⁵⁵ *Id.* at section 8.

Further, the central government can, after giving a notice and opportunity to be heard to the owner, lessee or occupier of the land, do any work over or below the surface of any land for discovering any substance from which, in its opinion, any of the prescribed materials can be obtained.⁵⁶ And if the central government, is of the opinion that any prescribed minerals are present or obtained from that land or premise, shall compulsorily acquire the land, prescribed substance or any minerals from which any prescribed substance can be obtained, any prescribed equipment, any plant, which is designed or adapted for the mining or processing of the minerals.⁵⁷ The central government is empowered to make rules to ensure that safety measures are taken in handling radioactive substances,⁵⁸ and to frame general rules pertaining to the issue of licence.⁵⁹

Special provision with respect to invention is made under the Act of 1962.⁶⁰ Therefore, on the basis of section 20, no patents could be granted to any invention, either in India or abroad, if in the opinion of the central government, it is useful or related to the atomic energy. The restriction is applicable not only for the application for the patents abroad, but also for informing about this invention to any person abroad.⁶¹ And in case of conflict between Indian Patents Act, 1970 and Act, 1962—the decision of the central government would be final.⁶² In order to carry out regulatory and safety functions, the Atomic Energy Regulatory Board (AERB) was constituted.⁶³

The Act has graded various forms of punishment, meaning for the offences covered under sections 14, 17, 17(4), and 18(2), a higher punishment with the imprisonment is prescribed, whereas for sections 5, 7, 8, 9, or any other provisions, the punishment prescribed is comparatively lesser.⁶⁴ In case, a company is involved with contravening the provisions of the Act, then every person, who at the time of the offence, was in charge of, and was responsible for the conduct of the business of the company, shall be deemed to be guilty of the offence, and shall be punished accordingly.⁶⁵ However, if it is proved that any of the alleged offence committed

⁵⁶ *Id.* at section 9.

⁵⁷ *Id.* at sections 10, 11 & 11A.

⁵⁸ *Id.* at section 17.

⁵⁹ *Id.* at section 14.

⁶⁰ *Id.* at section 20.

⁶¹ *Id.* at section 20(v).

⁶² *Id.* at section 20(viii).

⁶³ *Id.* at section 27. On November 15, 1983 the President of India constituted AERB. The regulatory authority of AERB is derived from the rules and notifications promulgated under the Atomic Energy Act, 1962 and the Environmental (Protection) Act, 1986 (No. 29 of 1986).

⁶⁴ *Id.* at section 24(1) & (2).

⁶⁵ *Id.* at section 25.

was without her/his knowledge or that she/he exercised due diligence to prevent the commission of such offence, he will not be held liable.⁶⁶ Further, all offences under this Act of 1962 shall be cognizable under the Code of Criminal Procedure, 1898, but no action shall be taken in respect of any person for any offence under this Act, except on the basis of a written complaint, made in respect of contravention of section 8, 14, 17 or any rules or order made thereunder, by the person authorized to exercise powers of entry and inspection.⁶⁷ In case of any other contravention other than section 18 (requires consent of the Attorney General of India),⁶⁸ the complaint has to be given by a person duly authorised to make such complaints by the Central Government.⁶⁹

The Civil Liability for Nuclear Damage Act, 2010

India passed its much controversial and widely debated Civil Liability for Nuclear Damage Act, 2010 (Act, 2010),⁷⁰ and brought nuclear liability provisions in consonant with to the internationally accepted normative standard. It is to be understood that for the first time in independent India, a contemporary liability framework for nuclear damage has been put in place. This is a major move forward, since both the Act, 1962 and the Public Insurance Act, 1991 (Act, 1991) are silent on the issue of nuclear damages.⁷¹ The Act, 2010 provides quick compensation in the event of such a nuclear tragedy. Under the provisions of the Act, 2010, the operators of the nuclear establishments are liable as per the law for any damage caused by them, regardless of fault. The main purpose of the Act, 2010 is to provide for civil liability for nuclear damage and give prompt compensation to the victims of a nuclear incident through a no-fault liability regime, channelling liability to the operator and also on the state.

The Act, 2010 is an initiative drawn in the direction of joining international liability regime. The Act applies to the nuclear damage suffered in or over the maritime areas beyond the territorial waters of India, in or over the exclusive economic zone, on board or by a ship registered in India, on an artificial island, installed or structured within the jurisdiction in India or to the nuclear installation owned or controlled by the central government, either by itself or through any authority or

⁶⁶ *Id.*

⁶⁷ *Id.* at section 26(i)(a).

⁶⁸ *Id.* at section 26(ii).

⁶⁹ *Id.* at section 26(i)(b).

⁷⁰ The Civil Liability for Nuclear Damage Act, 2010 (No. 38 of 2010).

⁷¹ Saurabh Bhattacharjee, *Looking through the prism of international environment and human rights law—International Civil Nuclear Liability Law and a call for Indian Exceptionalism*, 3(4) INT'L. J. NUCLEAR L. 276-88 (2012).

corporation established by it, or a public sector company.⁷² The Act, 2010, consists of 7 chapters and 49 sections.

It defines *Nuclear Damage* as loss of life or personal injury (includes immediate and long term health impact), loss or damage to the property, income, and any other economic loss.⁷³ Nuclear Incident means, 'any occurrence or series of occurrences having the same origin which causes nuclear damage or, but only with respect to preventive measures, creates a grave and imminent threat of causing such damage'.⁷⁴ An Operator in relation to a nuclear installation means the central government or any authority or corporation established by it or a government company who has been granted a licence pursuant to the Act, 1962 for the operation of that installation.⁷⁵ And Radioactive Products or Waste means:

Any radioactive material produced in, or any material made radioactive by exposure to, the radiation incidental to the production or utilisation of nuclear fuel, but does not include radioisotopes which have reached the final stages of fabrication so as to be usable for any scientific, medical, agricultural, commercial or industrial purpose.⁷⁶

Chapter II of the Act, 2010, lays down the law and procedures on the liability for nuclear damage.⁷⁷ The AERB is authorised to notify a nuclear incident, however, the word *insignificant* used under section 3 of the Act, 2010 grants enough discretionary power (without any proper criteria) to determine what is significant and what is not. In so far the liability of operator in the event of nuclear catastrophe is concerned, it appears to be strict liability, instead of no-fault

⁷² Section 1, The Civil Liability for Nuclear Damage Act, 2010 (No. 38 of 2010). The expression *government company* shall have the same meaning as per section 2 of the Atomic Energy Act, 1962 (No. 33 of 1962).

⁷³ *Id.* at section 2(g). Under section 4 (4), Explanation (d), the concept of *deemed Nuclear Damage* is explained and it says, 'Where both nuclear damage and damage other than nuclear damage have been caused by a nuclear incident or, jointly by a nuclear incident and one or more other occurrences, such damage shall, to the extent it is not separable from the nuclear damage, be deemed to be a nuclear damage caused by such nuclear incident'.

⁷⁴ *Id.* at section 2(i).

⁷⁵ *Id.* at section 2(m). Under section 4 (4), Explanation (c), the concept of *deemed Operator* is explained, 'when a nuclear damage is caused by a nuclear incident occurring in a nuclear installation, on account of temporary storage of material in transit in such installation, the person responsible for transit of such material shall be deemed to be the operator'.

⁷⁶ *Id.* at section 2(p).

⁷⁷ *Id.* at sections 3-8.

liability.⁷⁸ The Act, 2010, prescribes for the maximum of rupee equivalent of three hundred million Special Drawing Rights.⁷⁹ Further, distinction is made on types of operators and accordingly different amount of compensation to be paid is prescribed.⁸⁰ Having said this, confusion is created when at one place, the Central government is authorised to specify a higher amount of compensation, yet on the other hand, it is required to assume full liability for a nuclear damage in the public interest, even if, it is not caused by a nuclear installation operated by it.⁸¹

The Act, 2010, also contemplates for the creation of *Nuclear Liability Fund* from the amount charged from the operators.⁸² It also mandates the operator to take out insurance policy, other financial security, or the combination of both.⁸³ For the purposes of adjudicating upon the claims for compensation, the Act, 2010, mandates the central government to appoint one or more Claims Commissioner,⁸⁴ with prescribed qualification⁸⁵ and service conditions.⁸⁶ The legislation contains a unique provision of right to recourse, wherein the operator can exercise this right against others including the supplier.⁸⁷ With regards, injury or damage caused by a nuclear incident, the central government can establish a Nuclear Damages Claims Commission (NDCC) for the adjudication of the claims pending before Claims Commissioner.⁸⁸ Chapter V of the Act, 2010, lays down the qualification, powers, and procedure of the NDCC.⁸⁹ There is no grading of punishment (unlike under the Act, 1962) for any contravention or failure of rules, directions or provisions of the Act, 2010.⁹⁰

The Indian civil nuclear liability regime (ICNLR), apart from channelling liability to the operator, caps liability and transferring the final responsibility to compensate the victims to the government, the operator has been given a right of recourse against the supplier, if the nuclear incident has resulted as a consequence of equipment or material with patent defects, latent defects, or the substandard

⁷⁸ *Id.* at section 5. Under section 7(1)(c), the central government assumes liability instead of the operator on the happening of exceptional circumstances, covered under section 5(1)(i) & (ii).

⁷⁹ *Id.* at section 6(1).

⁸⁰ *Id.* at section 6(2).

⁸¹ *Id.* at section 7(1).

⁸² *Id.* at section 7(2).

⁸³ *Id.* at section 8(1).

⁸⁴ *Id.* at section 9(2).

⁸⁵ *Id.* at section 10.

⁸⁶ *Id.* at section 11.

⁸⁷ *Id.* at section 17.

⁸⁸ *Id.* at section 19.

⁸⁹ *Id.* at sections 19-38.

⁹⁰ *Id.* at section 39.

services supplied by the supplier. It is indeed a substantial departure from the international best practices, but this departure is more than justified, as it makes suppliers accountable in nuclear commerce, and minimizes the risks of relieving supplier from all liabilities. Also, under chapter VII, the central government holds the power to issue appropriate directions, rules, power to call for information and to remove difficulties, or to exempt any nuclear installation from the application Act, 2010.⁹¹

The Act, 2010 has also received criticism, with many claiming its inability in protecting masses, especially when channelling the liability solely to the operator acts, as a means of protecting powerful nuclear suppliers from the liability claims.⁹² Contrary to the popular belief, this is at the expense of the victims, the greater public, and the environment, because suppliers have no real incentive to ensure the safety and longevity of their goods and services. In addition, it is very difficult for plaintiffs to collect sufficient damages. These concerns appear to be genuine and bring the horrific picture of Bhopal gas tragedy that resulted into the death of thousands, while affecting the lives of millions; coupled with multifarious legal complexities for compensation and jurisdictions of filling claims.⁹³

India saw the evolution of the principles of liability through tort laws. The courts applied these principles to liabilities arising from the dangerous and hazardous industrial activities. Even the Indian Supreme Court has liberally interpreted and expanded the scope of the principles of liability.⁹⁴ In *Oleum Gas Leak* case, the apex court stated that 'an enterprise which is engaged in a hazardous or inherently dangerous activity that poses a potential threat to the health and safety of persons and owes an absolute and non-delegable duty to the community to ensure that no harm results to anyone'.⁹⁵ The impact of decision led to the formation of the Act, 1991, meant specifically to provide the legal remedy for immediate relief to the persons affected by an industrial accident, occurring while handling the hazardous substance. Prior to the Act, 1991, there was the Environment Protection Act, 1986

⁹¹ *Id.* at sections 43-49.

⁹² See Arya Hariharan, *India's Nuclear Civil Liability Bill and Suppliers Liability: One Step Towards Modernizing the Outdated International Nuclear Liability Regime*, 36 W.M. & MARY ENVTL. L. & POL'Y REV. 223-255 (2011-12); M.R. Srinivasan, *A Liability for our Nuclear Plans*, THE HINDU (Oct. 15, 2012).

⁹³ Upendra Baxi & Amita Dhandra, VALIANT VICTIMS AND LETHAL LITIGATION: THE BHOPAL CASE iv (1990).

⁹⁴ The concept of strict liability evolved in *Ryland v. Fletcher* (1861-73) Absolute liability was further strengthened by the decision of the Indian Supreme Court in *M. C. Mehta v. Union of India* AIR 1987 SC 1086 (*Oleum Gas Leak Case*), where the concept of 'absolute liability' was expounded and elaborated.

⁹⁵ *Oleum gas leak case, Id.* at para 31.

(Act, 1986)—that was meant to extend legal safeguards to protect and preserve the environment. However, the Act, 1986, was devoid of compensation scheme.

The principle of absolute liability is operative without any exceptions, unlike the strict liability principle. The Supreme Court reiterated this principle in *Indian Council of Enviro-Legal Action v. Union of India*,⁹⁶ wherein the court observed that the industry alone has the resources to discover and guard against hazards, and dangers caused by its actions.⁹⁷ India acknowledges the absolute liability principle, and being signatory to the Convention on Supplementary Compensation for Nuclear Damage, 1997—the same remains protected.⁹⁸ Even section 46 of the Act, 2010, states – The provisions in the 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.

On the issue of trans-boundary applicability of the Act, 2010, India would be asked to treat all the victims, wherever they reside, irrespective of the nations, to offer compensation.⁹⁹

Having said this, the experiences and expertise developed over the year, particularly in matters concerning tortious criminal liability in India, appears to be still doubtful. The recent *Vishakhapatnam gas leak* incidence was an eyeopener, and proved that *gap exists*.¹⁰⁰ Perhaps, what appears is also the fact that the harsh learning from Bhopal catastrophe has caused little change in the mind of both State as well the multinationals. The approach of developed nations and multinationals towards the third world or developing world is best summed up with the term ‘non-serious’.¹⁰¹ To address such non-serious recourse must be made towards collective campaign or what Prof. Baxi opines as: ‘profess pessimism of will and the optimism of intellect’ to defend and protect ‘people suffering

⁹⁶ AIR 1996 SC 1466.

⁹⁷ The absolute liability principle was followed in *Charan Lal Sahu v. Union of India* AIR 1990 SC 1480; *S. Jagannath v. Union of India* AIR 1997 SC 811.

⁹⁸ Article III, Convention on Supplementary Compensation for Nuclear Damage (1997).

⁹⁹ *Id.* at Article III(2)(a) and (b). Upendra Baxi, *What Happens Next Is Up to You: Human Rights at Risk in Dams and Development*, 16(6) AMERICAN UNIVERSITY INTERNATIONAL LAW REVIEW 1528 (2001).

¹⁰⁰ Deepti Bathini, *LG Polymers: Was negligence behind India’s deadly gas leak?*, BBC NEWS (May 24, 2020), available at: <https://www.bbc.com/news/world-asia-india-52723762> (last visited Jun. 04, 2020).

¹⁰¹ Upendra Baxi, *What Happens Next Is Up to You: Human Rights at Risk in Dams and Development*, 16(6) AM. U. INT’L. L. REV. 1528 (2001).

everywhere who refuse to accept that the power of a few should become the destiny of millions'.¹⁰²

IV

Conclusion

The INPP despite its initial success, falls into an administrative apathy, which ultimately caused significant loss for India to avail access to nuclear technology. On the other hand, the evolution and the development of commercial nuclear technology in other countries have passed through several technological revolutions. The development and implementation of the INPP, and the capability of Indian industry in manufacturing and supply of high precision/specialized equipment appears to less developed as compared to the international standards. The Indian nuclear power sector and the industry need to evolve faster to meet the associated challenges. Therefore, it is suggested that with the fruition of international cooperation there is a possibility of opening up of plethora of opportunities both in exporting the nuclear goods/equipment, and in providing services.

Further, reflecting upon the global scenario, there is a need for greater demand of the stricter rules for the protection of environment and trans-boundary damage, especially after years of progress in the nuclear commerce and growth of nuclear industry around the globe. Here the ICNLR extends a special privilege of liberation from the liability, except in the case of their act or omission done with the intent to cause damage. However, all efforts must be drawn towards developing a capable legal structure, whereas the suppliers, carriers, financiers, and other players, involved in the damaging activities must shoulder the burden.

¹⁰² *Id.* at 1529.