

Atomic Energy Law in India: An Analysis

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Abstract

Creation of clean energy, a prerequisite of sustainable development, is a daunting task as it has always been a process of choosing the best from many options like thermal, hydro, nuclear etc. Each option has its own merits as well as demerits, for example, if nuclear energy is opted, it is believed to be comparatively less polluting than the thermal power stations. This belief endures until something goes wrong.

In this context it is the purpose of the legal system to oversee that the method of production of energy is designed to protect the interest of every stakeholder. Law relating to nuclear energy needs special attention, especially in the wake of Fukushima incident and hence it is imperative that this branch of law analyses experiences from different countries carefully. This paper analyses the nuclear energy law in India from the perspective of a lawyer.

Keywords: Nuclear Energy, Atomic Energy Act 1962, Civil Liability for Nuclear Damage Act, 2010, Nuclear Damages Claims Commission, Nuclear Insurance, Atomic Energy Regulatory Board, Nuclear Liability Fund, Nuclear Damage, Nuclear Accident, Nuclear Installation, Nuclear Reactor

Whatever might happen, whatever the circumstances, we shall never use atomic energy for evil purposes.

Jawaharlal Nehru (January 1957)¹

I . Introduction

India has achieved a healthy economic rate at 8% per annum.² In order to sustain this growth rate³, the country requires emphasis on creation of infrastructure and enhanced supply of input (such as energy).⁴ The total commercial energy requirement in India is estimated to increase by 7.5 times in the next thirty years⁵, but the current growth rate is a meagre 3.29%. It is also important that the energy that is created do not pollute the environment, considering the imminent danger of climate change and environmental pollution. This is possible by using renewable energy sources as well as by using nuclear fuels. The current sources of energy creation in India are as given below.

Table 1: All India Energy Sector at a Glance (as on 31.03.2011)⁶

	Fuel	MW	%age
1	Total Thermal	112824.48	64.98
	A Coal	93,918.38	54.09
	B Gas	17,706.35	10.20
	C Oil	1,199.75	0.69
2	Hydro (Renewable)	37,567.40	21.64
3	Nuclear	4,780.00	2.75
4	RES	18,454.52	10.63
	Total	1,73,626.40	100.00

1. As quoted in Dharendra Sharma, *India's Nuclear Estate*, 31(4) Philosophy and Social Action 1, 3 (2005).

2. India GDP Growth Rate, Trading Economics, <http://www.tradingeconomics.com/india/gdp-growth>.

3. The Government of India planned to achieve a GDP growth rate of 10% in the Eleventh Five Year Plan and maintain an average growth rate of about 8% in the next 15 years.

4. THE ENERGY AND RESOURCES INSTITUTE, *NATIONAL ENERGY MAP FOR INDIA: TECHNOLOGY VISION 2030 (SUMMARY FOR POLICY MAKERS)*, THE ENERGY AND RESOURCES INSTITUTE AND OFFICE OF THE PRINCIPAL SCIENTIFIC ADVISER, GOVERNMENT OF INDIA, <http://bookstore.teriin.org/docs/books/PSA%20Report-Summary.pdf>.

5. *Id.* at 14.

6. Ministry of Power, Government of India, available at: http://www.powermin.nic.in/JSP_SERVLETS/internal.jsp.

Renewable Energy Sources (RES) include SHP, BG, BP, U&I and Wind Energy SHP= Small Hydro Project, BG= Biomass Gasifier, BP= Biomass Power, U & I=Urban & Industrial Waste Power, RES=Renewable Energy Sources

Over the years, most of the energy that is produced is from hydropower stations coupled with thermal power stations. At the same time, energy production from nuclear power stations witnessed a negative growth even though the National Electricity Policy, 2005 portrays a need for increase in the share of nuclear power significantly by enhancing public sector investments.⁷ The overall generation in the country has increased from 723.793 BU during 2008-09 to 771.551 during the year 2009-10.⁸ The category wise generation performance is as follows:

Table 2: Over view of Power Generation in India (2009-10)⁹

	Type	Improvement/Decline	%age
1	Thermal	Improved by	8.6
2	Hydro	Improved by	26.67
3	Nuclear	Declined by	5.66

II . Importance of Nuclear Power and Challenges in India

Nuclear power constitutes approximately 16% of the world's electricity.¹⁰

7. MINISTRY OF POWER, GOVERNMENT OF INDIA, *NATIONAL ELECTRICITY POLICY, 2005*, at para 5.2.19, available at http://www.powermin.nic.in/whats_new/national_electricity_policy.htm. It says: "Nuclear power is an established source of energy to meet base load demand. Nuclear power plants are being set up at locations away from coalmines. Share of nuclear power in the overall capacity profile will need to be increased significantly. Economics of generation and resultant tariff will be, among others, important considerations. Public sector investments to create nuclear generation capacity will need to be stepped up. Private sector partnership would also be facilitated to see that not only targets are achieved but exceeded."

8. Ministry of Power, Government of India, available at http://www.powermin.nic.in/JSP_SERVLETS/internal.jsp.

9. *Id.*

10. *NUCLEAR ENERGY IN INDIA AND FOREIGN INVESTMENT*, INDIA JURIS, <http://www.indiajuris.com/nuclear.pdf>.

In the year 2009 alone more than 15% of the world's electricity came from nuclear power.¹¹ Apart from this, more than 150 naval vessels have been built using nuclear propulsion around the world. India, as on 2010, has 19 nuclear power plants in operation generating 4,560 MW with 4 others are under construction and are expected to generate an additional 2,720 MW of energy.¹² India is also envisaging an increase of contribution of nuclear power to overall electricity generation capacity from 4.2% to 9% within 25 years.¹³ According a latest Report from the Government, India has an ambitious plan to reach a nuclear power capacity of 63,000 MW by 2032.¹⁴ However this aim has been challenged by the recent public protests against establishment of new nuclear power plants. For example a 9900 MW Nuclear Power Project at Jaitapur, in the state of Maharashtra and another 2000 MW Nuclear Power Plant at Koodankulam, in the Indian State of Tamil Nadu have seen unprecedented public protest. Similarly the state government of West Bengal has refused permission to a proposed 6000 MW plant at Haripur citing safety concerns. The *Non Proliferation Treaty* has recognized the right of its parties right of access to peaceful uses of nuclear energy and an obligation to cooperate on civilian nuclear technology.¹⁵ Similarly the Agreements of the *Nuclear Suppliers Group*¹⁶ also permit nuclear exports including reactors and fuel based on the comprehensive safeguards by the *International Atomic Agency*. These Agreements intend that nuclear energy is not diverted from peaceful use to weapons programs. India, though not a party to the NPT, argues that the NPT instead of addressing the central objective of universal and comprehensive non-proliferation, it aims at creating a small club of *nuclear haves* and a larger group of *nuclear have-nots* by restricting the legal possession of nuclear weapons to those states that tested them before 1967. Instead India, because of its geo-political position, insists a comprehensive action plan for a

11. *Id.*

12. *Id.*

13. *Id.*

14. The Economic Times, http://articles.economictimes.indiatimes.com/2010-10-11/news/27616582_1_pressurised-heavy-water-reactors-fuel-cycle-indian-nuclear-society (visited Oct 11, 2011).

15. THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS (NPT), <http://www.un.org/en/conf/npt/2010/npttext.shtml> (last visited Nov 13, 2011).

16. See the website of the Nuclear Suppliers Group for details, <http://www.nuclearsuppliersgroup.org/Leng/default.htm>.

nuclear-free world within a specific time-frame and has also adopted a voluntary *No First Use Policy*.¹⁷ However, India had a heavy price for this policy. It could not avail any advanced technology and fuel from anywhere in the world.¹⁸ Meanwhile India also had to face sanctions from other states due to its controversial nuclear weapons programme. However citing India's strong non proliferation commitments, and also on trade and economic as well as strategic and political reasons India entered into a Civil Nuclear Agreement with the United States of America after a decade long negotiations and controversies. Subsequently India also signed specific agreements with International Atomic Energy Agency and committed to separation of civil use of nuclear technology from its weapons programme and also to permit inspection by IAEA of its nuclear plants. As of now India remains the only country with nuclear weapons permitted to carry on nuclear trade with other countries despite the fact that it is not a party to the NPT.

III. Nuclear Law: A Conceptual Analysis

The term nuclear law is defined as “the body of *special* legal norms created to regulate the conduct of legal or natural persons engaged in activities related to fissionable materials, ionizing radiation and exposure to natural sources of radiation.”¹⁹ But such a special legal regime needs to be interwoven with the normal legal hierarchy of every legal system.²⁰ The purpose of such a special legal regime must be to “provide a legal framework for conducting activities related to nuclear energy and ionizing radiation in a manner which adequately protects individuals, property and the environment.”²¹

The quality of such a legal system depends on a multitude of interconnected factors and issues, identifiable as:²²

17. For details read BHARAT KARNAD, INDIA'S NUCLEAR POLICY (2008).

18. *Id.*

19. CARLTON STOIBER, ALEC BAER ET AL., HAND BOOK ON NUCLEAR LAW 4 (2003).

20. *Id.* at 3.

21. *Id.* at 5.

22. *Id.* at 14-15.

- (a) Does the current legislation make it clear that public health, safety, security and the environment are overriding considerations in the use of nuclear techniques and material?

The Indian Law on atomic energy deals with the health issues as well as safety, security and the environment. As per section 17 of the Atomic Energy Act, the Central Government may make detailed rules for the protection of employees working in such places where there is a threat of radiation, for the disposal of radioactive wastes etc. And more importantly the language of the Atomic Energy Act, 1962 is that of caution, safety and confidentiality. Similarly 'losing of income arising from the destruction of environment' may come under the definition of nuclear damage according to section 2 (g) (v) of the Civil Liability for Nuclear Damage Act, 2010. Various Rules are also drafted in this regard by the Government of India.²³

- (b) Are there major gaps or overlaps in the legal structure regarding the treatment of nuclear related activities or material, both those currently being conducted or used and those that can reasonably be expected?

There are no major overlaps on the Indian legal structure regarding treatment of nuclear related activities or materials. In India, Atomic energy is the monopoly of the Union Government by virtue its presence in the Union List.²⁴ The two legislations as well as the Rules are also consistent in this aspect. For any other person to do any other activity that is related to atomic energy requires to take prior sanction from the Union Government.

- (c) Have the most important terms used in the legislation been given clear and consistent definitions in the statutory documents? Does the use of different terms and definitions, or a failure to define certain terms, produce confusion about how nuclear related activities are to be regulated?

The definitions given in the two statutes and various rules have not been

23. For a detailed analysis on these issues read part IV of this paper.

24. *Id.*

challenged in any court of law, which may be because of their clarity.²⁵

- (d) Are the institutional responsibilities for regulating nuclear related activities clear and consistent, permitting efficient regulation without delays and bureaucratic conflicts?
- (e) Does the present regulatory system involve unnecessary financial or administrative burdens on regulated entities or regulatory agencies that could be reduced in order to improve efficiency?

The Indian Atomic Energy law creates institutions with specific and well-defined roles. The procedure and duration of the decision making process are also defined.²⁶ It is also important to note that all the regulated entities and regulatory agencies are controlled by the Government of India except individuals.²⁷

- (f) Does the present system fully comply with the State's international legal obligations?

Further the IAEA also identifies eleven principles that are fundamental and are to be incorporated in every national legal system on nuclear law.²⁸ They are as follows:

- (a) The Safety Principle: The safety principle emphasis that the legal regime in a country should give utmost importance to safety of life and property of persons. This principle has two subsidiary principles. They are as follows:

- i Prevention and Protection Principle: It holds that, the primary objective of nuclear law should be to promote the exercise of caution and foresight so as to prevent damage that might be caused by the use of

25. *Id.*

26. *Id.*

27. *Id.*

28. *Id.* at 5.

the technology and to minimize any adverse effects resulting from misuse or from accidents.²⁹

ii Precautionary Principle: It says that the fundamental purpose of any regulatory regime is to balance social risks and benefits. Where the risks associated with an activity are found to outweigh the benefits, priority must be given to protecting public health, safety, security and the environment. Of course, in the event that a balance cannot be achieved, the rules of nuclear law should require action-favouring protection.³⁰

(b) Security Principle: The Security Principle suggests that any nuclear law system should include provisions against, both accidental or intentional, losing or abandoning radiation sources so as to pose threat to the life and property of the people. The same principle also cautions against acquisition of nuclear materials by criminal or terrorist groups.³¹

(c) Responsibility Principle: When there are so many parties involved in the use of nuclear energy,³² “the fundamental question is who is primarily responsible for ensuring safety?”³³ Generally the entity that is usually considered as primarily responsible for safety is the operator or licensee.³⁴ The fundamental principle is ‘that the operator or licensee should bear the burden of ensuring that its activities meet the applicable safety, security and environmental protection requirements.’³⁵

(d) Permission Principle: Prior permission is required to do those things, which may pose serious threat or injury to persons or environment. As

29. *Id.* at 6.

30. *Id.*

31. *Id.* at 7. Also *see* chapters 14 and 7, 9, 12,13 of the book.

32. The use of nuclear energy typically involves numerous parties, such as research and development organizations, processors of nuclear material, manufacturers of nuclear devices or sources of ionizing radiation, medical practitioners, architect-engineering firms, construction companies, operators of nuclear installations, financial institutions and regulatory bodies.

33. *Id.* at 7.

34. *Id.*

35. *Id.* *See* also chapter 11.

nuclear use of nuclear technology inherently involves some risk, prior permission is always required. The law also clearly need to identify those activities that require prior permission.³⁶

- (e) Continuous Control Principle: A continuous monitoring of the activities to make sure that they are being conducted safely and securely and in accordance with the terms of the authorization. It also includes 'free access' by the regulatory officers to all premises where nuclear material is being used and stored.
- (f) Compensation Principle: As preventive measures cannot completely exclude, but only minimise the possibility of damage, this principle requires that States adopt measures to provide adequate compensation in the event of a nuclear accident.³⁷
- (g) Sustainable Development Principle: The principle of sustainable development has special relevance in nuclear energy production. It is "because some fissile material and sources of ionizing radiation can pose health, safety and environmental risks for very long periods of time."³⁸
- (h) Compliance principle: Nuclear energy production has been deemed to involve particular risks of radiological contamination transcending national boundaries. There are many bilateral and multilateral instruments that aim at determining an international law of nuclear energy. The fundamental question is to what extent a particular state has adhered to these international legal regimes. It is also important that the national legal regime incorporates the provisions of customary international law also.³⁹
- (i) Independence principle: It is very important that the powers, functions and decisions of the Regulatory Authority that is constituted under the

36. Other words that could be used for permission are 'authorization', 'licence', 'permit', 'certificate' or 'approval'.

37. *Id.* at Chapter 11.

38. *Id.* at 9.

39. *Id.*

nuclear law are not interfered by the executive or other branches of the State and also from entities involved in the development or promotion of nuclear energy.⁴⁰

- (j) Transparency principle: Erstwhile, information of nuclear materials was guarded, categorising it as 'sensitive' and 'confidential'. In the recent past, however, the emphasis is "with the development of the peaceful uses of nuclear energy, however, public understanding of and confidence in the technology have required that the public, the media, legislatures and other interested bodies be provided with the fullest possible information concerning the risks and benefits of using various nuclear related techniques for economic and social development. The transparency principle requires that bodies involved in the development, use and regulation of nuclear energy make available all relevant information concerning how nuclear energy is being used, particularly concerning incidents and abnormal occurrences that could have an impact on public health, safety and the environment."⁴¹
- (k) International Co-Operation Principle: The level of international co-operation required is based on several factors. "First, in the area of safety and the environment, the potential for trans-boundary impacts requires governments to harmonize policies and develop co-operative programmes so as to reduce the risks of damage to their citizens and territories, the global population and indeed to the planet as a whole. Also, lessons learned in one State about how to enhance safety can be highly relevant to improving the situation in other States. Second, the use of nuclear material involves security risks that do not respect national borders. Threats of terrorist acts and the threats associated with illicit trafficking in nuclear material and the proliferation of nuclear explosives have long been recognized as matters requiring a high level of international co-operation. Third, a large number of international legal instruments have been promulgated to codify the obligations of States in the nuclear field. Not only must governments comply in good faith with those obligations, but the terms of those instruments may limit

40. *Id.* at Chapter 2.

41. *Id.* at 10.

the discretion of legislators in framing national legislation concerning some matters covered by them. Fourth, the increasingly multinational character of the nuclear industry, with frequent movements of nuclear material and equipment across national borders, makes effective control dependent on parallel and joint approaches by both public and private entities. For all these reasons, national nuclear energy legislation should make adequate provision for encouraging public bodies and private users of nuclear energy to participate in relevant international activities in the nuclear field.⁴²

IV. Atomic Law in India: An Analysis

As envisaged by International Atomic Energy Agency⁴³, the provisions of law in the Indian legal system regarding atomic energy are found at four different levels namely the (a) constitutional level (b) the statutory level (c) Regulations or Delegated Legislation and (d) Non-Mandatory Guidance instruments.

Atomic Energy Law at the Constitutional Level: In the Constitution of India the "...exclusive power to make laws with respect to any of the matters..."⁴⁴ connected with "atomic energy and mineral resources necessary for

42. Handbook 10-11.

43. *Id.* at 3-4. It says: The IAEA envisages that the "nuclear law must take its place within the normal legal hierarchy applicable in most States." The handbook says that the nuclear law should be present at four different levels namely (a) the constitutional level, that establishes the basic institutional and legal structure governing all relationships in the State. (b) Immediately below the constitutional level is the statutory level, at which specific laws are enacted by a parliament in order to establish other necessary bodies and to adopt measures relating to the broad range of activities affecting national interests. (c) The third level comprises regulations; that are, detailed and often highly technical rules to control or regulate activities specified by statutory instruments. Owing to their special character, such rules are typically developed by expert bodies (including bodies designated as regulatory authorities) empowered to oversee specific areas of national interest, and promulgated in accordance with the national legal framework. (d) A fourth level consists of non-mandatory guidance instruments, which contain recommendations designed to assist persons and organizations in meeting the legal requirements.

44. THE CONSTITUTION OF INDIA, Article 246. (There are three lists in the Seventh Schedule of the Constitution of India. The First List enumerates all those areas where only the Parliament of India can make laws. The Second List contains areas where only the States can make laws

its production”⁴⁵ is upon the Parliament of India (the legislative body at the federal level). The States do not have any power or role in making laws in the area of atomic energy. In pursuance of the powers conferred on it through this provision the Parliament of India has enacted legislations that are analysed in the next section.

Atomic Energy Law at the Statutory Level: At the Statutory Level, India has two specific legislations that deal with atomic energy. They are namely, (i) The Atomic Energy Act, 1962 and (ii) the Civil Liability for Nuclear Damage Act, 2010.

Atomic Energy Law at the Delegated Legislations Level: (i) Atomic Energy (Safe Disposal of Radioactive Wastes) Rules, 1987 (ii) The Atomic Energy (Working on the Mines, Minerals and Handling of Prescribed Substances) Rules, 1984, (iii) the Atomic Energy Radiation Protection Rules, 2004, (iv) the Atomic Energy (Arbitration Procedure) Rules, 1983, (v) the Atomic Energy (Factories) Rules, 1996, and (vi) The Atomic Energy (Control of Irradiation of Food) Rules, 1996.

Atomic Energy Law and the Non-Mandatory Guidance Instruments: The Government of India, Department of Atomic Energy also have come up with few guidance instruments such as (i) Guidelines for Nuclear Transfers (Exports) in the year 2006⁴⁶, and (ii) Guidelines for the Implementation of Arrangements for Co-Operation concerning Peaceful Uses of Atomic Energy with Other Countries in the year 2010.

So, it can be said that the Atomic Energy Law in India are in consonance with the prescribed IAEA hierarchy.

and the third list *i.e.* is known as the Concurrent List lists areas where both Federal or States can make laws.)

45. *Id.* at Entry 6, List 1, the Seventh Schedule. (Atomic Energy is placed in the Union List along with Defence of India, Army, Navy, Air force, Foreign Affairs and Diplomatic Relations *etc.*)

46. *Vide* notification no. AEA/27(1)/2005-ER dated 1st February 2006.

V. Atomic Energy Law in Statutory Instruments

In India, atomic energy is within the legislative purview of the Union Government (Federal Government). An analysis of the following legislation regarding atomic energy would reveal that the control, development and use of atomic energy have been the monopoly the Union Government.

A. Advisory and Regulatory Bodies Constituted in India

By virtue of its powers under the Constitution, the Government of India, constituted the Indian Atomic Energy Commission in the year 1948. The various purposes of such a body was to decide on the policy issues related to atomic energy. Similarly the Department of Atomic Energy, the nodal agency, was also created through a Presidential order under the direct supervision of the Prime Minister.

The Atomic Energy Regulatory Board (hereinafter AERB) was constituted on November 15, 1983 by the President of India by exercising the powers conferred by section 27 of the Atomic Energy Act, 1962 to carry out the regulatory and safety functions under the Act. 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. The mission of the Board is to ensure that the use of ionizing radiation and nuclear energy in India does not cause undue risk to health and the environment. Currently the AERB is the apex Regulatory and Supervisory body in India regarding atomic energy.

B. The Atomic Energy Act, 1962⁴⁷

The Atomic Energy Act was passed in both the houses of the Parliament and received the assent of the President of India on 15th September 1962 for the development, control and use of atomic energy for the welfare of the people of India and for other peaceful purposes.⁴⁸ This statute repealed the ear-

47. Act 33 of 1962.

48. Preamble to the ATOMIC ENERGY ACT, 1962.

lier Atomic Energy Act, 1948.⁴⁹ In total this statute has 32 Sections and has authority to the whole of India.⁵⁰ This Act came into force on 21st September 1962 when the Government of India published it in the official Gazette.

1. Definitions under the Act

It defines ‘Atomic Energy’ as ‘energy that is released from atomic nuclei as a result of any process, including the fission or fusion processes’⁵¹ It defines ‘Fissile Materials’ as ‘Uranium 233, Uranium 235, Plutonium or any material containing these substances or any other material that may be declared as such by notification by the Central Government.’⁵²

Among other things it also defines radiation. It says that “*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”.⁵³

2. Whether radiation from cellular phone towers come within the above given definition of radiation?

Apprehension that the radiation emanating from large telecommunication towers would expose human beings living within the magnetic field to fatal deceases like cancer, embryo disruption and changes in DNA Structure etc. culminated into a case⁵⁴ (the first of its kind) before the Bombay High Court, wherein an expert committee was constituted. The committee submitted its report stating that currently there are no concrete evidence of any health hazard by these towers and the Radio Frequency from Mobile Base Stations have shown that the exposures are of a such lower magnitude than the internationally accepted levels. The committee also recommended that a precau-

49. The ATOMIC ENERGY ACT, 1962. at section 31.

50. *Id.* at section 1.

51. *Id.* at section 2(a).

52. *Id.* at section 2(b).

53. *Id.* at section 2(h).

54. The Division Bench decision of the Bombay High Court in WP No.2112 of 2004 as referred in *Reliance Infocom Ltd. v. Chemanchery Grama Panchayat*, AIR 2007 Ker 33. Also see *Reliance Telecommunications Ltd. v. S.I. of Police* decided on 8.4. 2010 reported at MANU/KE/2352/2010.

tionary approach should be adopted till further data are available. The Atomic Energy Regulatory Board also filed a report before the Bombay High Court, observing that the 'Radio Frequency waves' used for mobile phones are not covered under the definition of *radiation* as given in the Act and that they being *non ionizing* radiations, do not have the capability to *ionize* the matter with which they interact. On the basis of these expert opinions the court held that mobile phone towers as such do not pose any health risk but before any such tower is constructed, necessary permission/licence from the concerned authority is required.

Further it defines *radioactive substance* or *radioactive material* as "any substance or material which spontaneously emits radiation in excess of the levels prescribed by notification by the Central Government."

3. General Powers of the Central Government

The following are the powers of the Central Government under the Atomic Energy Act, 1962.

1. To produce, develop use and dispose of atomic energy either by itself or through any authority or corporation established by it or a government company.⁵⁵
2. To carry out research in matters connected with atomic energy.⁵⁶
3. To manufacture or produce any prescribed or radioactive substances required for production of atomic energy.⁵⁷
4. To buy, acquire, store, transport and dispose any prescribed or radioactive substance for the production of atomic energy.⁵⁸
5. To declare any information as 'Restricted Information' and prohibit it from publishing or making available to the public.⁵⁹ The information can be restricted in the following cases.
 - a. The information can be restricted relating to the location, quality and

55. *Supra* note 53 at section 3(a).

56. *Id.*

57. *Id.* at section 3(b).

58. *Id.* at section 3(bb).

59. *Id.* at section 3(c).

- quantity of prescribed substances and transactions for their acquisition (by purchase or otherwise) or disposal (by sale or otherwise).⁶⁰
- b. It also can be restricted if it is relating to the processing of prescribed substances and the extraction or production of fissile materials from them.⁶¹
 - c. Any information relating to the theory, design, production and operation of plants for the treatment and production of any of the prescribed substances and the separation of isotopes.⁶²
 - d. Any information relating to the theory, design, construction and operation of nuclear reactors.⁶³
 - e. Information relating to the research and technological work on materials and processes relating to atomic energy may also be restricted.⁶⁴
6. 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.⁶⁵
7. To provide for control over radioactive substances or radiation generating plant in order to (a) prevent radiation hazards (b) secure public safety of persons handling radioactive substances or radiation generating plant (c) ensure safe disposal of radio active wastes.⁶⁶

4. Discovery of Uranium or Thorium

It is obligatory on persons discovering uranium or thorium to report about their discovery to the Central Government or any person authorised by the Central Government within three months of such discovery.⁶⁷ Such an obligation is also cast on every person who has reason to believe that Uranium or thorium occurs at any place in India. ⁶⁸ If any person contravenes this obliga-

60. *Id.* at section 3(c)(i).

61. *Id.* at section 3(c)(ii).

62. *Id.* at section 3(c)(iii).

63. *Id.* at section 3(c)(iv).

64. *Id.* at section 3(c)(v).

65. *Id.* at section 3(d).

66. *Id.* at section 3(e).

67. *Id.* at section 4(1).

68. *Id.* at section 4(2).

tion he shall be punished with an imprisonment for a term, which may extend to one year or with both.⁶⁹

5. Control of mining or Concentration of substances containing Uranium

The central government is also empowered to impose certain terms and conditions on persons engaged in mining substances from which uranium can be isolated or extracted.⁷⁰ The Central Government can also totally prohibit any person from conducting the mining operations etc.⁷¹ The Government can also decide as to whether to pay or not to pay compensation to the person whose activities are restricted or prohibited by the government. But if the central government decides not to give any compensation the reasons for such a decision shall be recorded in writing.⁷² If it is decided that compensation will be paid the principles and procedure laid down in section 21 of the Atomic Energy Act shall be adhered to. But in calculating the amount of calculating the amount of compensation the value of the Uranium shall not be taken into account.⁷³ Compensation is obligatory if the mining operation etc. is prohibited and the amount of compensation shall be determined in accordance with section 21, but here also the value of uranium shall not be taken into account in calculating the amount of compensation.⁷⁴ If any person fails to comply with any notice served on him under this provision or violates any terms and conditions that is imposed on him shall be punished with imprisonment for a term which may extend to one year or with fine or with both.⁷⁵

69. *Id.* at section 24(2)(d).

70. *Id.* at section 5.

71. *Id.* at section 5(1)(b).

72. *Id.* at section 5(2).

73. *Id.* at section 5(3). The law applicable to treasure trove that it is the property of the crown is applicable to rare metals also. The applicable law in India, regarding treasure trove, the INDIAN TREASURE TROVE ACT, 1878 is different in this respect. Section 16 of the said Act makes it optional for the Government to acquire it and also makes paying compensation obligatory after considering the value of the treasure.

74. *Id.* at section 5(4).

75. *Id.* at section 24(2)(a).

6. Disposal of Uranium or materials containing Uranium in its natural state

If uranium in its natural state is found in any material, it cannot be disposed of without the previous permission of the central government.⁷⁶ Similarly if any person has produced uranium, it shall be compulsorily be acquired by the Central Government. There is no procedure prescribed for this process. Once the notice is served it shall become the property of the Central government.⁷⁷ Compensation shall be determined according to section 21 of the Atomic Energy Act. Here also while calculating the amount of calculation the value of uranium shall not be taken into consideration. The offences and punishments are similar to section 4.

7. Power of the Central Government to obtain information regarding materials, plant or processes

Under section 7 of the Act, the Central Government can by notice in writing requiring information pertaining to any prescribed substance or plant designed for mining or processing minerals used for production of atomic energy or any other information.⁷⁸ If any person fails to comply with any notice served on him under this section or knowingly makes any untrue statement in any return or statement made in pursuance of any such notice he shall be punished with an imprisonment for a term, which may extend up to one year or with fine or with both.⁷⁹

8. Power of Entry and Inspection

Any authorised person enter any mine or premises or land if 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 and make copies or extract of any draw-

76. *Id.* at section 6.

77. *Id.* at section 6(2).

78. *Id.* at section 7.

79. *Id.* at section 24(2)(b).

ing or plan or documents.⁸⁰ If in the course of fulfilling his duty, the authorised person is obstructed the punishment prescribed is imprisonment, which may extend to one year or with fine or with both.

9. Power to do work in any land

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.⁸¹ The punishment prescribed under this Act is same as that of section 8. And after this initial work if the Central Government is of the opinion that any prescribed minerals are present or obtained from that land or premise shall compulsorily acquire that land.⁸² In connection with this the Central Government can also acquire any ancillary rights such as conveyance or drainage or supply of water etc. The compensation shall be as per section 21 of the Act.

10. Compulsory acquisition of any prescribed substances or minerals or plants

After giving notice in writing and an opportunity to be heard, the central government may compulsorily acquire any prescribed substance or any minerals from which any prescribed substance can be obtained or any prescribed equipment or any plant which is designed or adapted for mining or processing of minerals. Compensation in respect of such acquisition shall be paid in accordance with section 21.⁸³ Here the provision does not say that the value of prescribed materials shall not be accounted while calculating the compensation. This compulsory acquisition shall not be considered to be a sale for any purpose whatsoever.⁸⁴

80. *Id.* at section 8.

81. *Id.* at section 9.

82. *Id.* at section 10.

83. *Id.* at section 11.

84. *Id.* at section 11A. Inserted by the Amendment Act 59 of 1986 with effect from 21-9-1986.

11. Acquiring a Mine

Under section 12 of the Act, the Central Government is empowered to acquire any mine or part of a mine from which, in its opinion, any of the prescribed substances can be obtained. The compensation in accordance with such acquisition shall be paid in accordance with section 21. Proviso to section 12 further states that in determining the amount of such compensation, no account shall be taken of the value of uranium, which may be obtained from time to time.

12. Novation of Contracts

If there is a contract between two parties the subject matter of which is production or use of atomic energy or regarding any research to matters connected therewith, the Central government can after giving a notice and an opportunity to be heard to the parties, transfer the rights and liabilities of any of the parties to itself. The parties whose rights and liabilities are taken away shall be paid compensation in respect of the loss as agreed. If the compensation could not be determined through an agreement it shall be determined through arbitration as per section 21.⁸⁵

13. Control over production and use of atomic energy

The Central Government may prohibit, subject to such rules as may made in this behalf, the following activities.

- (a) The working of any mine or minerals from which any prescribed substances can be obtained.
- (b) Acquisition, production, possession, use, disposal, export or import of any of the prescribed substances or any minerals from which any prescribed substances can be obtained or the functioning of any plant designed or adopted for the production and use of atomic energy or of any prescribed equipment.⁸⁶

85. *Id.* at section 13.

86. *Id.* at section 14.

However any such activities can be permitted through a licence issued by the Central Government. The central government can also refuse to give licence or issue a restricted licence.⁸⁷ If any person contravenes any order made under this section or any condition subject to which a licence is granted shall be punished with imprisonment, which may extend to five years or with fine or with both.

14. General rules pertaining to the issue of licence

The General Rules, as prescribed by the Act, for the issuing such licences are as follows:

- (a) The extent to which information in the possession of or has been made available to the person to whom licence is issued should be regarded as 'Restricted Information'.⁸⁸
- (b) The extent to which the area or premises under the control of the person to whom a licence has been granted should be regarded as a 'Prohibited Area'.⁸⁹
- (c) To provide for the conditions and criteria for location of any installation or operation of any plant in respect of which a licence has been granted or is intended to be granted including those necessary for protection against radiation and safe disposal of harmful by-products or wastes.⁹⁰
- (d) To determine the extent of the licensee's liability in respect of any hurt to any person or any damage to property caused by ionising radiations or any radioactive contamination either at the plant under licence or in the surrounding area.⁹¹
- (e) To provide for funds by licensee either through insurance or by such

87. *Id.* at section 14(2).

88. *Id.* at section 14(3)(a).

89. *Id.* at section 14(3)(b).

90. *Id.* at section 14(3)(c).

91. *Id.* at section 14(3)(d).

other means as the central government may of sufficient funds to be available at all times to ensure settlement of any claims in connection with ...any hurt to person or damage to property.⁹²

A case came up before the Supreme Court of regarding the issue of insurance for workers who are exposed to radiation while they on work. In *M.K. Sharma v. Bharat Electronics Ltd.*,⁹³ the main contention of the petitioners was that the workers of Bharat Electronics⁹⁴ who were working in the transmitter assembly room are exposed to baneful effects of x-ray radiation. Through the order of the court Bhabha Atomic Research Centre conducted an expert study. The study found no clear proof of any injury or ill effect on the workers. The court ordered for strengthening the safety measures at the factory. Further the court held that “workers within the sensitive portion of the factory should be covered by appropriate insurance over and above general insurance”⁹⁵ at the cost of the respondents.

- (f) To prescribe the obligatory qualifications, security clearances, hours of employment, minimum leave and periodical medical examination of the persons employed and any other requirement or restriction or prohibition on the employer, employed persons and other persons.⁹⁶
- (g) To prescribe other provisions relating to inspection, sealing of premises and seizure, retention and disposal of any article in respect of which there are reasonable grounds for suspecting that contravention of the rules has been committed.⁹⁷

92. *Id.* at section 14(3)(e).

93. AIR 1987 SC 1792.

94. A Public sector undertaking that manufactures electronic components and equipment including integrated circuits, TV picture tubes and sophisticated Radars used by the country's Defence establishments.

95. *Supra* note 93 at para 8.

96. *Supra* note 92 at section 14(3)(f).

97. *Id.* at section 14(3)(g).

15. Requisitioning of any substance for extracting uranium or plutonium

The central government have the right to require that any substance that contains Uranium, plutonium or any of their isotopes shall be delivered to the central government.⁹⁸ After that the central government may extract the uranium or plutonium etc and return the substance to the person concerned.⁹⁹ The government shall also pay compensation to the person from whom it is acquired according to the procedure established under section 21.¹⁰⁰

16. Permission to use small quantities of natural Uranium

The central government may permit the use of small quantities of natural uranium for the purpose of examination, test or analysis.¹⁰¹

17. Control over radioactive substances

Under section 16 of the Act, 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.

18. Power to make special provisions for safety

Under section 17 of the Act, the central government is empowered to make rules to ensure that safety measures are taken in handling radioactive substances wherever they are manufactured, produced, mined, stored, transported or used. Whoever contravenes any rule made under this section or any requirement, prohibition or restriction imposed under any such rule shall be punished with imprisonment for a term, which may extend to five years or with fine or with both.

98. *Id.* at section 15.

99. *Id.*

100. *Id.*

101. *Id.* at section 15(2).

19. Restriction on disclosure of information

Under section 18 of the Act, the central government can restrict the disclosure of information, whether contained in a document, drawing, photograph, plan, model or in any other form which is related to a nuclear plant or the purpose or method of operation or any process. It also casts an obligation on individuals against disclosing information.¹⁰²

In *People's Union for Civil Liberties*¹⁰³ v. *Union of India*¹⁰⁴ the question arose regarding power of the government to impose reasonable restrictions against disclosing information related to nuclear power plants and nuclear installations. The appellants (PUCL) sought disclosure of information from the respondents (Government of India) relating to the purported safety violations and defects in various nuclear installations and power plants across the country. The appellants contended that the Atomic Energy Regulatory Board¹⁰⁵ had prepared a report in the year 1995 documenting therein the safety defects and weakness citing 130 instances, which are said to be matters of concern. The appellants raised the following contentions.¹⁰⁶

- (1) The Citizens have a right to have access to the copies of the AERB Report.
- (2) Section 18 of the Atomic Energy Act, 1962 is invalid on the ground that there are no guidelines for the exercise of discretion in notifying a document as a Secret Document.

The appellants further contended that Right to Information is a fundamental right under Article 19(1)(a)¹⁰⁷ of the Constitution and any of the restriction

102. *Id.* at section 15(3).

103. Herein after referred to as PUCL.

104. AIR 2004 SC 1442. This case was heard and decided before the enactment of the RIGHT TO INFORMATION ACT, 2005.

105. Hereinafter referred to as AERB.

106. *Supra* note 104 at para 20.

107. Article 19 of the INDIAN CONSTITUTION reads: "Protection of certain rights regarding freedom of speech *etc.* (1) All citizens shall have the right
(a) to freedom of speech and expression;

under clause 2 of Article 19 is not sufficient to deny the supply of information. They further contended that the guidelines/norms/safeguards taken by the nuclear plants towards not only the workers employed therein but also the general public should be disclosed in the light of *Right to Life* guaranteed under Article 21¹⁰⁸ of the Indian Constitution. It was argued that non-disclosure of information under section 18 of the Act do not serve any public purpose.

On the contrary the Government of India contended that a matter that is sensitive by its very character and cannot be subject matter of a right to information. It was also argued that in India no nuclear accident have taken place and the AERB consist of eminent persons who are independent and capable of monitoring and taking strict measures regarding the safety of these plants. The counsel for the government further contended that if the report is disclosed the data contain therein could facilitate a reverse calculation about the country's nuclear programme by the enemies.

Regarding the unconstitutionality issue of section 18 of the Atomic Energy Act, 1962, the court held that every statute carries with it a presumption of constitutionality. Such a presumption also extends to statutes that impose reasonable restrictions on a fundamental right. The court held that section 18 is not *ultra vires* the constitution because it has to be read in the context of other provisions of the Atomic Energy Act. These other provisions like section 14¹⁰⁹ are related to a very sensitive subject. Based on these reasoning the court said:¹¹⁰

-
- (b) to assemble peaceably and without arms;
 - (c) to form associations or unions;
 - (d) to move freely throughout the territory of India;
 - (e) to reside and settle in any part of the territory of India; and
 - (g) to practise any profession, or to carry on any occupation, trade or business

(2) Nothing in sub clause (a) of clause (1) shall affect the operation of any existing law, or prevent the State from making any law, in so far as such law imposes reasonable restrictions on the exercise of the right conferred by the said sub clause in the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality or in relation to contempt of court, defamation or incitement to an offence”

108. Article 21 of the INDIAN CONSTITUTION reads: “No person shall be deprived of his life or personal liberty except according to the procedure established by law.”

109. For example section 14, which speaks about control over production and use of atomic energy.

110. *Supra* note 106 at para 40.

We do not think that having regard to the purport and object of the said Act, the provisions of section 18 have bestowed unguided and uncanalised powers on the Central Government. Sections 18 and 3 of the Atomic Energy Act had to be enacted by the Parliament as in wrong hands the information can pose a danger not only to the security of the State but to the public at large.

Similarly the court also negatively answered the question as to the right to have access to the copies of AERB report and right to have information regarding the activities of the AERB. The Court recognised that right to get information in a democracy is recognised all throughout and it is a natural right flowing from the concept of democracy. The Court referred to many of its own decisions on the issue. As early as 1975, in *State of U.P v. Raj Narain*¹¹¹ the court held:¹¹²

In a government of responsibility like ours, where all the agents of the public must be responsible for their conduct, there can but few secrets. The people of this country have right to know every public act, every thing that is done in a public way, by their public functionaries. They are entitled to know the particulars of every public transaction in all its bearing.

However, relying on the legal position that ‘no fundamental rights are absolute’ and considering the fact that the question is related to a sensitive subject matter the court held that “a reasonable restriction on the exercise of the right is always permissible in the interest of the security of the State.”¹¹³ The court were also of the opinion that the state can claim privilege for the decisions under section 18 of the Atomic Energy Act, 1962 and there are no

111. [1975] 3 SCR 333.

112. *Id.* at para 49. The court also discussed *Indian Express New Papers v. Union of India*, [1986] 159 ITR 856 (SC); *Secretary, Ministry of Information and Broadcasting, Government of India v. Cricket Association of Bengal* [1995] 1 SCR 1036; *SP Gupta v. Union of India*, [1982] 2 SCR 365. In all these cases freedom of information were held to be a fundamental right under Article 19(1)(a) of the INDIAN CONSTITUTION.

113. *Id.* at para 62. The court also referred to various decisions on the point from the *United States of America like Zenul v. Rusk*, 14 L.Ed. 2d 179 at 190; *Kleindienst v. Mandal*, 33 Law. Ed. 2d 683; *United States v. Richardson*, 41 l. Ed. 2d 678.

reasons for judicial review of those decisions.

The same issue was debated again in *Citizens For A Just Society, through its Vice President, K. Pullaiah v. Union of India*¹¹⁴ before the Bombay High Court. The case related to the area of west bank of *Thane Creek*, where the most prestigious Multi-Disciplinary Nuclear Research Centre of India, the Bhabha Atomic Research Centre (BARC) is situated, also adjacent to one of the most thickly populated cities in India, Bombay. Studies conducted were of the opinion that if an earth quake of magnitude 6 or more strikes Bombay, the stability of high rise buildings may emerge as a very serious concern. In this context the petitioners cautioned by dangers of 2004 Tsunami approached the court contending that the Report of the AERB which was published in the year 1996 should be made public as it had identified certain problems with nuclear establishments in India. The petitioners claimed that if tsunami again strikes, it would jeopardize the lives of people of Bombay. On the contrary the Union of India contended that the 2004 Tsunami had posed no serious danger to any of the Nuclear Establishments in India. The Union of India also contended that the BARC causes no radiation in the surrounding areas over and above the prescribed limits. Considering all these contentions the Court held:¹¹⁵

The matter is extremely sensitive and it is difficult to comprehend what could be the repercussions and ramifications of the disclosures of such vital information. Security of the nation has to be of paramount importance. There cannot be any compromise in that.

However the court directed the Union of India to look into the concerns of the petitioners. It said:¹¹⁶

The litigation may provide further opportunity of introspection for both the Atomic Energy Commission and Bhabha Atomic Research Centre to once again have the general overview of its safety mea-

114. 2005 (5) Bom CR 316.

115. *Supra* note 114 at para 40.

116. *Id.* at para 42.

sures and impact on environment.

20. Prevention of Entry into Prohibited Area

Under section 19 of the Atomic Energy Act the central government can prohibit the entry of any person or taking of photograph, drawing etc without permission.

21. No patents for an invention related to Atomic Energy

Broad powers are given to the Central Government under section 20 of the Atomic Energy Act, 1962. These powers are follows:

- (a) No patents shall be granted to any invention that in the opinion of the central government is useful or relate to atomic energy.
- (b) The central government shall have the power to inspect at any time any pending patent application and if it is important for atomic energy instruct the controller of patents and designs to refuse that application.

It also casts a duty on the individuals to communicate to the Central Government if any invention that he has made is related to atomic energy. Similarly if any person wishes to apply for patent abroad for a similar invention he has to get prior written permission from the central government. This restriction is applicable not only for applying for patents abroad but also for informing about this invention to any person abroad.¹¹⁷ A similar power is also given to the controller of patents and designs to refer any application to the central government for direction.¹¹⁸ It is also important to note that above powers of the central government if it comes in conflict with any of the provisions of the Indian Patents law¹¹⁹ the decisions of the Central Government shall be final.

117. *Id.* at section 20(4) and (5).

118. *Id.* at section 20(6).

119. Even though the ATOMIC ENERGY ACT speaks about the repealed INDIAN PATENTS AND DESIGNS ACT, 1911 and not the current INDIAN PATENTS ACT, 1970, it seems it can be interpreted as above.

22. Principles relating to payment of Compensation

If any compensation is payable according to the Atomic Energy Act, 1962, there are two methods in which it can be paid.

- (a) If there is any agreement on the amount of compensation between the parties it shall be paid in accordance with such agreement.¹²⁰
- (b) Where there is no such agreement the Central Government shall appoint an arbitrator, who is having expert knowledge as to the nature of the rights affected, who shall determine the amount of compensation payable.¹²¹ It is to be noted that according to section 11 of the Arbitration and Conciliation Act, 1996 an arbitrator is to be appointed by the consensus of the parties. Here the Central Government unilaterally appoints an arbitrator without even consulting the other party to the dispute. Clause (2) of section 21 also lays down the procedure for making his award.¹²² (However the Atomic Energy Act says the word arbitration in this section shall not be understood as it is defined in any other laws) It says that in determining the compensation the arbitrator shall consider the nature, manner, extent and duration of the work.

23. Generation of electricity using atomic energy

According to section 22 of the Act, the Central Government shall have authority to develop a sound and adequate national policy in regard to atomic power and to co-ordinate such policy with the Central Electricity Authority and the State Electricity Boards or similar statutory corporations concerned with the control and utilisation of power resources. It shall also be authorised to implement schemes for the generation of electricity in pursuance of such policy and to operate atomic power stations. It also shall also fix rates for and regulate the supply of electricity from atomic power stations.¹²³ The

120. *Id.* at section 21(1)(a).

121. *Id.* at section 21(1)(b).

122. Clause (5) of Section 21 says: "...nothing in any law for the time being in force relating to arbitration shall apply to arbitrations under this Act."

123. *Id.* at section 22(1)(b).

central government can also have special arrangements with the Electricity Board of the State in which the atomic power station is situated.¹²⁴

24. Offences under the Atomic Energy Act, 1962

For contravention of sections 14, 17, 17(4) or 18(2) a higher punishment with imprisonment, which may extend to five years and/or with fine, is prescribed.¹²⁵ But for contraventions under sections 5, 7, 8 or 9 or any other provisions the punishment prescribed is imprisonment, which may extend up to one year and/or with fine.¹²⁶ If a company commits the offence, every person who at the time of the offence was in charge of and was responsible to for the conduct of the business of the company shall be deemed to be guilty of the offence and shall be punished accordingly.¹²⁷ But if he proves that any such offence was committed without his knowledge or that he exercised due diligence to prevent the commission of such offence he will not be held liable.¹²⁸ Clause (2) of section 25 says that if the offence is committed with the consent or connivance or is attributable to or neglect on the part of any director, manger, secretary or other officer of the company, they shall be punished accordingly. It is also to be noted that an offence under this Act shall be cognisable offence as per the Code of Criminal Procedure.¹²⁹ But for an offence under section 8, 14, or 17 the complaint has to be given by the person authorised to exercise powers of entry and inspection.¹³⁰ In case of any other contravention other than section 18 the complaint has to be given by a person duly authorised to make such complaints by the Central Government.¹³¹ Proceedings in respect of contravention under section 18 shall not be instituted except with the consent of the Attorney General of India.

124. *Id.* at section 22(1)(c).

125. *Id.* at section 24(1).

126. *Id.* at section 24(2).

127. *Id.* at section 25(1).

128. *Proviso* to section 25(1).

129. *Id.* at section 26.

130. *Id.* at section 26(a).

131. *Id.* at section 26(b).

C. The Civil Liability for Nuclear Damage Act, 2010

Operators of nuclear establishments are liable as per law for any damage caused by them, regardless of fault. This damage will have its impact not only in the country of the disaster but also in the neighbouring countries as well. Normally to a certain extent the operators of the plants/nuclear establishments are made liable for the damage, which they may pay through insurance. Beyond that, according to international law and practice, States accept responsibility as the insurer of the last resort.¹³²

Currently there are three major international agreements, which form the international framework of nuclear liability.¹³³ They are:

- (a) The (IAEA) Paris Convention of 1960¹³⁴.
- (b) The (OECD) Vienna Convention of 1963¹³⁵ along with the Protocol to amend the Vienna Convention, 1997.
- (c) The Convention on Supplementary Compensation for Nuclear Damage of 1997.

Among these conventions, India is a signatory to only the Convention on Supplementary Compensation for Nuclear Damage,¹³⁶ but she has signed few bilateral agreements with other countries, including USA, UK, Russia, France, and Canada, for co-operation in using of nuclear energy for civilian purposes.¹³⁷ The India-France bilateral agreement explicitly states that India

132. Liability for Nuclear Damage, World Nuclear Association, <http://www.world-nuclear.org/info/inf67.html>.

133. THE CIVIL LIABILITY FOR NUCLEAR DAMAGE ACT, 2010, PRS LEGISLATIVE RESEARCH, http://www.prsindia.org/index.php?name=Sections&action=bill_details&id=6&bill_id=1042&category=42&parent_category=1.

134. THE (PARIS) CONVENTION ON THIRD PARTY LIABILITY IN THE FIELD OF NUCLEAR ENERGY, 1960.

135. THE (VIENNA) CONVENTION ON CIVIL LIABILITY FOR NUCLEAR DAMAGES, 1963.

136. Signed on 27th October, 2010. For details see International Atomic Energy Agency, <http://www.iaea.org/newscenter/news/2010/indiaconvention.html>.

137. India-United States: AGREEMENT FOR COOPERATION BETWEEN INDIA AND THE UNITED STATES OF AMERICA CONCERNING PEACEFUL USES OF NUCLEAR ENERGY (Commonly known as the 123 Agreement); India-United Kingdom: JOINT DECLARATION BY INDIA AND THE UNITED KINGDOM ON CIVIL NUCLEAR COOPERATION; India-France: COOPERATION AGREEMENT BETWEEN THE GOVERN-

has to create a civil nuclear liability regime for compensating damage caused by incidents involving nuclear material and nuclear facilities.¹³⁸

Even though there are more than four hundred nuclear reactors operating worldwide¹³⁹, there have been only three major accidents in nuclear reactors in which human lives have been lost¹⁴⁰. However, damage caused in a major nuclear accident, such as Chernobyl¹⁴¹, was disastrous. The objective of this Act is to provide quick compensation in the event of such a nuclear tragedy. International agreements have certain common features to address this issue¹⁴²:

- (a) Fixing no-fault liability¹⁴³ on operators and requiring them to take insurance or provide financial security.
- (b) Limiting no-fault liability in time and amount.
- (c) There is a process for expeditious distribution to victims by fixing which court/ authority has jurisdiction.

The Civil Liability for Nuclear damage Act, 2010 was 21st September 2010. The main purpose of this legislation 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.¹⁴⁴ This Act also aims at appointing a Claims Commissioner

MENT 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.

138. Article 8 of the India-France agreement on the development of peaceful uses of nuclear energy.

139. World Nuclear Power Reactors & Uranium Requirements, <http://www.world-nuclear.org/info/reactors.html>.

140. Appendix 2: Serious Nuclear Reactor Accidents, Safety of Nuclear Power Reactors, <http://www.world-nuclear.org/info/inf06app.html>.

141. Backgrounder on Chernobyl Accident, <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/chernobyl-bg.html>.

142. Chapter on Nuclear Liability and Coverage, INTERNATIONAL ATOMIC ENERGY AGENCY, HANDBOOK ON NUCLEAR LAW (2003).

143. No-Fault Liability means 'absolute legal responsibility for an injury that can be imposed on the wrongdoer without proof of carelessness or fault.'

144. THE CIVIL LIABILITY FOR NUCLEAR DAMAGE ACT, 2010. at Preamble.

and establishment of a Nuclear Damage Claims Commission.¹⁴⁵ It is also stated that it is being enacted to provide for liability arising out of a nuclear incident, and also due to the “necessity of joining an international liability regime.”¹⁴⁶

The Act applies to nuclear damage suffered in or over the maritime areas beyond the territorial waters of India¹⁴⁷, in or over the exclusive economic zone¹⁴⁸, on board or by a ship registered in India¹⁴⁹ or on or by an artificial island, installation or structure under the jurisdiction in India.¹⁵⁰ At the same time it applies only to the nuclear installation owned or controlled by the Central Government either by itself or through any authority or corporation established by it or a government company.¹⁵¹

a. Definitions under the Act

Some of the important terms that are defined in this Act are:

Nuclear Damage: “...means:

- (i) loss of life or personal injury (including immediate and long term health impact) to a person; or
- (ii) loss of, or damage to, property, caused by or arising out of a nuclear incident, and includes each of the following to the extent notified by the Central Government;
- (iii) any economic loss, arising from the loss or damage referred to in sub-clauses (i) or (ii) and not included in the claims made under those sub-clauses, if incurred by a person entitled to claim such loss or damage.
- (iv) costs of measures of reinstatement of impaired environment caused by a nuclear incident, unless such impairment is insignificant, if such

145. *Id.*

146. *Id.* at Statements of Objects and Reasons.

147. *Id.* at section 1(3)(a).

148. As referred to in section 7 of the TERRITORIAL WATERS, CONTINENTAL SHELF, EXCLUSIVE ECONOMIC ZONE AND OTHER MARITIME ZONES ACT, 1976. See *id.* at section 1(3)(b).

149. Registered under section 22 of the MERCHANT SHIPPING ACT, 1958 or any other laws. See *Id.* at section 1(3)(c).

150. *Id.* at section 1(3)(d).

151. *Id.* at section 1(4). The expression Government Company shall have the same meaning as per section 2 of the ATOMIC ENERGY ACT, 1962.

measures are actually taken or to be taken and not included in the claims made under sub-clause (ii).

- (v) loss of income derived from an economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment caused by a nuclear incident and not included in the claims under sub-clause (ii).
- (vi) The costs of preventive measures, and further loss or damage caused by such measures;
- (vii) Any other economic loss, other than the one caused by impairment of the environment referred to in sub-clauses (iv) and (v), in so far as it is permitted by the general law on civil liability in force in India and not claimed under any such law.

In the case of sub-clauses (i) to (v) and (vii) above, to the extent the loss or damage arises out of, or results from, ionizing radiation emitted by any source of radiation inside a nuclear installation, or emitted from nuclear fuel or radioactive products or waste in, or of, nuclear material coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter;¹⁵²

Further Section 4 (4) Explanation (d) brings in the concept of 'Deemed Nuclear Damage.' It says that "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."

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"¹⁵³

Nuclear Installation: "...means — (A) any nuclear reactor other than one

152. *Id.* at section 2(g).

153. *Id.* at section 2(i).

with which a means of transport is equipped for use as a source of power, whether for propulsion thereof or for any other purpose; (B) any facility using nuclear fuel for the production of nuclear material, or any facility for the processing of nuclear material, including re-processing of irradiated nuclear fuel; and (C) any facility where nuclear material is stored (other than storage incidental to the carriage of such material).

Explanation.— For the purpose of this clause, several nuclear installations of one operator which are located at the same site shall be considered as a single nuclear installation.”

Nuclear Reactor: “...means any structure containing nuclear fuel in such an arrangement that a self-sustaining chain process of nuclear fission can occur therein without an additional source of neutrons.”¹⁵⁴

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 Atomic Energy Act, 1962 for the operation of that installation.”¹⁵⁵

Further the *Explanation* to section 4 (4) of the Act talks about ‘Deemed Operator’. 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.

Similarly where a nuclear damage is caused as a result of nuclear incident during the transportation of nuclear material, the consignor, or in case of any written agreement between a consignor and a consignee or between a consignor and the carrier as the case may be, any person liable under such agreement, shall be deemed to be the operator.

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

154. *Id.* at section 2(l).

155. *Id.* at section 2(m).

radioisotopes which have reached the final stages of fabrication so as to be usable for any scientific, medical, agricultural, commercial or industrial purpose.”¹⁵⁶

b. Liability for Nuclear Damage

Chapter II of the Act, (sections 3 to 8) lays down the law and procedures on the liability for nuclear damage. Within 15 days from the occurrence of any nuclear incident the AERB shall notify a nuclear incident if it feels that the gravity of the threat and risk involved is not *insignificant*.¹⁵⁷ Once notified, the Board shall also give wide publicity to the incident,¹⁵⁸ so that people can be cautious and take all the necessary precaution. However the word ‘in-significant’ that is used in this section seems to be confusing. It gives room for the AERB to determine what is significant and what is not significant as there are no criteria laid down.

For any such nuclear incident the Operator shall be liable for the resultant ‘Nuclear Damage’ if it involves the ‘nuclear installation’ or ‘nuclear materials’ under its control.¹⁵⁹ Where there is more than one operator and damage

156. *Id.* at section 2(p).

157. *Id.* at section 3(1).

158. *Id.* at section 3(2).

159. *Id.* at section 4(1). It reads thus: “The operator of the nuclear installation shall be liable for nuclear damage caused by a nuclear incident —

(a) in that nuclear installation; or

(b) involving nuclear material coming from, or originating in, that nuclear installation and occurring before —

the liability for nuclear incident involving such nuclear material has been assumed, pursuant to a written agreement, by another operator; or

another operator has taken charge of such nuclear material; or

the person duly authorised to operate a nuclear reactor has taken charge of the nuclear material intended to be used in that reactor with which means of transport is equipped for use as a source of power, whether for propulsion thereof or for any other purpose; or

such nuclear material has been unloaded from the means of transport by which it was sent to a person within the territory of a foreign State; or

(c) involving nuclear material sent to that nuclear installation and occurring after—

the liability for nuclear incident involving such nuclear material has been transferred to that operator, pursuant to a written agreement, by the operator of another nuclear installation; or

that operator has taken charge of such nuclear material; or

attributable to each operator is not separable, the liability of each operator shall be ‘Joint and Several.’¹⁶⁰ However even in case of such joint and several liabilities, the total liability of such operator shall be as specified under section 6(2). At the same time if there are several nuclear installations by the same operator that are involved in a nuclear incident, such operator shall, in respect of each such nuclear installation be separately liable to the extent prescribed under section 6 (2).

c. Liability of an Operator to be ‘Strict Liability’ based on the principle of ‘No-Fault Liability’

The Indian version of strict liability,¹⁶¹ the ‘absolute liability’ principle, stipulates that “where an enterprise is engaged in a hazardous or inherently dangerous activity and harm results to anyone on account of an accident in the operation of such hazardous or inherently dangerous activity resulting, for example, in escape of toxic gas, the enterprise is strictly and absolutely liable to compensate all those who are affected by the accident and such liability is not subject to any of the exceptions which operate *vis-à-vis* the tortious principle of strict liability under the rule in *Rylands v. Fletcher*”¹⁶² In other words absolute liability is strict liability without any exception. This liability standard has been laid down by the Indian Supreme Court in *M.C. Mehta v. Union of India (Oleum Gas Leak Case)*.¹⁶³

that operator has taken charge of such nuclear material from a person operating a nuclear reactor with which a means of transport is equipped for use as a source of power, whether for propulsion thereof or for any other purpose; or such nuclear material has been loaded, with the written consent of that operator, on the means of transport by which it is to be carried from the territory of a foreign State.”

160. *Id.* at section 4(2).

161. Strict liability is a standard for liability, which may exist in either a criminal or civil wrongs, in which a person is responsible for the damage and loss caused by his or her acts and omissions regardless of his or her fault or omissions. In law of torts, strict liability is the imposition of liability on a party without a finding of fault (such as negligence or tortious intent). The plaintiff need only prove that the tort occurred and that the defendant was responsible. The law imputes strict liability to situations it considers to be inherently dangerous. It discourages reckless behaviour and needless loss by forcing potential defendants to take every possible precaution. It also has the effect of simplifying and thereby expediting court decisions in these cases. *See* Wikipedia on Strict Liability, http://en.wikipedia.org/wiki/Strict_liability.

162. *Supra* note 158 at para 32.

163. AIR 1987 SC 1086.

However this has not been prescribed as the nature of liability in the event of a nuclear catastrophe in India. The Act itself prescribes certain exceptional circumstances under which an operator shall not be liable (however even under these circumstances the victim will get compensation as the liability is transferred to the Central Government). These circumstances are as follows:

- (a) A grave natural disaster of an exceptional character.¹⁶⁴ However the phrase 'exceptional character' has not been defined under the Act. This leaves a lot of discretion with the authorities.
- (b) An act of armed conflict, hostility, civil war, insurrection or terrorism.¹⁶⁵

If these circumstances directly cause the nuclear damage, the Central Government assumes liability instead of the operator.¹⁶⁶

Further the list continues to include any nuclear damage that is caused to:

- (a) The nuclear installation itself and any other nuclear installation, fully or partially constructed, on the site where such incident occurred.¹⁶⁷
- (b) To any property on the same site which is used or to be used in connection with such installation.¹⁶⁸
- (c) To the means of transport upon which the nuclear materials involved was carried at the time of nuclear incident.¹⁶⁹

These provisions, though aimed at preventing the operator from getting compensation for nuclear incident caused by himself, may go against the interest of another party whose property at the time of the nuclear incident was on the same site.

d. Extent of Liability of the Operator and the Central Government

As per section 6 (1) of the Act, the maximum amount of liability in respect

164. *Supra* note 161 at section 5(1)(i).

165. *Id.* at section 5(1)(ii).

166. *Id.* at section 7(1)(C).

167. *Id.* at section 5(2)(i).

168. *Id.* at section 5(2)(ii).

169. *Id.* at section 5(2)(iii).

of each nuclear incident is rupee equivalent of three hundred million Special Drawing Rights. However the Central Government may specify a higher amount of compensation.

Further the Act distinguishes various types of operators and prescribes different amount of compensation to be paid by them in the event of a nuclear incident and the resulting nuclear damage. It says:

- (a) In respect of a nuclear reactor having thermal power equal to above ten MW, rupees one thousand five hundred crores.¹⁷⁰
- (b) In respect of spent fuel reprocessing plants, rupees three hundred crores.¹⁷¹
- (c) In respect of 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.¹⁷²

The Central Government may assume full liability for a nuclear damage in the public interest even if it is not caused by a nuclear installation operated by it . It shall also be liable for a nuclear incident in the following circumstances:

- (a) If the liability exceeds as specified in section 6 (2).¹⁷³
- (b) If the nuclear installation occurs in nuclear installation owned by it,¹⁷⁴
- (c) The nuclear incident is occurring on account of causes specified in clauses (i) and (ii) of subsection (1) of section 5.

e. Creation of a Nuclear Liability Fund

For the purposes of meeting the liability for a nuclear incident in a nuclear installation not owned or operated by it, the Central Government may establish a fund to be called as the 'Nuclear Liability Fund.'¹⁷⁵ It is also stipulated that for the creation of such a fund, an amount of levy may be charged from

170. *Id.* at section 6(2)(a).

171. *Id.* at section 6(2)(b).

172. *Id.* at section 6(2)(c).

173. *Id.* at section 7(1)(a).

174. *Id.* at section 7(1)(b).

175. *Id.* at section 7(2).

operators.

f. Nuclear Insurance

The Act also mandates that, an operator before he begins operation of his nuclear installation, take out an insurance policy or other 'financial security',¹⁷⁶ or a combination of both.¹⁷⁷ It is also stipulated that the operator shall at all times keep this insurance policy or financial security alive through timely renewal.¹⁷⁸

g. Appointment of a Claims Commissioner

For the purposes of adjudicating upon the claims for compensation in respect of a nuclear damage, the central government shall by notification appoint one or more Claims Commissioners for an area.¹⁷⁹ The Act also prescribes the qualification¹⁸⁰ and other service conditions¹⁸¹ of these claims commissioners and further says that it shall have the powers of a civil court.¹⁸²

h. Claims and Awards by the Claims Commissioner

After notification of a nuclear incident by the AERB¹⁸³, the claims commissioner having jurisdiction over the area shall cause wide publicity so that every injured person files a claim.¹⁸⁴ The following categories of person can make an application for compensation within three years from the date of knowledge of nuclear damage.¹⁸⁵

176. See *Explanation* to section 8. It says that a financial security means a contract of indemnity or guarantee or shares or bonds or such other instruments or a combination of these methods.

177. *Id.* at section 8(1).

178. *Id.* at section 8(2).

179. *Id.* at Section 9(2).

180. A claims commissioner has to be a person who is or has been a District Judge or a person in the service of Additional Secretary to the Government of India or any other equivalent post in the central government.

181. *Id.* at section 11.

182. *Id.* at section 12.

183. Notification under section 3(1).

184. *Id.* at section 13.

185. *Id.* at section 15(2).

- (a) A person who has sustained injury by himself or his authorised agent ¹⁸⁶
- (b) The owner of the property to which damage has been caused by himself or his authorised agent.¹⁸⁷
- (c) The legal representatives of the deceased himself or his authorised agent.¹⁸⁸

Every application shall be made in the prescribed form containing all the necessary information and accompanied by documents for proving his claim.¹⁸⁹ An application shall be made within ten years, if it is a damage to property and twenty years in the case of personal injury, from the date of occurrence as notified.¹⁹⁰ On the receipt of such an application and after giving sufficient opportunity to be heard, the Claims Commissioners shall dispose the application within three months.¹⁹¹ While making an award the Claims Commissioner shall not take into consideration any benefit that the applicant received as a result of a personal insurance policy in his name.¹⁹²

i. Operator's Right of Recourse

This legislation also contains a unique provision of right to recourse. The operator after paying compensation for the nuclear damage as provided in section 6 can exercise this right against others including the supplier¹⁹³. The operator shall have this right in three circumstances. (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. If the supplier provides equipment or material with a patent or latent defects or substandard service the operator can exercise this right. (c) The nuclear incident has resulted from the act of commission or omission of an individual but done with an intention to cause a nuclear damage.

186. *Id.* at section 14(a).

187. *Id.* at section 14(b).

188. *Id.* at section 14(c).

189. *Id.* at section 15(1).

190. *Id.* at section 18.

191. *Id.* at section 16(1).

192. *Id.* at section 16(2).

193. *Id.* at section 17.

j. Establishment of a Nuclear Damage Claims Commission

Having regard to the injury or damage caused by a nuclear incident, the central government can, if it deems necessary, establish a Nuclear Damages Claims Commission (NDCC) for the adjudication of the claims.¹⁹⁴ Similar to an application to the Claims Commissioner, an application to the Nuclear Damages Claims Commission also has to be submitted within three years from the date of knowledge of the nuclear damage.¹⁹⁵ Once a NDCC is established all applications pending before a Claims Commissioner shall be transferred to it.¹⁹⁶

k. Payment of Compensation to the Victims

Once the award is made by the Claims Commissioner or the NDCC, the insurer or any person, as the case may be, who under the contract of insurance or financial security is required to pay shall deposit the amount as directed to the extent of his liability.¹⁹⁷ The Operator shall deposit the remaining amount subject to the extent of his maximum liability.¹⁹⁸ Thereafter within fifteen days the amount so deposited shall be disbursed to such person as specified by the Claims Commissioner or the NDCC.¹⁹⁹

l. Offences and Penalties

Given below are offences and penalties for persons in their individual capacity as well as for persons acted in their official capacity.

	Offence	Punishment
1	Section 39 (1)(a): Contraventions to any rule made or any direction issued under this Act.	Punishable with imprisonment which may extend to five years, or with fine, or with both.

194. *Id.* at section 19. The Act in Chapter V (sections 19 to 38 lays down the qualification, powers, procedures etc of the Nuclear Damages Claims Commission.)

195. *Id.* at section 31.

196. *Id.* at section 33.

197. *Id.* at section 36(1).

198. *Id.* at section 36(2).

199. *Id.* at Section 36(3).

2	Section 39(1)(b): Failure to take an insurance policy or financial security and renewal of the insurance policy or financial security from time to time.	Punishable with imprisonment which may extend to five years, or with fine, or with both.
3	Section 39 (1)(c): Failure to deposit the amount as decided by the Claims Commissioner or NDCC under section 36.	Punishable with imprisonment for a term, which may extend to five years or with fine or with both.
4	Section 39 (2): Failure to comply with the directions issued by the Central Government under section 43.	Punishable with imprisonment for a term, which may extend to one year or with fine or with both.

m. Powers of the Central Government

- (1) To Issue appropriate Directions: Under section 43 the central government can issue appropriate directions to any operator, person, officer, authority or body. Once such a direction is issued the recipient is bound to comply with that direction.
- (2) Power to call for information: Under section 44 the central government can call for any information from any operator, as it deems necessary.
- (3) Power to exempt any nuclear installation from the application the Civil Liability for Nuclear Damage Act, 2010.

VI. Conclusion

When the Civil Liability for Nuclear Damage Bill was introduced in the Parliament of India, on August 25th 2010, the Prime Minister said that it “is a completion of a journey to end the *nuclear apartheid*,²⁰⁰ which the world had

200. The word Nuclear Apartheid has been used by the Prime Minister to denote that because of the Sanctions against India, India has been segregated and victimised by other coun-

imposed on India in the year 1974". Since then India is making all efforts to comply with the international norms and standards so that in the future she can meet her energy requirements. India's policy of using nuclear technology only for peaceful purposes has been recognised by Japan when it decided to enter into a civil nuclear deal with India.²⁰¹

tries.

201. The Economic Times, *Japan Keen on Having Civil Nuclear Deal with India*, available at <http://economictimes.indiatimes.com/news/politics/nation/japan-keen-on-having-civil-nuclear-deal-with-india/articleshow/11279049.cms>.

Bibliography

- Bharat Karnad, *India's Nuclear Policy* (Greenwood Publishing Group, United States of America, 2008).
- Carlton Stoiber, Alec Baer et al., *Hand Book on Nuclear Law* (International Atomic Energy Agency, Vienna, 2003).
- The Energy and Resources Institute, *National Energy Map for India: Technology Vision 2030 (Summary for Policy Makers)* (The Energy and Resources Institute and Office of the Principal Scientific Adviser, Government of India).
- Dhirendra Sharma, "India's Nuclear Estate" 31(4) *Philosophy and Social Action*, 1 (2005).
- Agreement for Cooperation between India and the United States of America Concerning Peaceful Uses of Nuclear Energy (Commonly known as the 123 Agreement).
- The (India) Atomic Energy Act, 1962.
- The (Paris) Convention on Third Party Liability in the field of Nuclear Energy*, 1960.
- The (Vienna) Convention on Civil Liability for Nuclear Damages*, 1963.
- The Treaty on the Non-Proliferation of Nuclear Weapons (NPT)* online at <http://www.un.org/en/conf/npt/2010/npttext.shtml>.
- The Treasure Trove Act, 1878.
- The Civil Liability for Nuclear Damage Act, 2010.
- The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976.
- Indian Express New Papers V. Union Of India*, [1986] 159 ITR 856 (SC).
- Kleindienst v. Mandal*, 33 Law. Ed. 2d 683.
- M.C. Mehta and Anr. v. Union Of India and Ors.*, AIR 1987 SC 1086
- People's Union for Civil Liberties v. Union of India*, AIR 2004 SC 1442
- Reliance Infocom Ltd. v. Chemanchery Grama Panchayat*, AIR 2007 Ker 33.
- Reliance Telecommunications Ltd. v. S.I. of Police* decided on 8.4. 2010 reported at MANU/KE/2352/2010.
- Secretery, Ministry of Information and Broadcasting, Government of India v. Cricket Association of Bengal* [1995] 1 SCR 1036.
- SP Gupta v. Union of India*, [1982] 2 SCR 365.
- United States of America like Zenul v. Rusk*, 14 L.Ed. 2d 179.
- United States v. Richardson*, 41 l. Ed. 2d 678.
- Liability for Nuclear Damage*, World Nuclear Association, online at <http://www.world-nuclear.org/info/inf67.html>.
- Ministry of Power, Government of India, *National Electricity Policy* (2005), online at http://www.powermin.nic.in/whats_new/national_electricity_policy.htm.

Nuclear Energy in India and Foreign Investment, India Juris, online at <http://www.indiajuris.com/nuclear.pdf>.

The Civil Liability for Nuclear Damage Act, 2010, PRS Legislative Research, online at http://www.prsindia.org/index.php?name=Sections&action=bill_details&id=6&bill_id=1042&category=42&parent_category=1.

The Economic Times, *Japan Keen on Having Civil Nuclear Deal with India*, online at <http://economictimes.indiatimes.com/news/politics/nation/japan-keen-on-having-civil-nuclear-deal-with-india/articleshow/11279049.cms>.