



Analysis of Laws Regulating Nuclear Science and Compensating Victims of Radiological accidents in India

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Abstract

Advancement in science and technology especially in nuclear science has emerged as a boon for mankind in the form of Carbon free and clean source of energy. Also nuclear industry in India is growing and is expected to form energy-mix of the country. But at the same time it has turned out to be bane in the form of radioactive accident and pollution endangering individual, property and environment; posing threat to Fundamental Right to live with dignity and to clean and healthy environment. The geographical scope of damage caused by nuclear accident may have national and trans-boundary effects. An unlikely event like nuclear accident may worsen up the situation. Number of legislations at National and Inter-National level have been enacted to provide liability for nuclear damage, compensation to victims of nuclear incident, but such laws are in their nascent stage and suffer from loopholes. The present paper focuses on Constitutional and legislative provisions, international instruments, dealing with radioactive pollution and harmful radiations, principles of environment law for e.g. Polluter pays, Precautionary principle, and Compensatory jurisprudence evolved by judiciary, for sustainable development. i. Certain unaddressed issues pertaining to, whether victims of radiological accident are entitled to adequate compensation and on whom the Burden of Proof lies? ii. Plight of victims of Radiological accident that took place at Mayapuri scrap metal bazaar, New Delhi. iii. Critical analysis of laws regulating radioactive pollution and brings forth its inefficiency to immediately compensate victims of radiological accident. This article mainly focuses on laws regulating radioactive pollutants and radiations. Also in the wake of radiological accident at Mayapuri scrap metal bazaar (in March) at New Delhi it is important to bring forth inefficiency of laws regulating radioactive pollution and to compensate victims of radiological accident.

Keywords: Nuclear science, compensating victims, radiological accident.

Introduction

“We should look at science and technology from justice point of view”. Law, science and technology are diverse fields and differ from each other in their own fashion. Law and science expanded by leaps and bounds within their own arenas but on various occasions their ways crossed and they could not remain aloof from each other. Law has tried to regulate science and science has at times come to rescue law to answer those queries; which law couldn't. Law and technology interact when legal rules foster or retard the development of technology. They also interact when society decides that technology produces undesirable results and employees legal rules to contain or modify those results¹.

Nuclear Science Technology

Nuclear science technology is the study of the atomic nuclei and exploiting its energy for application to serve mankind. It is used in production of electricity, industries, and hospitals. Nuclear power is generated using sustained nuclear fission which endangers tremendous amount of heat used to create steam to turn turbines to generate electricity. Nuclear power is the fourth-

largest source of electricity in India after thermal, hydroelectric and renewable sources of electricity².

The darker side of Nuclear Science

Ionizing radiation can cause serious health effects since it can change chemical properties in the human body. When radiation enters a body, it deposits enough energy that can directly damage DNA or cause ionization of atoms in tissues that would eventually cause damage to critical chemical bonds in the body. Victims exposed to radiations may suffer from 'Acute Radiation Syndrome' also known as radiation poisoning, radiation sickness, and radiation toxicity which is a constellation of health hazards and may last for several months and eventually cause death³. They may also suffer from cataracts, sterility, and fatal genetic effects. A high exposure to radiation can cause serious illness or death.

Environmental Pollution and Radioactive Pollutants

Environment (Protection) Act 1986 defines environmental pollution u/s 2 (c) as “presence of environmental pollutants in natural environment “and environmental pollutant u/s 2 (b) as “Any solid, liquid or gaseous substance accumulated in environment in such quality or concentration which may be

injurious to environment". It further defines hazardous substance u/s 2(e) as "Any substance or preparation which may be chemical physio- chemical likely to cause harm to human being or to environment. Hazardous Wastes (Management Handling) Rules regulate handling of hazardous waste including radioactive wastes covered under Atomic Energy Act, 1972. Atomic Energy (safe disposal of radioactive wastes) rules, 1987, defines radioactive waste as "Any waste material containing radio-nuclides in quantities or concentrations as prescribed by the competent authority by notification in the official gazette."

Exposure to radioactive substance or radiations can occur in number of ways, for e.g. leaks from nuclear power plants, mining of radioactive compounds such as Uranium or improper disposal or transportation of radioactive wastes.

Apex court has recognized this threat at certain instances for example in Irish butter case. In the instant case petitioner had alleged that butter produced at a factory was contaminated by radioactive pollutant from (Chernobyl (U.S.S.R.) nuclear disaster. Supreme Court appointed an expert committee to determine whether it was fit for human consumption. Expert Committee concluded that there was very low level of radioactivity and it was safe. But the question that, whether low level of radioactivity is safe remained unanswered.

Also in M.K.Sharma v. Bharat electronics ltd⁴ issue pertaining to exposure of employees to X-Rays was raised. In this case petitioner claimed compensation alleging that during the course of employment employees was exposed to harmful X-Rays, and respondent employer had failed to provide any safety measures. Supreme Court concerned itself with the health of employees directed medical examination of all workers. The examination conducted revealed that there were no ill-effects. But this fact was not disputed that ill effects took time to manifest and hence employee would have right to compensation in future, if any, ill effect is manifested. During this case, issue of burden of proof was raised, as upon whom the burden of proof shall lie. Recent trend in United States shows that in such cases burden of proof lies on the employer. Whatever may be the outcome, Bharat Electronics case, recognized right of compensation and it also paved way for two benefits⁵ which are; i. Health status of worker shall be periodically done and publicized. ii. Employer must carry and pay for insurance for each worker exposed to radiations.

Laws regulating radioactive pollution

There are number of legislations but significant among them are;

Atomic Energy Act 1962: Under this Act central government has laid down norms to prevent radioactive hazards, guarantees safety of workers, public dealing with radioactive substances and ensures safe and proper disposal of radioactive wastes⁶. Central government has been empowered to form safety rules

pertaining to manufacture transport production and supply of radioactive wastes.

Regulatory Body: Atomic Energy Regulatory Board was constituted on Nov 15th, 1983 by President of India under power conferred to it by section 27 of Atomic Energy Act, 1962 to carry out regulatory safety functions⁷. Regulatory authority was established under rules and notification promulgated under Atomic Energy Act 1962 and Environment Protection Act 1986. This board aims to ensure, use of ionizing radiations and nuclear energy in India does not cause nuclear risk to health and environment. It also lays down guidelines regarding specification of medical X-Rays equipment for room layout of medical-X-rays installment, responsibility of radiological Safety officer, and to appoint Radiological Safety Officer etc⁸. Atomic Energy Regulatory Board is meant to track apparatus in radioactive chemicals used in physics, chemistry and biological experiment in laboratories in India.

During the after math of incident at Mayapuri, it was alleged that Atomic Energy Regulatory Board's performance as regulator of all Non Department Atomic energy radiation related equipment and activities was shoddy and irresponsible. It had no record of radiation emitting equipment.

Radiation Protection Rules, 1971: It prescribes conditions to be fulfilled for giving of license, for handling radioactive material equipment of etc. It prescribes duties of Radioactive Safety officer, Employer, Health surveillance of worker etc. It empowers duly authorized person to investigate, seize radioactive equipment⁹.

Atomic Energy (Safe Disposal of Radioactive Waste) Rules, 1987: It provides, "Any venture using radioactive material must appoint Radiological safety officer". It has been argued that recent incident at Mayapuri was caused due to unauthorized disposal of Gamma cell irradiator by Delhi University as scrap in violation of Atomic energy (Safe Disposable of Radioactive Waste Rules)¹⁰.

Environment Protection Act, 1986: It provides for protection and improvement of environment and matters connected there with. It also pitches for prevention of hazards to human beings, plants and property. Radioactive waste is hazardous to human beings, plants and property.

Indian Penal Code: Section 268 prohibited acts which tend to causes interference with health safety, comfort or convenience of public at large as public nuisance.

Criminal Procedure Code: Section 133 to 144 of Criminal Procedure Code 1973 can be invoked to prevent pollution. Section 133 says magistrate is empowered to pass conditional order for the removal of public nuisance within fixed period of time.

Civil Procedure Code: Section 91 provides right of action in case of nuisance.

Law of torts: Law of torts also prohibits public nuisance and provide remedies such as damages abatement, injunction etc. It also prohibits law of negligence and provides remedies such as compensation and damages.

Right to radioactive pollution free environment and Right to compensation

Constitutional perspective: Article 21 which guarantees right to life has been interpreted by the Supreme Court in *Subash Kumar v/s State of Bihar*¹¹ and *Virender Gaur v/s State of Haryana*¹² to include right to clean and healthy environment

Radioactive pollution certainly endangers clean environment. Article 38 which states State shall strive to promote public welfare also empowers it to take action against those industries who release radioactive wastes. Article 42 stresses that State must make provision to ensure just and human conditions to work. A workplace which exposes its workers to harmful radioactive rays denies human conditions of work. Article 48 and Article 51A- (g) strives to protect and improve environment and imposes duty upon citizens to protect and improve natural environment, respectively. Both Article 48 and Article 51-A (g) were held important and must be taken in to mind when issues pertaining environment are raised¹³.

Polluter Pays: Principle can be applied to polluter who releases radioactive waste and can be held liable, relying upon the famous *Bichhri case*¹⁴.

Precautionary Principle: It imposes onus of proof upon them who use radioactive equipment, that their acts are environmentally benign. In *Shriram gas leak and Bhopal Tragedy case* Principle of absolute liability of employer was recognized.

Right to Compensation: After *Shriram gas leak case* and *Bhopal Tragedy* the plight of victims revealed a need for simple compensation regime that would ensure subsistence to victims.

Government enacted Public Liability Insurance Act, 1991 which gives statutory recognition to "no fault" liability and provides where death or injury to persons or damage to property have resulted, the owner of the hazardous substance, shall be liable. Section 3(2) provides for such relief. Claimant need not prove that death or injury was caused due to wrongful act, negligence or default. Compensation awarded is up to Rs 25,000 for fatal accidents and permanent disablement.

International Perspective

The Paris Convention provides for compensation for injury to or loss of life of any person, and for damage to, or loss of any

property caused by a nuclear accident in a nuclear installation or during the transport of nuclear substances to and from installation¹⁵.

At a *Diplomatic Conference* at IAEA Headquarters in Vienna, 8-12 September 1997, delegates from over 80 States adopted a Protocol to amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage and also adopted a convention on Supplementary Compensation for Nuclear damage¹⁶.

The Civil liability for Nuclear Damage Act, 2010

It sets out detailed procedure to deal with nuclear accident and liability pertaining to it, appointment of Claims Commissioner etc.

Para 7 of statement of object and Reasons says that "Bill is to enact legislation which provides for nuclear liability that might arise due to nuclear incident and also necessity of joining an appropriate international liability regime¹⁷."

But both these legislation failed to immediately compensate victims of Radiological accident at *Mayapuri scrap Market* as Public Liability Insurance Act specially excludes all nuclear including radiological accident. Nuclear material as defined in Bill does not include radioisotopes which have reached the final stage of fabrication so as to be usable for any scientific medical, agriculture, commercial or industrial purpose. Also Bill only covers radiation in the case of a plant accident, and not radiation due to instances of theft, loss or negligent disposal of radioactive equipment, such as in the case of *Mayapuri scrap market*¹⁸. Even if the Act is made applicable to nuclear accidents of such nature, still liability limits are too low by international standards. Section 6 of the Act which quantifies liability, pegs the maximum liability with respect to each nuclear incident at 300 million special drawing rights or around Rs 2100 Crore. At a maximum of Rs 500Cr for the operator, and about Rs 2100Cr for the government, the amount is grossly inadequate in the event of a serious nuclear accident. Among the top nuclear power producing countries, US caps operator liability over USD 11 Billion, while government's liability is unlimited. Japan, Russia and Germany have unlimited liability for both operator and government¹⁹. Section 3 of the Act dealing with the liability arising out of nuclear incident states that AERB shall not notify occurrence of any nuclear incident if it is satisfied that gravity of the threat and risk involved from such incident is insignificant. This provision certainly endangers rights of those person who have fallen victims to such nuclear incident, which according to AERB in insignificant.

Section 45 states that Central Government may by notification exempt any nuclear installation from application of this Act if having regard to small quantity of nuclear material; it is of the opinion that the risk involved is insignificant. It is a well known fact that even small quantity of nuclear material can cause serious health hazards and victims affected from nuclear

material of such installation, won't be able to claim compensation under this Act if such nuclear installation is exempted from its purview by Central Government.

Conclusion

Victim of nuclear radiation needs compensation at the earliest, as delay in medical facility may prove fatal for him. But ironically in India there is no law to ensure immediate compensation to victims of radiological accidents²⁰. Again the basic flaw remains in the law itself as it is nearly impossible to correctly measure damage to the environment and livelihoods. Since the power of determining the damage rests with the government, it may be tempted to value it lower to keep its liability low.

Thus, it could be concluded that there is a further scope for researchers in both the fields i.e. legal and technological. Legal Researchers have to conceptualize the legislation that would redress the victims of radio-active harm and the technical experts have to find the means of alleviating or reducing the effect of harm scientifically.

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