THE NUCLEAR SAFETY REGULATORY AUTHORITY BILL 2011

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Aspects of cost, safety and waste management make the nuclear industry unique; requiring complex and wide ranging partnerships between public institutions and private enterprises. The costs and risks to public are so enormous that government must take an active role in supporting, regulating and monitoring nuclear industry.

In the case of India, it goes to the credit of its scientists and engineers running India's nuclear energy programmes that they managed to keep both the peaceful and military components of the programme going through several decades of international nuclear isolation and technology denial. In their unexceptional endeavour, Government of India was an ally in supporting them financially and strategically and further providing them freedom of action so that they continued to develop their skills and maintained excellence at par with the world's best as far as knowledge base of science and technology was concerned. In the process, the nuclear energy establishments became insular to the public opinion—an attitude which cannot be sustained for long in a society which is intensely democratic and inherently skewed at the levels of development.

World events took a turn and India managed to get an approval from the dominant Nuclear Supplier Group steered by advanced countries like US, Britain and European Union. It became possible, by 2008, to expect flow of nuclear technology, equipment and material to India to give shape to India's ambitious programme of Nuclear Energy in an accelerated manner so much so that an investment of $150 billion dollars was foreseen being made in India by 2020. Equipment and materials suppliers have been buoyant. Scientists and engineers of the Nuclear Energy establishments have been agog and raring to give shape to the Nuclear Projects for

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which sites had already been selected. Even Indian Private Entrepreneurs have been motivated to perceive new opportunities for them.

The ground position in India has undergone sea change since 1969 when India initiated its Nuclear Energy Programme in an atmosphere of technology denial with a sustained government support. The society and media in India have become increasingly involved with a range of questions, and, groups and sub-groups in the society have become conscious of their rights and have learnt to sense denial and accrual of rights in a balanced way. In this task the courts in India have played a significant role in furthering the cause of social justice in liberalised regimes and have played the role of a guardian of the deprived or those facing deprivation. The trust deficit between the public, particularly at the grassroots level, and the Government is widening over many issues such as Land Acquisition and Relief and Rehabilitation of the displaced; loss of traditional employment opportunities as a result of industrial policies. In such a scenario, Government and Nuclear Energy establishments should have foreseen that when there would be additional demand for commitment of financial and physical resources to sub-serve the ambitious Nuclear Energy programme it would have to enter into a dialogue with the communities to win their support and confidence to operationalise the ambitious programmes. The indulgence of public and media towards nuclear energy establishments as was available to them during the days of technology denial regime would not be available any longer. Such institutions can no longer function behind the iron curtain of security and massive public subsidies. Such establishments would be required to bring in transparency in their functioning, and, give double assurance to the public that their safety would be their primary concern and that power would be delivered at affordable prices in view of special and durable risks involved and heavy capital outlays. However, these brilliant men at nuclear energy establishments have yet to learn the art of effective communication and adopt appropriate mannerisms, and in meaningfully demonstrate their action plans to substantiate their claims of safety and cost-effectiveness. After all given the enormity of risks associated with nuclear energy generation, nuclear technology is something which cannot be managed by normal public safety systems, particularly in a thickly

populated country like India which has a very poor record of concern for safety and disaster management as demonstrated at the time of Bhopal Gas Tragedy. In India, a nuclear fallout would assume a dimension several times larger in size and duration. After all, the public's fear is neither misplaced nor imaginary. World has witnessed several major melt downs at Nuclear Energy stations in countries like UK, USA, USSR and Japan and intermediate situations have been faced by almost all nuclear energy centres. Everyone agrees that there would a possibility of an accident in best of the designed reactors having fool-proof safety features but the mere possibility of an accident should not deter deployment of a technology which has many benefits. However, the fallout of a nuclear energy has far reaching consequences and can affect large areas and food chains for a very long period. The costs of combating the fallout are also enormous. Therefore, when there are definite plans to take on such developmental programme, people who are to be affected at various stages of operation need to be taken into confidence, and, each advocacy programme should be monitored on a continuous basis over its lifetime. For historical reasons such an exercise has not been taken up in a meaningful manner even though the Nuclear Energy Programmes are under implementation for the last four decades. Therefore, when the nuclear meltdown struck at Fukushima in Japan on March 11, 2011, there were renewed concerns all over the world about the safety issues relating to nuclear power. Undeterred by such an event as at Fukushima and other similar incidents that had taken place at Windscale in Britain in 1957, Three Mile Island at the U.S. in 1979, and Chernobyl in the Soviet Union in 1986, the Government of India reiterated its resolve to continue with its accelerated nuclear energy programmes. While reiterating its resolve, it assured the people on the following lines:

i) The Department of Atomic Energy and its agencies have been instructed to take a review of all safety systems of nuclear power plants, particularly with a view to ensuring that they would be able to withstand the impact of large-scale natural disaster such as tsunami and earthquakes.

ii) The institution of the Atomic Energy Regulatory Board (AERB) would be strengthened and made truly autonomous and independent. All reactors

would have to be certified by the regulatory authority and this would apply equally to reactors and technologies that are imported from abroad.

iii) There would be greater transparency to India's nuclear establishments, in the interest of society.

The Statement of Prime Minister of India in Parliament on 14th March 2011 assures that India's nuclear safety regulatory framework would be strengthened. Government of India introduced the Nuclear Safety Regulatory Authority Bill, 2011 in fulfilment of the assurance given by the Prime Minister on the 14th March 2011 and currently is before the Parliament Standing Committee for Science and Technology. The Bill is towards replacing the existing AERB with a newly proposed Nuclear Safety Regulatory Authority to strengthen the administration of nuclear safety. While hearing a Public Interest Litigation, on nuclear issues on December 5, Hon'ble Supreme Court is reported to have said, "Have a Public Debate. Come out with a concrete solution till Parliament considers the NRSA Bill and suggest a regulating model or a framework and then we can consider". Adjourning the case, the court advised a study of Regulatory framework on Nuclear Energy in countries like the U.S., France, the U.K. and Canada which could form basis of a suitable recommendation to Government of India. While making these observations the court also observed that it need not agree with the suggestion that regulators in India must be totally independent of the Government because of differences in set-ups with those countries with whom comparison is sought to be made.

While introducing the Bill in Parliament, no statement has been made on behalf of Government whether any consultative mechanism outside the Government with experts and civil society has been made. Indeed, the Bill has been introduced within six months of the assurance held out by the Prime Minister which is indeed a fairly fast follow up on a subject of utmost public importance which impinges on safety of lives and environment.

The NRSA Bill 2011 is towards establishing regulatory bodies to strengthen regulation of radiation and nuclear safety in the country. So far, the legal framework

for the development, control and use of atomic energy has been as contained in the Atomic Energy Act, 1962 which came into effect after the Atomic Energy Act, 1948 was repealed. Atomic Energy Regulatory Board has been in existence since 1983 by virtue of a notification issued under the 1962 Act. AERB is also like its proposed successor body NSRA under the Bill vested with the powers of regulating radiation safety in radiation facilities relating to medicine, industry and research and also for the enforcement of the Factories Act, 1948 in respect of establishments falling under the jurisdiction of the Act of 1962. The AERB is deemed to have functional independence and reports to the Atomic Energy Commission, an executive body under 1962 Act. AERB is also empowered to perform certain functions under the Environmental Protection Act, 1986 and under the Air (Prevention and Control Pollution) Act, 1986. Various Rules have been issued from time to time under the Act of 1962 towards monitoring regulatory aspects in the mining of radioactive minerals and handling thereof, safe disposal of radioactive waste, control of food irradiation and radiation protection. It has developed Consenting Processes for Nuclear facilities at different stages such as Siting, Construction, Commissioning, Operation and Decommissioning. AERB also licenses the operating personnel at different levels in radiation industries. Over the years it has developed its codes of safety and standards, which are implemented and monitored through various specialised committees from plant level to apex level with a built in feedback mechanism with a view to constantly updating. The Committees comprise serving and retired functionaries of the Department of Atomic Energy and other synergetic institutions and also industry. It itself consists of a Chairman, and an ex-officio Member and three part time Members. It has a Secretariat of its own with modest strength of 230. Chairman AERB has recently gone on record to state that even new AERB is an independent body with none of its decisions—including its annual budget of Rs. 25–30 crore—questioned.

Historically, the Regulatory Commission on Nuclear issues had been promoting Nuclear Energy in almost all the countries in the earlier years of development before independent regulators came into being. So the existence of AERB within the ambit of Nuclear Energy establishments in India is in no way an exception. Rather the

global circumstances under which Nuclear Energy technology developed in India, it was in the fitness of things that AERB has been within the system promoting the Nuclear Energy. In fact, the Nuclear Energy establishments in India have themselves been conscious of the safety aspects right from the initial years of development. DAE-SRC was set-up way back in February 1972 to offer advice to DAE on safety matters related to commissioning of and operation of Unit-1, of Rajasthan Atomic Power Station (RAPS). DAE itself provided experts for this committee from within the organization. The concept of having DAE-SRC was contained in the Project Report (RAPS) finalised in December 1969. The safety regulatory review was formalised in 1975 on the reconstitution of SRC whose mandate was extended to all aspects relating to safety of operations in DAE Units. In 1979, DAE on its own initiative set up a Committee to review the mandate of SRC and reporting mechanism by various units within DAE to the SRC. Its term of reference also included sensitizing the employees of DAE in all its units and PSU's about the safety aspects and safe functioning. Its report became available in 1981 which recommended setting up a statutory body under the Act to give AERB a legal basis and to assist DAE in framing Rules and Regulations for enforcing regulatory and safety standards. It would be worth recalling an observation/recommendation of the Committee:

> **"In order to enable AERB to function effectively and exercise its authority in an independent manner it should be constituted by and reporting to the Atomic Energy Commission and should consist of senior persons from DAE as well as external members. In this manner public confidence in nuclear safety matter would be enhanced,"** (emphasis added)

AERB was thus finally born in 1983 outside DAE with mandate of enforcement of radiological protection in radiation installation.

Traversing through the memory lane as described above, it appears that nuclear energy establishments have themselves a demonstrated and proven track record of safety concerns. These establishments have been conscious of winning public confidence and also having outside experts to oversee and guide their affairs from a broader perspective. Somewhere down this lane, their demonstrated willingness to

open with the public and opinion makers has not measured up to the heightened pitch of expansion of Nuclear Energy programmes. Such a communication gap has even given emergence to an opinion that the AERB in its present form is not functionally equipped to ensure the enforcement of the emerging safety and security concerns arising out of the accelerated nuclear energy programmes of the government which necessarily require developing stringent standards specific to different types of reactors being sourced from different manufacturers. It has also been perceived that the existing set-up in AERB cannot take independent objective decisions in regard to standards and safety as it is an adjunct body of the Nuclear Energy establishments and hence Government. An opinion also exists that the present AERB and Nuclear Energy establishments have been lacking transparency in their action and decisions. AERB also does not have its full fledged manpower of scientific capabilities or in-depth experience required to carry out much of the safety analysis and evaluations. Almost 95% of the members in AERB's review and Advisory Committees are drawn from among retired employees of the DAE, either from one of their research institutions like the BARC or a power generation company like the Nuclear Power Corporation of India. Regulatory reviews by such inbred bodies cannot inspire confidence among those who would like such committees to have no conflict of interest.

Japan has since submitted a 750 page report on the Fukushima accident prepared by its Nuclear Energy task force to the International Atomic Energy Agency. Some of the findings of their Task Force are as follows:

a) Japan was ill prepared for a severe nuclear accident like the tsunami caused Fukushima disaster and damage to the reactors and radiation leakages were worse than previously thought;
b) The reactor designs were inadequate;
c) There is a case for more independent Regulators;
d) There is a felt need for revision of nuclear safety preparedness and response;
e) A national debate on nuclear issues is desirable;

f) The accident has forced 80,000 residents to evacuate from the plant's neighbourhood;

g) Division of responsibility by several government agencies delayed decision-making;

h) It is not prudent to leave accident management measures to the operator's voluntary effort. It should be made legally binding;

i) Accident management guidelines have not been reviewed or improved since being introduced in 1992.

The above findings emphasise a need for informed debate on nuclear energy. The exclusiveness of the Nuclear Energy establishments should give way to exchange of dialogues among communities, community leaders, sociologists, environmentalists, economists, health scientists, political leadership and nuclear scientists with a view to arrive at consensual strategies to harness this source of energy balancing with costs, safety, health and environmental concerns. Given the enormity of the risks associated with nuclear power generation, it is not something which should be left to nuclear technologists alone.

Before an analysis is made of NRSA Bill 2011, it would be instructive to go through the feature of corresponding regulatory authorities of some other countries like, say, Canada, USA, France and European Union and the emerging thinking in Japan.

The Canadian Nuclear Safety Commission (CNSC)

CNSC regulates the use of nuclear energy and materials to protect the health safety and security of Canadians and the environment; and to implement Canada's international commitments on the peaceful uses of nuclear energy.

It was established in 2000 under the Nuclear Safety and Control Act and reports to the Parliament through the **Minister of Natural Resources.** CNSC replaced the former Atomic Energy Control Board (AECB), which was founded in 1946.

CNSC Commission has 7 permanent members with tenure of 5 years and has a support base of 800 employees who assist the Commission towards reviewing the applications for licenses as per the Regulatory requirements and accord their recommendations for the Commission to consider. The employees also enforce compliance with the Act, regulations and licensing conditions. The Commission can have temporary Members also for a term of six months. The appointment of Members is made by Governor General in Council. One of the Permanent Members is appointed as Chairman. The Commission is a court of record with powers corresponding to a Civil Court and thus can summon persons and record and take evidence, etc. There are no specific qualifications prescribed for Members and the suitability is thus left to Governor in Council.

Illustratively, brief profile of existing members is as follows:

1. **Michael Binder** – President and CEO has held positions in the Federal Public Services at Industry Canada, the Department of Communications, the office of Comptroller General, Canada Mortgage and Housing Corporation, Defence Research Board. Has a PhD in physics.

2. **Dr Ronald Barriault –** He has been a practising medical professional in the private sector as well as in the government sector and has also worked in Industries like Imperial Oil Limited, Mining and Smelting, and Canadian Railway. He has been in the field of Public Health as well. He is also a member of Canadian Medical Association.

3. **Ms Jocelyne Beaudet –** She is an anthropologist by profession with experience in various fields related to environment and public participation. She has been part of strategy development in Climate Change and Air pollution; National Round Table on the Environment and Economy.

4. **Mr Alan R. Graham** – First appointed in 1999 to the Atomic Energy Central Board and has since been reappointed to the CNSC. He is a long term community activist; has served as an MLA for 31 years; was Minister of

Agriculture and Minister of Natural Resources and Energy; and also Deputy Premier of New Brunswick.

5. **Mr Andre' Harvey** – He is a Civil Engineer and an M.Sc. in Water Management. He has been with agencies responsible for public part of the environmental evaluation and assessment process. He has been a Director General of Water Resources, Director General of the Environment and Economy.

6. **Dr J. Moyra J. McDill** – She is a Mechanical Engineer. She has contributed to the developments of special elements and techniques useful in analysing welds, heat transfer and stress in manufacturing processes.

7. **Mr Ken Pereira** – Is a mechanical engineer and has worked as design engineer in the aircraft industry; R&D work in Steel Industry and practising consulting engineer. From 2002 to 2007, he was with CNSC as Vice-President. On retirement, he was made a member of the CNSC. He is an expert on Safety standards.

8. **Mr Dan D. Tolgyesi** – He is a Mining Engineer and Mineral Economist and has an experience of 30 years in Mining Industry. He has been associated with the safety of workers in the mining industry.

Thus, the Commission is a multi disciplinary Board and is not the sole preserve of nuclear scientists and engineers. Transparency and Public interactions is a distinguishing feature of CNSC. The Commission Tribunal makes the decision on the licensing of major nuclear facilities through public hearing process. The public hearing gives involved parties and members of the public an opportunity to be heard before the Commission. Following a public hearing, the Commission Tribunal deliberates to make a decision in the matter. The meetings of the Commission are made public. Elaborate rules have been provided on the conduct of Public Hearing Processes. Public hearings and meetings are web cast. Members of Public can

intervene in the hearings. Besides the CNSC encourages aboriginal interests that they feel may be affected by a proposed project or an activity regulated by CNSC.

CNSC is at the advanced stage of formulating a funding scheme for participants in public hearing. The CNSC communicates pro-actively with external stakeholders, including individuals, community groups, public interest groups, NGO's, professional and scientific associations, etc. In Canada there is a well established Canadian Association of Nuclear Host Communities, which is a non-for-profit organisation that has been set up to facilitate interaction between CNSC and those individuals and groups who are staying around the vicinity of nuclear establishments. CNSC maintains an open line of communication with this association (CANHC).

Respect for public opinion is evidenced from their Press release dated 21st December 2011 inviting Public Comment on the CNSC Staff Action Plan CNSC Fukushima Task Force Recommendations. A revised Action Plan would be presented by CNBC after the public comments are received at a public meeting when public would be free to give their interventions which would enable further updating of the Action Plan. It would be expedient at this stage to compare the treatment accorded by the Indian Agencies looking into steps taken since the radiation leak at Fukushima in regard to the Safety Review of Indian Nuclear Reactors. The recommendations made were straight away taken to the Cabinet Committee of Security which gave its directions there on without ordering inviting comments and also without precisely explaining to the public the nature of recommendations made and framework of implementation of the same. An opportunity of reassuring the public that Nuclear Energy Establishment would initiate transparency in their actions henceforth has been missed which would contribute to the widening of deficit of confidence between the Public and Nuclear Energy Establishments.

The US Nuclear Regulatory Commission (NRC)

The NRC was constituted under the Energy Reorganisation Act 1971 in replacement of the Atomic Energy Commission, as an organisation with considerable independence in Nuclear Regulatory and licensing matters. NRC has five

commissioners, of whom no more than three may be members of the same political party. The U.S. President, with the approval of the Senate, appoints them for a period of 5 years and they are not to engage in any other profession during their tenure. The President appoints one of the Commissioners as Chairman who becomes the Chief Executive officer and official spokesperson of the Commission. Functionally each commissioner has equal powers and decisions are taken by majority. A Commissioner is removable only for neglect of duty, inefficiency or malfeasance in office, and the removal is to be ratified by Senate.

The Commission would, under the statute, have directorates such as office of Nuclear Reactor Regulation, office of Nuclear Material Safety and Safeguards and Office of Nuclear Regulatory Research who would be directly reporting to the Commission in respect of duties as specified in the Act but not necessarily limited to the same. Under such extended and flexible provisions of the Act, the Office of New Reactors (NRO) was created in 2006, to ensure the safety of any new nuclear reactor facility of US or foreign design, even before a license application is entertained to build the first of its kind on US soil. For such reactor installations, the NRO is responsible for pre evaluation and regulatory activities in the areas of siting, licensing and oversight to protect public health, safety and the environment. One of the first steps in the NRC evaluation is a 'design certification' for approval of a standard nuclear plant design of that type, independent of a specific site approval application or application to construct or operate a plant. The design certification application to NRC from the reactor manufacturer will have to have details of similar to what is normally expected in a final safety analysis report for an established reactor type. The application to the NRC from the manufacturer must also include a detailed probabilistic risk analysis and evaluation of design alternatives to mitigate the impact of severe accidents. AREVA, the French developer of the European Pressurised Reactor (EPR), has desired to sell four of their EPRs to the US facilities for some time now, but they are still waiting for the NRC to complete a design certification of EPR for building in the US, even though Finland, France and China are in different stages of constructing EPRs. India has already taken a decision to buy six EPRs for Jaitapur site.

NRC has also an Advisory Committee on Reactor Safeguards (ACRS) which has been constituted under the 1972 Federal Advisory Committee Act, which ensures that it would be balanced in terms of views on the functions assigned to it. The 15-member ACRS provides uninfluenced advice on potential hazards of the proposed or existing facility, the adequacy of proposed standard, and on such other matters that NRC may request. **Most of the deliberations of ACRC are open to the public and any member of public can make his submissions to the Committee in their meeting**.

Even the siting of Nuclear Reactors is based on Nuclear Energy Centre Site Survey as per the statutory provisions provided in Section 207 of the Energy Reorganisation Act of 1974. **Such a survey shall be conducted in co-operation with other interested Federal, State and local agencies, and, the views of interested groups and others shall be solicited and considered**. The survey shall include: a regional evaluation of natural resources, including land, air and water resources, available for use in connection with nuclear energy centre sites; estimates of future electric power requirements that can be served by each nuclear energy centre site; an assessment of the economic impact of each nuclear energy site; and consideration of any other relevant factors, including but not limited to population distribution, proximity to electric load centres and to other elements of fuel cycles, transmission line rights-of-way, availability of other fuel resources. Besides there would be evaluation of environmental impact likely to result from construction and operation of such nuclear energy centres, including an evaluation whether such nuclear energy centres will result in greater or lesser environmental impact than separate siting of reactors and for fuel cycle facilities. The sites survey would exclude National Parks, National Forests, National Wilderness areas, and the National Monuments.

Such a survey report about probable sites is transmitted to Congress and the Council on Environmental Quality and also published. The list of sites which get the final nod would be published. NRC is authorised to adopt policies which would encourage the location of nuclear power plants so identified.

NRC has come to establish a system of involving public interest groups and independent experts to attend the Commission meetings on rule making, Licensing,

Enforcement, etc., for which Meeting Schedules are published. The proceedings of meetings are webcast and archives of such webcasts are available. The website of NRC has elaborate information about the manner and scope of Public Hearings. The website also contains a transparent list of issues which cannot be subject to Public Meetings.

USNRC also has Emergency Preparedness and Response programmes enabling emergency personnel to rapidly identify, evaluate and react to a wide spectrum of emergencies, including those arising from terrorism or natural events such as hurricanes. The Response Programmes of NRC integrates the NRC capabilities for the response and recovery of radiological incidents and emergencies involving facilities and materials regulated by the NRC. Under National Response Framework, the NRC will Co-ordinate with other Federal, State, and local emergency organisations in response to various types of domestic events. NRC emphasises the integration of safety, security and emergency preparedness as the basis of NRC's primary mission of protecting public health and safety. Emergency Preparedness and Response processes remain under review and are revalidated. Public Meetings and Workshops are also held and related information is disseminated on a regular basis.

Nuclear Safety Authority (ASN) of France

In 2006, France enacted a legislation named as Transparency and Security in the Nuclear Field (TSN Act, 2006) creating an independent Nuclear Safety Authority (ASN), answerable directly to the French parliament ensuring ASN's independence from any governmental structure charged with promotion of Nuclear Energy. The ASN Board has 5 Members with tenure of six years for their competence in the field of nuclear safety and radiation protection. Three Members, including Chairman are nominated by Prime Minister while the other two are appointed respectively by the President of National Assembly and President of the Senate. The TSN Act contains a full chapter on "Information of the Public as Regards Nuclear Safety". Article 18 says: "The State is responsible for informing the public about the procedures and results of the surveillance of nuclear safety and protection". Article 19(1) states: "Any

person is entitled to obtain from the licensee of a basic nuclear installation – the information held – on the risks related to ionising radiation that can result from this activity and on the safety and radiation protection measures taken to prevent or reduce these risks or exposures". And, Article 19(2) states: "Pursuant to this Article, disputes relating to refusals to communicate information are brought before the administrative court in accordance with the procedures set forth".

Another Unique feature of the French Law is that it spells out in detail the instruments and procedures through which this openness is to be fully implemented. It does not leave any room for the nuclear operator or government for evading their responsibility. Article 22 is a step by step recipe to form local Information Committees (LICs) in the neighbourhood of each nuclear facility site with wide ranging membership of officials of local self government, local members of Parliament and State Assemblies, Local Economic and Commercial interest groups, Local trade union representatives local medical doctors and environmentalists, etc. Each Committee will be framed by the equivalent of our District Magistrate (Prefect) while the ASN representative, the representatives of the facility and the state services involved shall attend in advisory capacity. In pursuit of its mission, the LIC can have assistance in consultancy services to get epidemiological studies done or to have any measurements or analysis of the environment made. All LIC expenses are met by the State. All relevant safety-related information sought by the LIC will have to be provided, within a stipulated time, by the facility management.

Article 23 of the Act has created, at the National level, a High Committee for Transparency and Information on Nuclear Security, as an autonomous body. This Committee may be called upon to examine any matter relating to information concerned with nuclear safety and its control, by the Ministries responsible for nuclear safety, the Chairpersons of Parliamentary Committees, Chairpersons of LIC, or the operators of installations. The opinions and the Annual Report of the High Committee are Public. Persons responsible for promoting nuclear activities, the

Nuclear Safety Authority and other government departments have to furnish all information and answers sought by the Committee.

United Kingdom

The operation of nuclear facilities in the U.K., like their counterparts in other industries and places of work in general, are required to comply with the Health and Safety at Work Act 1974 (HSW Act). Under this Act primarily the obligation is cast on the operators to ensure health and safety of not only their workers, but also of those who are not their employees. A nationally Constituted Health and Safety Commission (HSC) ensures the implementation of the act by proposing new laws and standards, conducting research, providing information and advice, and controlling dangerous substances. HSC reports to the Secretary of State for Work and Pensions, though on specific matters it may report to other Ministries as appropriate. On nuclear safety matters relating to Civil Nuclear reactors and sites, it reports to the Ministry of State for Trade and Industry and on defence related nuclear issues it reports to the Ministry of Defence. HSC is advised on Nuclear Issues by the independent Nuclear Safety Advisory Committee (NSAC). The executive functions of HSC are carried out by the Health and Safety Executive (HSE) and HSE is the licensing authority of nuclear installation under the Nuclear Installation Act. Nuclear Safety Directorate (NSD) has been built up to secure effective control of health, safety and radioactive waste management at nuclear sites to protection of the public works and to further public confidence in the nuclear regulatory system by being open about what they do. Day to day exercise of HSE's licensing functions is carried out by the Nuclear Installations Inspectorate (NII) in the NSD. This Inspectorate has laid down stringent procedures and requirements for the operators to comply at every stage, from site selection to commissioning, operation and decommissioning. The design requirements specific to the site are to be certified by NII at various stages of the development of the reactor. The operation has to place in position their health and safety plans with demonstrated competent manpower and equipments. **The salient feature is that before a site is considered for licensing, there is be a detailed public enquiry inviting all the stake holders including locality representatives and also**

local bodies to offer their views. While deciding upon the site, due regard is taken of the relocation of population and institution.

Public involvement in nuclear safety issues is the call of the **European Nuclear Safety Regulations Group** and U.K. is also part of this Group. This Group advocates that all the institutions that contribute in some way to regulating nuclear safety, EU and its members are committed to transparency including plans for a proposed new power plant.

Japan

Post Fukushima, Japan is establishing a new nuclear safety agency under the Ministry of Environment and it would replace the Nuclear and Industrial Safety Agency (NISA), the current regulatory body under the trade ministry, and take on related tasks including environmental radiation monitoring that is currently carried out by other organisations. The idea of over hauling the safety regulators emerged amid allegations that NISA is tied too closely to Ministry of Trade—where job is to promote nuclear power as a safe form of energy—to effectively do its job. The Japanese Government had admitted to IAEA post Fukushima that the current system made it difficult to respond to emergencies. The proposed legislation under consideration in Japan would be a break away from NISA and its regulatory functions which have always been undermined by the association of promoter of the nuclear industry. The new agency would have a clear mandate to have specific arrangements to supervise the response of nuclear power plant operators in emergencies and provide advice to them, and further to take charge of ensuring the safety of local residents during disasters.

NSRA Bill 2011

The Bill was introduced in September 2011 in pursuance of a statement by Prime Minister of India following the mishap at Fukushima assuring the Nuclear Regulatory Authority would be made autonomous and thus more accountable to public in

regard to safety and public health concern arising out of nuclear installations. Such an assurance would translate in plain words that the Nuclear Regulator replacing the existing one would be relatively free from governmental control in regard to its funding and functioning and would have a broader reach on the nuclear installations, their siting and designs.

The preamble of the Bill and the explanation at clause 20(1) declare that the functions of the NRSA shall be confined only to ensure the radiation safety and nuclear safety **during activities** relating to production, storage, disposal, transport, transfer by sale or otherwise, etc., and in no case shall extend to functions or any matter which the Central Government is required to discharge under the Atomic Energy Act. Thus, the NRSA is to keep itself aloof from the siting and designing aspects of the Nuclear installations and the nuclear mining. It would remain dependent on Central Government for obtaining information on almost all the aspects in terms of Section 18 of the Atomic Energy Act, 1962 even though such an information may be necessary for NRSA to discharge even the limited functions assigned to it under the proposed bill as safety guidelines and safety aspects would have to be site specific and design specific and thus would stand handicapped in complying in spirit its obligation of ensuring transparency by systematic outreach on matters relating to nuclear safety in terms of clause 20(2) (C) of the Bill which otherwise itself imposes severe restrictions on such outreach because of conditionalities enumerated therein. While discharging its various other obligations under the various sub-clauses of 20(2) in the Bill, it would be severally handicapped in the absence of its association with the details of siting, composition of surrounding populations and the degree of fragility of environment around and special design features, etc. The optimality of safety plans would be dependent on such external factors and also on the extent of obligations been placed on the operator in terms of specific designs and sites.

For sponsoring a meaningful research on long term effects of low radiations on the employees and on surrounding populations and environment, it would be required to facilitate the transfer of data overcoming confidentialities involved to

independent research institutions and seek through such research an assurance that safety and health measures being practised are effective in the long run as well. For creating such facilitation, NRSA would continue to be dependent on the Government and its commercial arms. Thus, its advice to Government in terms of its obligations under clause 20(f) and 20(g) would be dependent on the freedom it enjoys in obtaining data from Government controlled establishments.

Though it has been obliged to develop and notify standards and codes and develop and publish other supporting documents for safety in design, siting, construction commissioning, operation, etc., under clause 20(K) of the Bill, the NRSA itself would not remain associated with the actual design and site selection and thus would have to assume that its codes and standards are being implemented and would not be in a position to collect vital data on its own or through its designated agencies.

The role of the NSRA in nuclear emergencies also remains peripheral limited to the extent of apprising National Disaster Management Authority (NDMA) regarding the measures NDMA should be taking in such situations. Taking into consideration that ultimate brunt of a disaster would be felt by the public at large and state Governments and its agencies, particularly the State Public Health Services, no role has been specifically assigned to NSRA to take up advocacy programmes on its behalf to sensitise the state agencies and the populations towards upgrading their skills in managing the safety during emergencies if situations arise.

There is no specific mandate in the Bill to conduct certain public hearings when it is considering application from the parties in regard to their proposed radiation and nuclear related matters. Such an omission seems glaring in the developing bias in favour of transparency on an issue which is of vital concern to public. In fact, there needs to be a provision that even during routine inspection of the sites from radiation safety angle, interaction with public and their representatives should be essential. In fact, there needs to be a provision to sponsor plant level public Committees under the joint care of local and plant administration as in France.

The Bill envisages a Council of Nuclear Safety (CNS clause 5) of which Prime Minister would be the Chairperson and would include as many as five other Union Ministers ex-officio with the flexibility of having more Union Ministers. Besides, it would include Cabinet Secretary and Chairman of Atomic Energy Commission. Government may add eminent experts to this Council as it deems proper. This Council would oversee and review the policies with respect to radiation safety.

Under clause 8 of the Bill, Nuclear Safety Regulatory Authority (NRSA) would be constituted to perform functions as mandated in the Bill. It has been clarified that in its functioning NRSA would be autonomous by itself and would not be affected by the mandate of CNS. NRSA would have a Chair person, two whole time Members and a maximum of 4 part time Members. Such Members would be selected by a Search Committee of experts in the field of science, engineering and technology and would be constituted by CNS. Chairperson and Members of NRSA would have to be experts in one of the broad areas of Nuclear Science and Technology and other specialisations like environment, earth sciences, engineering, Industrial plant safety, etc., (Clause 9 & 10). The Tenure of the Members would be 3 years.

Under the scheme of proposed legislation, NRSA is a creation of the Government in the Department of Atomic Energy which is under the Prime Minister. The Chairman of CNS is also the Prime Minister. Final notification of the NRSA would be given by the Government which would be after the approval of ACC of which PM is the Chairman. The Selection process is also through a search Committee of experts composed by CNS. The NRSA remains under the Administrative control of Department of Atomic Energy for its funding and also for its staffing. It cannot appoint any expert or other staff without the approval of the Department of Atomic Energy. There is no role of leader of opposition in appointment of the Chairman and Members. NRSA, as per the qualification of its members, would be a body of experts and in all likelihood it would be composed of scientists and engineers of the Atomic Energy Establishments as not many experts in the narrow fields spelt out are available elsewhere.

The Appellate Authority as constituted under clause 35 shall be appointed by the CNS by notification (not government?) and selection would be made by the Council in consultation with Chief Justice of India or his nominee. Though the Chair person of the Appellate Authority would be equivalent to a Judge of the Supreme Court, other two Members would be Scientists who have been Secretaries to Government of India. Thus, the Judicial Appellate Body would also be dominated by scientific community as it is expected in their decision-making, the powers of Chairman and other Members of the appellate body are equal and decisions would be by majority (though not specified in the Bill). Thus, even at the appellate level the decisions of the experts would be reviewed with majority input of experts.

In the preceding paragraph, the limitations as brought out in clause 20 of the Bill have been amplified and the constraints on the NSRA even in discharging its limited mandate have been highlighted. In fact, Mandate of NSRA remains similar to what has been that of AREB which it proposes to replace. Further NSRA would be administratively dependant on DAE, the department responsible for promoting nuclear energy. The practice developing in the advanced countries is that the Safety Regulator should be reporting to Parliament through another Ministry. In India as well such a system prevails, e.g., Mines Safety is with the Ministry of Labour.

The explanation in clause 8 of the Bill that the authority would be autonomous is not supported by the scheme of the Bill as it stands. Rather it has to take note of policy dictate of CNS which has also been made a statutory body under the same Bill to lay down and review the policies of Nuclear Safety and is in the nature of a Cabinet Sub Committee. The Bill does not clarify the need of its existence in the statute when it is a policy laying body, which is essentially a political function in relation to nuclear safety and should essentially be in the domain of an appropriate committee of the Cabinet. Its only exclusive role has been indicated at clause 35 which is towards notifying The Appellate Authority, a function that could and should have been with the Central Government. Doesn't it look somewhat misplaced that appeal against the orders of a body constituted by Central Government is proposed to be heard by a body constituted by a Council!

NRSA and Appellate Body are both dominated by hard core scientists who have been directed in the statute to handle legally nebulous subjects like national sovereignty, national defence and security, public order, decency, morality, friendly relations (cl. 3, 21, 42) and have to perform their functions keeping such considerations. Mention of such limitations on authorities in the Bill is unique and needs a careful analysis when these are to be weighed against the fundamental rights of the citizens such as right to life and personal liberty (Article 21). What happens if an agreement which has been entered into with a friendly country to bring a nuclear reactor and the regulator has reasons to believe that he should be booking into safety aspects? Similarly, in regard to certain sites, if the environment clearances have been obtained decades back and since then its environment has been stressed by other projects which have come up, should the authority keep off in the name of public order, decency or morality or in the public interest! Should the mere notification of Government silence him even though his scientific based concerns may dictate him otherwise in the interest of life, safety and health of the citizens?

Perhaps the Bill in its present form falls short of expectations of safety and public health and is out of sync with the international legislations of advanced democracies. The Bill in its present form has been drafted in haste as an in house effort of the Department of Atomic Energy by itself without generating a public debate and consultation among stake holders.

Public Safety and Public Health is the concern of public in relation to a technology which is a miracle in terms of benefits, but can impact large populations, vast areas and food chains if application of such a technology results in emergencies. Legislative formulations of such wide concerns of long duration need to be finalised after incorporating the best legislative provisions crafted indigenously (taking note of density of population and dwindling water resources in India) and also borrowing from the legislations of other advanced democracies where the right of public to be associated has been recognised within legislations and the functions of promoters and regulators have been clearly demarcated.

The advice of Hon'ble Supreme Court has come at an opportune moment with its clear desire to accord supremacy to the Parliament in the business of legislation and yet it is alive to its role as protector of the lives of citizens as ordained under Article 21. It is one subject on which the Parliament should be legislating after meaningful debates have taken place and drafts are considered by its Committees which have been firmed up by the drafting Committee of experts and other stakeholders together. There is no room for half-baked legislations on such important issues.

Standing Committee on Parliament to whom this Bill was sent for its recommendations should advise the Government should withdraw the proposed Bill. Instead, a fresh Bill should be brought in its place after a joint endeavour in drafting and incorporating views of all the stakeholders, public interest groups and provisions of similar legislations elsewhere which may fulfil the objectives of public safety and public concern.