IN THE SUPREME COURT OF INDIA
(CIVIL ORIGINAL JURISDICTION)

Writ Petition (Civil) No. ..... of 2011

PUBLIC INTEREST LITIGATION

IN THE MATTER OF:

COMMON CAUSE
THROUGH ITS DIRECTOR
5, INSTITUTIONAL AREA
NELSON MANDELA ROAD
VASANT KUNJ, NEW DELHI-110070 …PETITIONER NO. 1

CENTRE FOR PUBLIC INTEREST LITIGATION
THROUGH ITS GENERAL SECRETARY,
43, LAWYER'S CHAMBERS,
SUPREME COURT OF INDIA
NEW DELHI-110001 …PETITIONER NO. 2

DR. E A S SARMA
(FORMER POWER SECRETARY, GOVT. OF INDIA)
14-40-4/1 GOKHALE ROAD
MAHARANIPETA, VISHAKHAPATNAM-530002 …PETITIONER NO. 3

MR. T S R SUBRAMANIAN
(FORMER CABINET SECRETARY, GOVT. OF INDIA)
74, SECTOR 15-A, NOIDA-201301 …PETITIONER NO. 4

PROF. T SHIVAJI RAO
(EX-MEMBER, A.P. POLLUTION CONTROL BOARD)
DIRECTOR, CENTRE FOR ENVIRONMENT STUDIES
VISHAKHAPATNAM-530045, A.P. …PETITIONER NO. 5

MR. N GOPALASWAMI
(FORMER CHIEF ELECTION COMMISSIONER)
FLAT NO.5, DOOR NO. 39, GIRI ROAD
T. NAGAR, CHENNAI-600017 …PETITIONER NO. 6

MR. K R VENUGOPAL
FORMER SECRETARY, PRIME MINISTER
H. NO. 79, ROAD NO. 14
BANJARA HILLS, HYDERABAD-500034 …PETITIONER NO. 7

DR. P M BHARGAVA
(FORMER MEMBER, NATIONAL KNOWLEDGE COMMISSION)
FOUNDER, CENTRE FOR CELLULAR AND MOLECULAR BIOLOGY
UPPAL ROAD, HYDERABAD …PETITIONER NO. 8

ADMIRAL LAXMINARAYAN RAMDAS
(FORMER CHIEF OF NAVAL STAFF)
BHAIMALA VILLAGE, P.O. KAMARLE
ALIBAG-402201 (MAHARASHTRA) …PETITIONER NO. 9

MR. SURJIT DAS
(FORMER CHIEF SECRETARY, UTTARAKHAND)
66, NEW MOTI BAGH, NEW DELHI-110023 …PETITIONER NO. 10

DR. P VISHNU KAMATH
PROFESSOR, DEPARTMENT OF CHEMISTRY
CENTRAL COLLEGE CAMPUS
BANGALORE UNIVERSITY, BANGALORE …PETITIONER NO. 11

DR. K BABU RAO
SENIOR SCIENTIST (RETD.)
INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY
UPPAL ROAD, HYDERABAD-500607 …PETITIONER NO. 12

PROF. N VENUGOPAL RAO
FORMER HEAD, DEPT OF ENTOMOLOGY
AGRICULTURAL UNIVERSITY, HYDERABAD
CHANDRAMOULI NAGAR, 7TH LINE, GUNTUR …PETITIONER NO. 13

DR. N BHASKARA RAO
FOUNDER, CENTRE FOR MEDIA STUDIES
SAKET COMMUNITY CENTRE
NEW DELHI-110017 …PETITIONER NO. 14

MR. S K GOUSE BASHA
JANA VIGNANA VEDIKA
HIG BLOCK NO. 4, FLAT 2
BAGH LINGAMPALLY, HYDERABAD-500044 …PETITIONER NO. 15

VERSUS

UNION OF INDIA
THROUGH ITS SECRETARY
DEPARTMENT OF ATOMIC ENERGY
ANUSHAKTI BHAVAN, CSM MARG
MUMBAI-400001 … RESPONDENT NO. 1

ATOMIC ENERGY REGULATORY BOARD
THROUGH ITS CHAIRPERSON
NIYAMAK BHAVAN, ANUSHAKTI NAGAR
MUMBAI-400094 … RESPONDENT NO. 2

NUCLEAR POWER CORPORATION OF INDIA LTD
THROUGH ITS CMD
NABHIKIYA URJA BHAVAN
ANUSHAKTI NAGAR, MUMBAI-400094 … RESPONDENT NO. 3

UNION OF INDIA
THROUGH ITS SECRETARY
MINISTRY OF ENVIRONMENT & FORESTS
PARYAVARAN BHAVAN, CGO COMPLEX
LODHI ROAD, NEW DELHI-110003 … RESPONDENT NO. 4

A WRIT PETITION IN PUBLIC INTEREST UNDER ARTICLE 32 OF THE CONSTITUTION OF INDIA SEEKING APPROPRIATE WRIT FOR DECLARING NUCLEAR LIABILITY ACT OF 2010 AS UNCONSTITUTIONAL, FOR SAFETY RE-ASSESSMENT AND COST-BENEFIT ANALYSIS OF ALL NUCLEAR FACILITIES IN INDIA, AND OVERHAUL OF THE DYSFUNCTIONAL REGULATORY SYSTEM

To,

THE HON'BLE CHIEF JUSTICE OF INDIA AND HIS COMPANION JUDGES OF THE HON'BLE SUPREME COURT OF INDIA

The Humble Petition of the
Petitioners above-named

MOST RESPECTFULLY SHOWETH: -

1) The petitioners are filing the instant writ petition in public interest challenging the Constitutional validity of the Civil Liability for Nuclear Damage Act, 2010, seeking a safety reassessment of all nuclear facilities in India, and a

comprehensive long-term cost-benefit analysis of the nuclear plants in India. This petition seeks a stay on all proposed nuclear plants till the safety and cost-benefit analysis is carried out. This petition also seeks certain other reliefs in the interest of right to life, right to clean environment and right to healthy & safe enjoyment of life. It is to be noted that a nuclear accident or leak of radiation can cause large-scale damage to life and health in a densely populated country like India. This petition highlights how under the pressure of foreign countries and the multi-billion dollar nuclear industry, the Government has been pushing forward an expensive, unviable and dangerous nuclear power programme without proper safety assessment and without a thorough comparative cost-benefit analysis vis-à-vis other sources of energy, especially renewable sources. Most of the nuclear reactor and equipment imports for which orders are being made are of extremely dubious quality and safety standard. This petition uses the proposed Jaitapur nuclear power plant (considered to be the world's largest) as a case study to highlight the mindless decision-making in recent times. The virtually non-existent regulatory system in India has also ignored the warning signs from the recent nuclear disaster in Japan.

2) The recent Fukushima nuclear disaster in Japan has turned out far graver than originally feared. The reactors, and overheated spent-fuel pools have spewed out radioactivity that has now spread over hundreds of square kilometers. Tens of thousands of people have had to be evacuated from a 30 km radius and beyond. Water, soil, milk and vegetation in large areas have been contaminated and many countries around the world have banned food imports from Japan. The disaster has cost Japan hundreds of billions of dollars and has made a large area uninhabitable. The cost of repairs and find new sources of electricity have been estimated to be more than a whopping $25 billion. The Fukushima disaster highlights, 25 years after the big nuclear disaster of Chernobyl, the inherent hazards of nuclear power generation. According to news broadcaster BBC, at Chernobyl the "legacy of radiation will last for centuries and would claim hundreds of thousand of more victims than Hiroshima and Nagasaki combined. More then 5

million people live on radiation contaminated land and they will develop new cancers and genetic mutations."

3) Even a highly industrialized country with a good industrial safety record like Japan could not anticipate and control these hazards. After Fukushima disaster Germany, Italy and Switzerland have announced a complete withdrawal from further use of nuclear power. Japan is also considering phasing out its nuclear plants. However, in India, in the aftermath of Fukushima disaster Secretary of the Department of Atomic Energy, Govt. of India who is the Chairman of the Atomic Energy Commission stated that Indian nuclear plans are "one hundred percent safe." Such a statement without being based on facts or on assessment is intended to mislead the people in this county. It also shows that the Indian establishment has completely shut its eyes to the issue of nuclear safety. Not only India has a poor industrial safety track record and dismal post-disaster management systems (as is clear from Bhopal gas tragedy, railway accidents, earthquakes etc.), our Government also seems to be in denial mode of the major safety risks of nuclear plants. If, for example, people from within 30km radius of the nuclear plant in Narora, Uttar Pradesh (which is about 150km from Delhi) have to be evacuated, then that would mean rehabilitating tens of millions of internal refugees, which in all likelihood would prove to be impossible.

4) This petition is not against the use of nuclear energy *per se*. This petition highlights that there are following risks and costs associated with nuclear energy and the same must be factored in risk & cost calculations, and fool-proof level of safety must be ensured through appropriate regulatory mechanisms. The costs & risks of nuclear power are:

a) Risk of catastrophic accident due to natural factors such as seismic events, floods etc., human errors, mechanical failures and other unanticipated factors, causing large-scale destruction of life & property, with far-reaching health and other effects across generations and across hundreds of kilometers, making large areas

uninhabitable for decades, and costing tens of thousands of crore rupees

b) Risk of leakage of radioactive fuel and other radioactive material

c) Storage of radioactive nuclear waste, considering no satisfactory sustainable solution has been found

d) Danger of theft of radioactive material, nuclear proliferation, nuclear terrorism, attack on nuclear installations and sabotage

e) Severe health and environmental effects of uranium mining

f) Lack of availability of usable uranium and its diminishing reserves world-wide, and the lack of a viable alternative to uranium

g) Exorbitant cost of setting up a nuclear power plant

h) Huge time requirement in commissioning of a plant

i) High maintenance and security costs

j) Exorbitant and ever-escalating cost of decommissioning the plant

k) High displacement and human cost

l) Huge demand of water and destruction of forests/trees

m) Lack of availability of trained workforce, and consequent risk of human error

n) Damage to marine environment and life as most nuclear projects are on the coastline

5) All the above costs and risks musts be thoroughly factored in and the highest level of safety must be ensured before a plant is cleared for construction. Albert Einstein once said, “one of the great mistakes in my life I made was to recommend the conversion of the nuclear energy into destructive energy.” Petitioners submit that this potential for catastrophic destruction being inherent in nuclear energy, the approach of anyone who wishes to use this energy for peaceful purposes has to be extremely mindful of the consequences should a mischance occur. Noted energy researcher Prof. Benjamin K Sovacool has stated that nuclear energy is “excessively capital intensive, take years to build, is prone to cost overruns, and is economically competitive only when significantly

subsidized…and has suffered from unacceptable rate of accidents." He has further stated that "uranium reserves would be exhausted around 2020, uranium is already expensive and uranium mining is extremely hazardous." Considering that India is one of the largest producers of electricity in the world and also one of its most inefficient users, there is *no* reason why the country's electricity needs cannot be met through its efficient use, by reducing the power-plant inefficiencies, reducing transmission & losses, and investment in solar and other renewable sources of energy that are becoming cheaper and efficient with each passing day. Since this analysis has not been done, the true risks and costs of nuclear energy have not been determined and no comparative cost-benefit analysis has been carried out, the Government plants to promote nuclear energy at a massive unmanageable scale are therefore made without proper application of mind, by ignoring relevant considerations, by taking into account irrelevant considerations and are arbitrary. The same, therefore, violate the mandate of Article 14 of the Constitution of India.

6) This petition comes at a time when India has decided to massively expand its nuclear power generation and set-up mega nuclear facilities in immediate future. Given the poor safety record of India's nuclear programme and lack of independent & credible regulatory structure, the plans of the central government are misconceived, made for extraneous considerations and would seriously impair the fundamental right to life of the people of India. Former Chairperson of Atomic Energy Commission who retired two years ago Dr. Anil Kakodkar candidly explained why the Government is importing nuclear reactors and not using indigenous technologies. In an article published in prominent Marathi newspaper Sakaal Times on 5th January 2011 he wrote (translated from Marathi), "*We have to keep in mind the commercial interests of foreign countries and of the companies there... America, Russia and France were the countries that we made mediators in these efforts to lift sanctions, and hence, for the nurturing of their business interests, we made deals with them for nuclear projects.*"

7) The plans of the Government to build many expensive and extremely large-size reactor plants have already met huge resistance from local people where the Government has had to impose Section 144 CrPC, detain hundreds of people, blocked information from the proposed plants and several protestors have been injured in police firing. The Government does not seem to have learnt a lesson from Fukushima, Chernobyl or the Three Mile Island accidents and has also ignored cost-benefit calculations forgetting the experience of infamous Enron power project. The promotion of nuclear power on a massive scale at huge cost to the exchequer is a classic example as to how the Government's policy gets disconnected from concern for public welfare and gets corrupted and subverted by extraneous considerations and corporate pressures. It is to be noted that each nuclear power plant has a life span of about 40 years after which it has to be decommissioned and decontaminated at exorbitant cost running into thousands of crores of rupees.

8) The above situation makes a compelling ground for the invocation of the Precautionary Principle. The precautionary principal necessitates that if there are reasonable scientific grounds for believing that a process, product or technology may not be safe then the industry must not be allowed to proceed ahead unless that industry or establishment is able to demonstrate reasonable certainty of no harm. This principle can also be applied to existing technologies when new evidence appears suggesting that they are less safe than what the society had previously expected, as has been in the case of tobacco, greenhouse gases, chloro-floro carbons, genetically modified food etc. This Hon'ble Court in A. P. Pollution Control Board vs. M V Nayudu, (1999) 2 SCC 718, held that precautionary principle is part of the law of the land. The principle mandates that when a new technology or process can cause serious and irreversible harm to human health and the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context, the proponent of the uncertain activity rather than the public has to bear the burden of proof.

9) The nuclear industry and the foreign countries of US, France and Russia with whom we have signed nuclear agreement, have been successful in pushing the Government to get a liability law for nuclear damage enacted that indemnifies nuclear manufacturers/suppliers and caps the financial liability of operators. Such a law clearly violates the 'polluter pays' principle and the 'absolute liability' principle that have become recognized as part of the law of the land under Article 21 of the Constitution, and puts to grave and imminent risk the right to safety, health, clean environment and life of the people of India guaranteed under Article 21 of the Constitution.

THE PETITIONERS

10) Petitioner No. 1, Common Cause, is a registered society that was founded in 1980 by late Shri H. D. Shourie for the express purpose of ventilating common problems of the people and securing their resolution. It has brought before this Hon'ble Court various Constitutional and other important issues and has established its reputation as a bona fide public interest organization.

11) Petitioner No. 2, Centre for Public Interest Litigation, is a registered society formed for the purpose of taking up causes of grave public interest and conducting public interest litigation in an organized manner. Its founder President was the late Shri V.M. Tarkunde and founder members consisted of several senior advocates including Shri Fali S. Nariman, Shri Shanti Bhushan, Shri Anil Divan, Shri Rajinder Sachar, Shri Colin Gonsalves among others. Petitioner No.2 has, in the past, filed several important petitions in public interest in this Hon'ble Court.

12) Petitioner No. 3 is Dr. E A S Sarma. He is a distinguished former Power Secretary to the Government of India, and former energy advisor to the Planning Commission. He has a master's degree in nuclear physics and a doctorate in energy policy analysis from IIT Delhi. He chaired the Experts Committee set up by Department of Atomic Energy during 1994-95 to review the methodology and the

norms for pricing nuclear power in the country. He was a research scholar at Tata Institute of Fundamental Research when veteran nuclear physicist Dr. Homi J Bhabha was its Director.

13) Petitioner No. 4 is Mr. T S R Subramanian. He is the former Cabinet Secretary, Government of India. He studied in Imperial College of Science in London and did his masters degree from Harvard University. He has also served as Textile Secretary and Commerce Secretary of the Government of India, Chief Secretary of Government of U.P. and senior adviser at the United Nations. He is the author of several books on governance. As Cabinet Secretary, he took several initiatives to modernize the power and infrastructure sectors of the economy.

14) Petitioner No. 5 is Prof. T Shivaji Rao. He is known for his pioneering work on nuclear energy, and is the author of a book titled 'Nuclear Plants: The Silent Killers'. He is a former member of the A.P. Pollution Control Board and former chairperson of environment education committee of UGC. He has been a member of environment protection council of Govt. of Orissa. He is currently an honorary professor at various top universities in India and is Director of Centre for Environment Studies. He, an author of seven books and countless research papers, was a special invitee at Nobel symposium in 1976 and is the recipient of many awards.

15) Petitioner No. 6 is Mr. N Gopalaswami. He is the former Chief Election Commissioner of India (CEC) and a former IAS officer. He also served as Secretary General of National Human Rights Commission (NHRC) and in that capacity he worked extensively on implementation of the policies of NHRC regarding right to life, health and environment. He is presently associated with the Consumer Association of India.

16) Petitioner No. 7 is Mr. K R Venugopal. He is the former Secretary to the Prime Minister of India. He was the senior policy advisor to the United Nations on

poverty issue. He, for 8 years, served as a special rapporteur for NHRC. Currently, he is a member of the NHRC's core group on right to food.

17) Petitioner No. 8 is Dr. Pushpa Mitra Bhargava. He is one of India's foremost scientists and country's leading biologist. He is the Supreme Court appointee on the Genetic Engineering Appraisal Committee. He is a former member of the Government's high-power National Knowledge Commission. He is the Founder Director of the Centre for Cellular and Molecular Biology.

18) Petitioner No. 9 is Admiral L Ramdas. He is a former Chief of Naval Staff. During his service, he received several prestigious gallantry awards. For his work on peace, nuclear weapons and human rights, he received the Ramon Magsaysay award.

19) Petitioner No. 10 is Mr. Surjit Das. He is former Chief Secretary of the State of Uttarakhand and a former IAS officer. He also served as Chairperson, State Public Service Commission of Uttarakhand. Throughout his career, he was actively associated with environment and public safety issues.

20) Petitioner No. 11 is Dr. P Vishnu Kamath. He is a senior Professor of Chemistry at Bangalore University. He has published over 120 papers in national and international journals. He has been a part of environmental movement in Karnataka that culminated in the filing of a PIL regarding nuclear power plant at Kaiga. Prof. Kamath has researched in detail the issues of nuclear safety and environmental impact of Kaiga nuclear plant. Subsequently, he has been a petitioner in the writ petition regarding illegal mining in Bellary that is currently being heard by the Forest Bench of this Hon'ble Court.

21) Petitioner No. 12 is Dr. K Babu Rao. A PhD in engineering from IIT Madras, he was a senior scientist at the Indian Institute of Chemical Technology. He has worked and researched extensively on process development, laboratory safety

and environmental impact. He is the founder of 'Forum for Sustainable Development' that is most active in Andhra Pradesh.

22) Petitioner No. 13 is Prof. N Venugopal Rao. He is former head of entomology dept. at ANGR Agricultural University at Hyderabad. He has published 3 text books and several research papers in his 34 years career. He has received several awards for his research work. Since 1990, he is an activist in people's movements relating to science and environment.

23) Petitioner No. 14 is Dr N Bhaskara Rao. He, with four post-graduate degrees, is an eminent applied social researcher for the last 40 years. As an early proponent of social audit in India, he lead India's first social audit panels. He founded Centre for Media Studies two decades ago that works on issues of accountability, energy, bio-diversity and ecological preservation.

24) Petitioner No. 15 is Mr. S K Gouse Basha. He is actively associated with and is the face of the organization Jan Vignana Vedika, Hyderabad for several years. The said organization was founded in 1988 with the objective of saving the environment, promoting bio-diversity, and popularizing science among the people, especially in rural areas.

THE RESPONDENTS

25) Respondent No. 1 is the Union of India through its Secretary, Department of Atomic Energy (DAE).

26) Respondent No. 2 is Atomic Energy Regulatory Board (AERB). The AERB is answerable to and follows the policies of the Government.

27) Respondent No. 3 is Nuclear Power Corporation (NPCIL), which is a public sector undertaking under DAE responsible for operating nuclear power plants in

India. It is now in the process of setting-up a mega-nuclear power plant in Jaitapur, Maharashtra and several other places across the country.

28) Respondent No. 4 is the Ministry of Environment & Forests which has been giving environment clearances to nuclear facilities without any proper study of radiation risk or cost to the environment.

THE CASE IN BRIEF

29) The Government, under pressure from multi-billion dollar nuclear energy lobby within India and abroad, has decided to press full-steam ahead to promote nuclear energy in the country. Its plans have received a further boost with the completion of the US-India nuclear cooperation agreement because of which many contracts have been signed between India and foreign nuclear supplier companies. These countries have also succeeded in getting the Government to pass a law that limits liability of nuclear operators and suppliers (manufacturers) making a mockery of the 'absolute liability' principle and 'polluter pays' principle laid down by this Hon'ble Court while interpreting Article 21 of the Constitution. In effect, this law provides a huge subsidy to the reactor manufacturers as it exempts them from the likely burden of an accident liability, and also provides a huge disincentive to them to invest in safety technologies that are usually expensive. The Government is now vigorously pushing through large-scale, multiple-reactor "nuclear power parks" in coastal areas in utter disregard of the high environmental, radiation-related safety and health, and economic costs of atomic power, as well as the requirements of transparency and accountability.

30) The above is happening at a time when, according to a detailed study on world nuclear industry conducted recently by noted international organization 'Worldwatch Institute', nuclear industry is in a serious decline as most countries have realized that it is both uneconomic and unsafe. A copy of the said worldwide study is annexed as **Annexure P1**. (Page_____) The said study in its conclusion states:

"*The so-called 'nuclear renaissance' was based on the claim that a new design of reactors would be offered that was both safer and cheaper than exiting designs. Whether this was a delusion on the part of the nuclear industry or a desperate attempt to get one more chance at the promise of cheap power is hard to say, but it was clearly a fallacy.*"

Construction of New Power Plants and Recent Mining Activities

31) Currently nuclear energy provides only about 3% of the country's total energy and this figure is not like to increase much in the coming two decades as most of the new plants having a long commissioning period. The government has planned to construct many additional nuclear power plants. NPCIL alone wishes to construct 36 imported reactors by 2032. A report on this published in Frontline magazine dated 26.03.2011 is annexed as **Annexure P2**. (Page_____)

32) Four 700 MW Pressurized Heavy Water Reactors, two at Rawatbhata in Rajasthan and two at Kakrapur in Gujarat are under construction. Two reactors in Koodankulam district of Tamil Nadu and two reactors in Haripur district of West Bengal are under construction based on Russian design. The said nuclear plant in Tamil Nadu has met extremely stiff opposition from people in the area. A news report and an article on the same are annexed as **Annexure P3 (Colly)**. (Page_____) The said Russian reactor is of extremely dubious quality and safety standard as is clear from a leaked Russian report. Copy of the excerpt of the said report is annexed as **Annexure P4** (Page_____) and a report on the same is annexed as **Annexure P5**. (Page_____) In addition to above, 'in-principle' approval has been granted for energy parks at five sites in five different states of Hrayana, Madhya Pradesh, West Bengal, Gujarat and Andhra Pradesh. The last 3 of the above proposed energy parks are along the sea coastline. Government has also announced that a fast breeder reactor would start in 2012 in Kalpakkam, Tamil Nadu.

33) The biggest of the proposed nuclear plant is the site at Jaitapur in Maharashtra where 6 reactors of 1650 MW each are to be imported from Areva Corporation in France. Land acquisition for the same started even before even the environmental clearance was granted. Two additional nuclear mega-reactor units of 700 MW each would be installed at Kaiga (Karnataka) in addition to the existing 4 relatively smaller units. A copy of a news report on this is annexed as **Annexure P6**. (Page_____) There are also reports that nuclear plant in Haripur, West Bengal has been stopped by the State Government due to stiff local opposition. An analytical report published in Mail Today dated 21.09.2011 titled “People power nukes PM’s N-Power dream” is annexed as **Annexure P7**. (Page_____)

34) In 1969, India’s nuclear establishment had predicted that by the year 2000, there would be 43,500 MW of nuclear generating capacity, but as of 2011 the total capacity is only 4780 MW which is about 3% of total electricity generated. All governments in the past have favoured nuclear energy and DAE’s budgets have always been high. For example, in 2002-03 DAE was allocated Rs. 33.5 billion dwarfing in comparison to the Rs. 4.7 billion allocated to Ministry of Renewable Energy which is in charge of developing solar, wind, small-hydro and bio-mass based power. Despite the smaller budgets and lack of governmental interest, energy produced from these sources was much more than that from nuclear. Now, Government’s aspiration to increase nuclear power capacity from about 4800MW now to about 64,000 MW by the year 2032 obviously means the construction of a large number of big nuclear parks with multiple reactors (it translates into installing a 6000 MW plant every 55 km of the coastline). Such a scenario would exponentially increase the probability of a nuclear disaster in the country.

35) Uranium Corporation of India Limited (UCIL) recently began Mohuldih Uranium Mining Project in Saraikela district of Jharkhand, Tummalapalle Uranium Mining Project in Andhra Pradesh and Exploratory Mining in Karnataka. Pre-project activities have begun for Uranium ore mining in Lambapur in Andhra Pradesh, Rajasthan and in Meghalaya. India does not have enough uranium to

meet the needs even of existing plants and would be depending on uranium imports that would not be easily available. The International Atomic Energy Agency (IAEA), the official international organization which is seen as a proponent of nuclear energy, did a study of 582 uranium mines and deposits world-wide in 2001. Even IAEA was forced to acknowledge the severe shortage of uranium and it stated “As we look into the future, presently known resources fall short of demand…it will become necessary to rely on very high cost conventional or unconventional resources to meet demand as lower cost known resources are exhausted.”

36) Moreover, domestic Indian uranium supplies are already insufficient to supply to existing nuclear power plants. According to Prof Sovacool, operators shut down 5 of 17 nuclear power plants in the country in 2007 and operated the remaining plants at 50% capacity for want of fuel. Uranium fuel shortages also forced NPCIL to delay the commissioning of two new units in Rajasthan and one unit at Kaiga. Many European and other countries have essentially stopped uranium mining and production in other countries is down, because of unviability of uranium mining and its serious health & environmental effects. Considering such shortage of uranium from both domestic and external sources, Govt.’s plants to increase dependence of the country on nuclear energy would have adverse long-term implications from strategic and economic point of view, posing a serious threat to India's energy security.

37) Almost all the new construction plants have run into extremely strong resistance from the local populations. Most of the resistance has been due to concerns over nuclear safety. It is to be noted that nuclear plants affect a large number of people spread across large areas who might be unsafe from its radiation effects and face destruction in case of an accident. Therefore their views must be given considerable weightage before a project is given environment clearance. Under the EIA notification issued in 2006 under the Environment Protection Act, public hearing or *jan sunwai* has been made mandatory before

clearance can be given. A copy of the said notification is annexed as **Annexure P8**. (Page_____) According to a study, most of the public hearings regarding nuclear plants are a farce as near unanimous opposition is not even considered as a factor before the clearance is given. Also, Government exempts many nuclear projects from public hearings. A copy of the said study is annexed as **Annexure P9**. (Page_____)

Need for safety reassessment

38) Nuclear power generation is inescapably fraught with ionizing radiation, an invisible, intangible and insidious poison, which is unsafe in all doses, however small. Radiation causes cancers and genetic damage, for which there is no cure, antidote or remedy. Nuclear plants expose not just occupational workers, but also the general public, to radioactive hazards in numerous ways. A detailed study lists out severe cancer risks to children and others near nuclear power stations. The said study published in the journal Environmental Health dated 23.09.2009 is annexed as **Annexure P10**. (Page_____) Another paper on the effects of radiological releases published by Greenpeace is annexed as **Annexure P11**. (Page_____)

39) Nuclear power generation is the only form of energy production that can produce a catastrophic accident like Chernobyl in 1986, where, thousands have died and many more have developed cancers. All existing reactor types in the world are vulnerable to a core meltdown like Chernobyl, leading to the release of large quantities of radioactivity into the environment. A research paper titled “Why nuclear power is a poor way to meet energy needs” lists costs of nuclear power that include radiation risk, risk of proliferation, nuclear waste management and other health risks. The said paper published in Journal of Land, Resources & Environmental Law in 2004 is annexed as **Annexure P12**. (Page_____)

40) Even low intensity radiation termed “safe” by the respondents in instances of radiation leakages, can cause irriversible genetic alterations in the human body

and the long-termimplications of it have not yet been fully understood, as evident from a scientific article published in The Hindu on September 15, 2011 by K.S. Parthasarathy, Raja Ramanna Fellow in Department of Atomic Energy which states *"The findings of the present study emphasize that a level of radiation exposure considered 'safe' by regulatory standards can induce profound biochemical and cellular adaptation*." A copy of the said article is annexed as **Annexure P13.** (Page_____) According to detailed scientific analysis done by Prof. T Shivaji Rao (Petitioner No. 5 herein), a nuclear accident at proposed nuclear site of Kovvada in Andhra Pradesh or Kudankulam in Tamil Nadu (to take just two examples) can easily cause heavy damage affecting millions of people across a large area. The said scientific analysis dated 17.08.2011 and 08.10.2011 respectively are annexed as **Annexure P14 (Colly)**. (Page_____)

41) The argument used by the proponents of nuclear energy that nuclear power is free from carbon-emissions is baseless as is conclusively demonstrated in an article written by eminent energy researcher Prof. Benjamin Sovacool where he records the carbon-emission cost of construction, operation, uranium mining and milling, and finally plant decommissioning that are all part of the lifecycle emissions of a nuclear plant. A copy of the paper published in Energy Policy dated 02.06.2008 is annexed as **Annexure P15**. (Page_____)

42) A major difference between a nuclear bomb and a nuclear power reactor is that the nuclear 'chain' reaction in a power reactor is 'controlled'. Since the reaction is controlled through an artificial process, there is no explosion and consequent release of radioactivity. The process of control of a nuclear chain reaction has to be made foolproof and must satisfy the highest standards of safety. Moreover, a nuclear reactor contains many times more radioactive material than a nuclear bomb.

43) Another major problem with use of nuclear energy is the storage of highly radioactive waste (spent fuel) that is generated by a nuclear plant. The leakage of

such waste can cause enormous damage to human health and environment in general, and can make a large amount of area uninhabitable for many years. The said waste remains radioactive for hundreds of years and has to be stored in such a way as to remove all chances of leakage. Governments across the world have been grappled with the problem and have not been able to find any satisfactory sustainable solution. Top scientists in India have asked for either a moratorium on nuclear plants or their closure. News reports on this dated 31.03.2011 and 24.08.2011 are annexed as **Annexure P16 (Colly)**. (Page_____) Dr. T Jayaraman, Chairperson, Science & Technology at Tata Institute of Social Sciences have strongly urged for a thorough safety review of nuclear sites in India. In an article published in The Hindu he has said “such a safety review clearly must go beyond the mere routine types of safety audit if it is to carry adequate credibility.” The said article dated 21.03.2011 is annexed as **Annexure P17**. (Page_____)

44) The other issue is the exorbitant cost and safety concerns involved in decommissioning and decontaminating a nuclear power plant. Each nuclear power plant has a life span of about 35 years after which it has to be decommissioned. According to reputed ‘World-watch Institute’ the average age of the 130 units that have already closed down is only 22 years. The current estimate by the United Kingdom's Nuclear Decommissioning Authority is that it will cost at least 70 billion pounds to decommission the 19 existing United Kingdom nuclear sites; this takes no account of what will happen in the future. An article on this published in Guardian dated 13.04.2011 is annexed as **Annexure P18**. (Page_____) Also, due to the radioactivity in the reactor structure, decommissioning is a slow process that takes place in stages. The plans of the Nuclear Decommissioning Authority for decommissioning reactors have an average 50 years time frame. The long time frame makes reliable cost estimates extremely difficult. Excessive cost overruns are not uncommon even for projects done in a much shorter time frame.

45) To the best of the knowledge of the petitioners, not a single aged nuclear power plant or a plant in which an accident has occurred has ever been decommissioned fully with complete decontamination of the site of its radioactive isotopes, since it is extremely difficult to do so. After the accident at Chernobyl, the authorities concerned failed to remove the remnants of the toxic radioactive isotopes and had no other option than to build a sarcophagus covering the plant to shield the local population from inter-generational effects of radioactivity. Similarly, the Japanese authorities do not find it feasible to decommission Fukushima Daiichi complex within the next two decades. In all likelihood Fukushima plant will meet the fate similar to that of Chernobyl. That is why a study by a team at MIT had noted "both the historical and probabilistic risk assessment data show an unacceptable accident frequency. The potential impact on the public from safety or waste management failure…makes it impossible today to make a credible case for the immediate expanded use of nuclear power." (MIT Press 2003). According to cover story published in Frontline magazine, Fukushima disaster would have further damaging consequences for the nuclear industry because of genuine global fears. A copy of the said story dated 26.03.2011 is annexed as **Annexure P19**. (Page_____)

46) A research paper written by Prof. Sovacool, titled "Questioning a Nuclear Renaissance" in its conclusion states:

> *New nuclear plants are excessively capital intensive, take years to build, are prone to cost overruns, and are economically competitive only when significantly subsidized. The history of operating performance shows an unacceptable rate of serious incidents that will grow in proportion with greater nuclear power generation. Secondary reserves of uranium will likely be exhausted before the end of this decade and high quality reserves of primary uranium are hard to find, contributing to rising and volatile fuel prices. The consequences of the nuclear fuel cycle to global water supply and land are disastrous, and within a few decades the carbon footprint of nuclear plants will worsen to be equivalent to some fossil-fueled sources of*

electricity. Nuclear facilities are attractive targets for terrorism, and they produce hazardous and radioactive material that can be used to make weapons.

A copy of the said paper is annexed as **Annexure P20**. (Page_____) According to strategic affairs expert and professor at Centre for Policy Research, Brahma Chellaney, most nuclear plants are located alongside coasts since they are extremely water intensive compared to all other energy sources. With almost half of the world's population living in coastal areas finding a site for location of these plants is increasingly becoming extremely difficult. They also put extreme stress on marine plant life and fish. Prof. Chellaney's said article dated14.03.2011 is annexed as **Annexure P21**. (Page_____)

47) Also, nuclear plants are very vulnerable to theft as even if a small amount of radioactive material is blown up in a city, it can make the city completely uninhabitable for decades. A list of known cases of theft of nuclear material worldwide is annexed as **Annexure P22**. (Page_____) The grave dangers of nuclear terrorism that can be caused by a simple theft of radioactive material from any of our nuclear facilities cannot be ignored. A dirty-bomb containing a truck full of radioactive material can by exploding make a big city uninhabitable for the next several decades. This is a real danger acknowledged by all governments and international bodies like IAEA. An article by Manoj Joshi, senior journalist and a strategic affairs expert, highlights this security challenge. The said article published in Mail Today on 28.07.2011 is annexed as **Annexure P23**. (Page_____)

48) A typical nuclear reactor produces enough plutonium every two months to create a nuclear weapon. But, even one kg of plutonium is equivalent to about 22 million kWh of heat energy. A dirty bomb laced with one kg of plutonoium can therefore produce an explosion equal to about 20,000 tons of chemical weapons. There are a large number of terrorists groups eager to acquire access to nuclear waste or fissile material.

49) Moreover, the Government has admitted that nuclear plants would continue to remain prime targets of terrorists. Minister of State for Home Affairs informed Rajya Sabha on 16.08.2011 “In view of the prevailing security scenario, the atomic establishments continue to remain prime targets of terrorist groups and outfits.” A copy of news report dated 17.08.2011 on this is annexed as **Annexure P24**. (Page_____) According to Prof. Sovacool, “A successful attack or accident at the power plant near New York City, apparently part of Al Qaeda’s original plan for September 11, 2001, would have resulted in 43,700 immediate fatalities and 518,000 cancer deaths, with cleanup costs reaching $2 trillion.” A copy of the article dated 16.03.2011 is annexed as **Annexure P25**. (Page_____)

50) Even during the normal operation of nuclear plants, large quantities of radioactive materials are routinely discharged into water and air. Transportation of nuclear material and wastes is also vulnerable to accidents or sabotage. Because nuclear technology is strategically “sensitive” in nature, large-scale and centralized energy generation through nuclear power demands and encourages secrecy, and generates vested interests in the form of an unaccountable, undemocratic technocratic elite.

51) Historically, major accidents at nuclear plants have had varied origins, progressions, and impacts. These have occurred in multiple reactor designs in different countries. This means, unfortunately, that while it may be possible to guard against an exact repeat of the Fukushima disaster, the next nuclear accident will probably be caused by a different combination of initiating factors and failures. There are no reliable tools to predict what that combination will be, and therefore one cannot be confident of being protected against such an accident. These problems cannot be resolved simply by constructing reactors with newer designs, ones that have been deemed safer on the basis of probabilistic risk assessment calculations that predict lower accident frequencies.

52) The lesson from the Fukushima, Chernobyl, and Three Mile Island accidents is simply that nuclear power comes with the inevitability of catastrophic accidents. An analytical paper on the above issue written by Dr. M V Ramana published in the 'Bulletin of the Atomic Scientists' dated 19.04.2011 is annexed as **Annexure P26**. (Page_____) Most of the nuclear sites across the world are located in populated areas, and could cause large devastation should a mischance happen. An article on this dated 21.04.2011 published in the international science magazine Nature is annexed as **Annexure P27**. (Page_____)

53) Petitioners submit that nuclear energy is inherently dangerous and require topmost level of security precautions that are not required in any form of energy. This mandates that highest safety investments should be made even for "unlikely" mishap possibilities. Even with "best" safety features, the possibility of major catastrophic accidents cannot be ruled out. This is a lesson that must immediately be learnt from the unfolding Fukushima tragedy in Japan. An article written by Mr. Parful Bidwai on this published in Frontline dated 26.03.2011 is annexed as **Annexure P28**. (Page_____) It states: "It would be downright unethical to sacrifice safety in order to appease an industry that has failed the world."

54) Dr. A Gopalakrishnan, former Chairperson, Atomic Energy Regulatory Board (AERB) and one of country's foremost nuclear scientist, has written a piece in Sci Dev Net stating that a dangerous species of radioactive fission could spread in Japan. A copy of the article titled "India must learn from Fukushima nuclear meltdown" is annexed as **Annexure P29**. (Page_____) There are 104 nuclear power plants in USA out of which more than 25% are known to be contaminating ground water and other water bodies with radioactive tritium. Reports on this are annexed as **Annexure P30 (Colly)**. (Page_____) Tests have also shown that many US nuclear reactors are accident prone, a fact which shows that their regulator NRC has become too close to the nuclear establishment. A report on this dated 13.05.2011 is annexed as **Annexure P31**. (Page_____) Petitioners submit that a worse situation exists in India.

55) Secretary General of the United Nations (UN) Mr. Ban Ki-moon after his recent visit to Chernobyl in his official release stated “More than 300,000 people were displaced in the Chernobyl disaster; roughly six million were affected. A swathe of geography half the size of Italy or my own country, the Republic of Korea, was contaminated.” He further affirms, “The world has witnessed an unnerving history of near-accidents. It is time to face facts squarely.” A copy of the said statement is annexed as **Annexure P32**. (Page_____)

56) A report on the health effects of the Chernobyl disaster prepared by International Physicians for the Prevention of Nuclear War (IPPNW) dated April 2011 is annexed as **Annexure P33**. (Page_____) The said report confirms serious health effects including terminal cancers that have afflicted a very large population in that region, highlighting the catastrophic potential of a nuclear accident.

57) Practically, all nuclear reactors and facilities operated by DAE have had accidents of varying severity. They show an alarming lack of importance given to nuclear safety by the DAE. The most serious one took place at Narora on March 31, 1993 when a major fire engulfed the entire turbine building. Similarly, there was Kalpakkam in 2003. An article published by Centre for International Governance Innovation in December 2009 titled “Indian Nuclear Industry” is annexed as **Annexure P34**. (Page_____)

58) A detailed article published in The Frontline magazine written by Dr. Gopalakrishnan lists out installation wise occurrences that indicate a high degree of human errors and equipment failures. It lists accidents and near-accidents that have happened in the past at the nuclear sites of Tarapur, Rajasthan, Madras, Narora, Kakrapar, Kaiga, and other DAE installations. It states that safety status in India’s nuclear facilities is far below internationally accepted standards. A copy of the said article dated 13.03.1999 is annexed as **Annexure P35**. (Page_____)

59) A compilation of the 99 major nuclear power accidents from 1950-2010, i.e. till Fukushima, based on conservative estimates of costs is annexed as **Annexure P36**. (Page_____) The list contains the 7 accidents that happened in India costing tens of thousands of crores. A list prepared by Greenpeace of the several nuclear accidents and also 'incidents' that occurred in the next 10 years following the Chernobyl disaster is annexed as **Annexure P37**. (Page_____)

60) Petitioners submit that there have also been several near-accidents and near-leaks in India and across the world, the number of which has been unacceptably high. With the increase in numbers of reactors in India coupled with the fact that most of them are of new untested designs with non-existent liability for manufacturers, puts our population at grave risk. According to a research paper written by Prof Sovacool, "Modern nuclear reactors are prone to accidents, failures" A copy of the abstract of the said paper published in Journal of Contemporary Asia is annexed as **Annexure P38**. (Page_____)

61) The health and environment effects of nuclear power should be determined after also taking into account the fact that nuclear power requires huge amounts of uranium that has to mined at great risk to the health of miners and local population. In India extensive uranium mining takes place in Jadogoda in Jharkhand and in Rawatbhata in Rajasthan. In these places there is a history of physical deformities and serious health affects to workers and the local people because of radiation. A detailed study done by Centre for Science & Envrionment (CSE) published in Down to Earth dated 15.06.1999 is annexed as **Annexure P39**. (Page_____)

62) Another study done by Indian Doctors for Peace and Development confirms that there is extensive sterility, deformed existence, cancer and low life expectancy of people in Jadugoda. The said study dated 07.11.2008 is annexed as **Annexure P40**. (Page_____) A study by Toxics Link published by Henrich Boll Stiftung encapsulates the effect of uranium mining and also of presence of radioactive

waste has had on Indian people. The said study dated March 2009 is annexed as **Annexure P41**. (Page_____) According to an investigative report published in Tehelka, Uranium Mines are run in utter disregard for health of workers and local communities. A copy of the said report dated 25.09.2010 is annexed as **Annexure P42**. (Page_____) Because of serious health effects of uranium mining, coupled with its unviability, many countries have essentially stopped uranium mining, and other countries have reduced it significantly.

63) The effects of a nuclear accident are not only immediate but also in the future and the same are far reaching. That the probability of occurrence of a nuclear accident exists and the aftermath is devastating is evident from the Three Mile Island, the Chernobyl and the Fukushima disaster. The different systems of a nuclear reactor interact in complex ways, making it possible that multiple failures could interact in unexpected ways. Additionally, there are tightly prescribed steps and unchangeable sequences in operation that must be adhered to. Therefore accidents can escalate quickly, with few alternate path-ways to diffuse them. Safety interventions, whether by humans or automatic safety equipment must occur quickly, and be adequately planned for. Both these factors pose challenges to safety and its demonstration. They also make it more difficult to infer safe operation from past record; a system could have relatively minor accidents, but many such failures could combine unexpectedly in the future, leading to a much larger accident.

64) It must be noted that Japan, which is technological a far more advanced nation and has had more experience in dealing with nuclear reactors, could not shield itself, (in the case of Fukushima) from the occurrence of an accident that is similar to that of Chernobyl disaster. India on its part has not laid down any such basic guidelines for security at its nuclear plants leave alone security measure that would put the average persons mind to rest that these Nuclear plants are in fact safe, which they are not. There are many concerns of the safety measures at the existing and future nuclear plants as Nuclear energy is inherently dangerous. An

article written by Ms. Helen Caldicott, president of Nuclear Policy Research Institute published in Australian warns of such dangers. A copy of the said article dated 15.04.2005 is annexed as **Annexure P43**. (Page_____)

Need for a comparative cost-benefit analysis

65) There is no dispute that nuclear power is continuing its decades-long collapse in the world. Most western countries have not built a single new nuclear reactor in the past few decades. Germany, Italy and Switzerland have recently officially announced a complete closure of all nuclear facilities. Many of the old reactors world-wide have been shut down, announced targets have remained far from being met, costs have spiraled, and safety concerns along with local resistance have stopped any expansion. No nuclear plant, evidence confirms, can be financed by private risk capital. Most international financial institutions like World Bank, Asian Development Bank do not finance nuclear power plants.

66) The decline of nuclear power can be gauged from the official figures of the International Atomic Energy Agency (IAEA), an organization known for promoting nuclear energy. According to these figures, there was only 1 nuclear power reactor in the world in 1955, 15 reactors in 1960, 84 reactors in 1970, 245 reactors in 1980 and 416 reactors in 1990. Hence till this time there was a huge increase in the number of reactors and nuclear industry was on an ascendance. However, after late 1980s when the Chernobyl accident occurred, most of the developed countries have not installed any new reactor. There were 435 reactors in the year 2000, up from 416 in 1990, and till today in 2011 there are 443 reactors.

67) Hence nuclear power industry that had seen a rapid rise in the initial decades has not seen any rise since 1990. That is the reason why countries like US, France and Russia are pushing developing countries like India to go in for imports of nuclear reactors from their firms. A copy of data released by IAEA along with an article on this issue published in a journal of Royal Swedish Academy of Sciences are annexed as **Annexure P44 (Colly)**. (Page_____) According to

the article published in Frontline annexed earlier, public opinion in European countries has decisively moved against nuclear power and this process if likely to be accelerated after Fukushima disaster.

68) Nuclear construction cost was already soaring by 2007, well before Fukushima. Orders from the world's market-driven electricity systems stopped years ago. Of the 66 nuclear units officially listed as "under construction" worldwide at the end of 2010, 12 had been so listed for over 20 years, 45 had no official start-up date, half were late and all 66 were in centrally planned power systems. 50 of them were in just 4 countries of China, India, Russia, South Korea. In fact, India's nuclear power expansion programme is based on a false assumption that nuclear power is on ascendance worldwide. The promotion of nuclear power on a massive scale at huge cost to the exchequer is a classic example as to how the Government's policy gets disconnected from concern for public welfare and gets corrupted and subverted by extraneous considerations and corporate pressures. According to Stephan Leahy, one of the world's best environmental reporters, nuclear industry exists because of what is called 'mother of all subsidies' and caps on liability should an accident occur. A copy of his report dated 30.08.2011 is annexed as **Annexure P45**. (Page_____)

69) Nuclear power is considered the most expensive form of energy generation, considering its high capital costs. While thermal power plants cost around Rs. 4.5 crores per MW capacity, nuclear plants cost more than Rs. 10 crores per MW or more. There are many elements of cost of nuclear power that are difficult to quantify. For example, the long-term cost of waste processing and management cannot be quantified in the absence of readily available technologies. The cost of decommissioning is equally not measurable in the absence of actual experience of fool proof decommissioning of any plant in the world. Apart from the above costs, the cost of reprocessing of fuel, waste storage, fuel costs and the cost of providing security make nuclear energy prohibitively priced. The new expensive reactors that the Government wishes to import by means of multi-billion dollar deals with foreign

suppliers like Areva at the cost of the national exchequer would mean a cost over Rs. 20 crores per MW.

70) Also, it has been noted that cost estimates always keep on increasing and the initial projections are far lesser than the actual cost eventually. A case in point is the response under RTI of public sector undertaking Bhartiya Nabhikiya Vidyut Nigam Ltd., that its initial estimate as per original approval was Rs. 5.60 crores per mega watt that due to cost overruns has become Rs. 11.35 crores per mega watt. A copy of the said reply dated 18.06.2011 given to petitioner no. 1 under RTI is annexed as **Annexure P46**. (Page_____). The cost of Kaiga I and II was estimated to be Rs. 7307 crores but it's revised cost was Rs 28,960 crores. Similarly, the cost of Tarapur III and IV was Rs. 24,475 crores but it's revised cost was Rs 62,000 crores. Moreover, since the initial projected capacity in mega-watts of nuclear plants is far more than the power that is eventually realized, cost projections of amount spent per megawatt produced are further more underestimated.

71) Similar is the situation in the US, estimated cost at 1990 prices of its 75 nuclear plants was $45247, but the realized cost came to be $144650 i.e. 300% of the estimated cost. This has been observed worldwide. And unlike new alternate energy sources like Solar, nuclear energy has actually become more expensive over the last decade for various reasons. According to Prof. Sovacool, "The historical record…implies that industry cost estimates for new nuclear plants cannot be trusted…we should all beware that the experience with nuclear power…shows how truly expensive that option can be." A copy of his article published in Scitizen dated 02.11.2008 is annexed as **Annexure P47**. (Page_____)

72) Therefore, a strongly worded statement issued by former Chairperson of Atomic Energy Regulatory Board, Dr. Gopalakrishnan calls for a complete abandonment of import of nuclear reactors. It states: "By 2007-08, the PM had

taken a unilateral decision to import at least 10,000 MW LWRs (light water reactors) from the US ... It would now appear that the PM had most likely made a firm commitment to the French President as well, to similarly import six of their still un-built and untested EPRs (European pressurized reactors) at an exorbitant cost. Both these actions were taken without informing Parliament and without seeking any detailed techno-economic or safety analysis to justify this approach." A copy of the said statement dated 03.04.2011 is annexed as **Annexure P48**. (Page_____)

73) Petitioner's submit that the Government plans to order imports of nuclear plants and material of billions of dollars from select foreign companies through private negotiations, without proper technical and safety evaluation and without any competitive bidding/auction, are arbitrary and violate Article 14 of the Constitution. This Hon'ble Court has repeatedly held that contracts by the State must be made after public auction/tender and with requisite transparency. This Hon'ble Court has held (2004 3 SCC 214) that "In all actions, even in the field of contracts, an instrumentality of the State must be governed by Article 14. It cannot afford to act with arbitrariness or capriciousness…In the field of contracts, the State and its instrumentalities ought to design their activities as would ensure fair competition and non-discrimination." Not only has the Government entered into agreements with foreign nuclear suppliers without any competitive process, without any transparency and without a public notification, the Government has also not evaluated the technical specifics of the various nuclear reactors of different manufacturers/suppliers and has ignored the safety aspects as is now clear about the lack of safety of French and Russian nuclear reactors that are being imported.

74) Former finance minister Mr. Yashwant Sinha has written that "there is more to the Indo-US N-deal and subsequent arrangements with France, Russia and the US than what meets the eye. The charitable explanation is that this corrupt government is making massive amounts of money through these deals." A copy of the article written by Mr. Sinha published in New Indian Express is annexed as

Annexure P49. (Page_____) In fact, both the BJP and the Left have called for a halt on the nuclear power projects. News reports on this published in The Hindu dated 09.08.2011 and 28.08.2011 are annexed as **Annexure P50 (Colly)**. (Page_____)

75) It is submitted that in a country where there are huge transmission & distribution (T&D) losses and several thermal & hydro plants run at only 50% efficiency, then just by reducing losses and increasing efficiency, we can produce electricity several time over the current nuclear power capacity. For example, by investing on T&D network to reduce the losses by 10%, the saving in capacity in the year 2011 would have been 16,000 MW and a corresponding capacity saving of more than 70,000MW by the year 2031-32. If improvement in plant efficiencies is also considered, then the capacity savings would be far higher. Such capacity savings would far exceed the figure of 64,000MW of nuclear power generation capacity in the year 2032 as projected by Planning Commission in its Integrated Energy Policy report.

76) If end-user efficiency is ensured by the use of energy efficient industrial motors and pumps, appliances like CFLs or if some restriction is imposed on energy intensive appliances like ACs & heaters with low-star ratings, then we could save more electricity than the Government's highest target for production from nuclear sources. The same investment that goes into constructing expensive and unsafe nuclear plants can go into promotion of end-user efficiencies. As a country perfectly positioned to tap into renewable sources of energy like solar, wind, oceanic and small-hydro, we owe it to the people to invest in these technologies that are rapidly becoming economic and popular, rather than spend lakhs of crores of rupees into nuclear energy imports.

77) The costs involved in the restoration work (of life and the environment) after the accident has occurred are huge. The original claim in the Bhopal Gas Leak case (which was also undervalued) was $3 billion dollars. The economic cost

alone of the Chernobyl disaster over the last thirty years has been estimated at $230 billion dollars. This shows that nuclear energy is inherently very dangerous and that even minor accidents can have a far reaching impact on the life and environment of human beings and future generations. The damage that a major accident can cause cannot be quantified and would probably run into tens of thousands of crores of rupees.

Nuclear Liability Act

78) The Civil Liability for Nuclear Damage Act, 2010 (hereinafter '**the Act**') was passed by Parliament. The Act was not passed because of any pressure from the citizens, any mass demonstration for the need of a liability law or for any felt need to strength the nuclear safety regime. Countries with whom India has signed nuclear deals like US France and Russia have pressurized our government to purchase expensive nuclear reactors from suppliers based in their countries. The process of drafting of the Bill was initiated by Indian corporate lobbyist organization FICCI. A copy of the report published by FICCI in 2009 urgently recommending the adoption of such a law is annexed as **Annexure P51**. (Page_____) The Liability Bill was clearly drafted under pressure from and under the influence of the nuclear industry. A report on this published in Tehelka dated 04.12.2010 is annexed as **Annexure P52**. (Page_____)

79) The Act channels all the liability to the nuclear operator (which presently is the Government itself) and the victims are not allowed any recourse to sue the companies that supply nuclear reactors and other material. The Act under Section 6 also limits the liability of the operator to 1500 crore rupees, which is quite low, and states that the remaining damage may be made good by the Government at the cost of exchequer. The Act also excludes the liability of the operators in certain circumstances. A copy of the Act notified on 22.09.2010 is annexed as **Annexure P53**. (Page_____)

80) Thus clearly the Act, by excluding the liability of the nuclear supplier, violates the principle of 'polluter pays'. This Hon'ble Court has held that "*The Polluter Pays principle demands that the financial costs of preventing or remedying damage caused by pollution should lie with the undertakings which cause the pollution, or produce the goods which cause the pollution. Under the principle it is not the role of Government to meet the costs involved in either prevention of such damage or in carrying out remedial action, because the effect of this would be to shift the financial burden of the pollution incident to the taxpayer.*" (Council for Environ-Legal Action v. Union of India, (1996) 3 SCC 212.) The said Act clearly violates this principle that this Hon'ble Court has held to be part of the law of the land under Article 21 of the Constitution of India.

81) Dr. Gopalakrishnan, wrote a detailed article on 13.08.2010 published on Rediff stating "the true reason for urgency for getting the bill passed is to meet the written commitment given by the prime minister…that India shall purchase a minimum of 10,000 MWe of US reactors." A copy of the said article is annexed as **Annexure P54**. (Page_____) Another detailed article by Dr. Gopalakrishnan states, "The very low operator's liability, however, tends to relax the operator's diligence in ensuring a high level of nuclear safety in his plant…and will allow the operator to transfer a bulk of his responsibility to the tax-payers." A copy of the said article dated 22.08.2010 published in the New Indian Express is annexed as **Annexure P55**. (Page_____)

82) When the nuclear liability bill was being debated in Parliament, it met stiff resistance from many political parties including the left parties. D Raja of the CPI stated: "Does the bill represent the interest of the ordinary people who could be victims, or, does it protect the interest of the public sector operator, or, is it meant to guarantee the profits of the multinational supplier? ...The cap on liability will have an impact on the safety of nuclear installations in the country. Cost of a single reactor can be as high as Rs. 30,000 crores…So the cost of the reactor can be 20 times the amount of liability. This means that it might be cheaper for the operator to

take the risk of paying the maximum liability than to spend, say, 10% extra to add safety features to the plant." A copy of the relevant pages of the debate in Rajya Sabha is annexed as **Annexure P56**. (Page_____)

83) The Act does not protect the Right of a person to a Clean, Healthy and Safe environment that is also part of the Article 21 of the Constitution of India. It indemnifies the supplier no matter what the cause of the accident is. This means that people who have been hurt by the nuclear accident cannot sue the supplier directly. The supplier cannot be sued even when the cause of the accident is faulty design. The Three Mile Island accident, in Pennsylvania is testament to the fact that major nuclear accidents can occur due to faulty design. The suppliers of the nuclear reactor in that case failed to provide the operators with appropriate guidelines for dealing with certain kinds of occurrences (occurrences that eventually led to the accident). The supplier failed to do so not only on the first instance but also when it was informed of these dangers. If there is no financial liability, the supplier would not want to invest in safer technology as there would be no incentive in doing the same.

84) Additionally it should be noted that by indemnifying the supplier we are encouraging them to dispense with their liability at the earliest. Nuclear power is extremely expensive. Suppliers might want a reactor that is safe but at the same time they would want a reactor whose design is economical. Without liability there is less incentive for the supplier to design safe plants. If the supplier is indemnified from potential liability only, then the primary aim would be to get certification, by whatever means necessary, from the regulatory authority, it would at no point feel obligated to inform the authority of the future risks that might occur and it is aware of. Thus by indemnifying the supplier we are grossly neglecting the interest and safety of the people of this nation, in the interest of few multinational companies.

85) Secondly, liability is imposed on the operator of the plant but the same is limited. A study of the scenario shows that this is also done in the interest of a few

companies that might potentially invest in the nuclear energy field. As of now, only the government can act as an operator of a nuclear plant. But this is likely to change in the future and private parties may be allowed to play a larger role in the field. In order to encourage the same the liability of an operator is limited to Rs. 1500 crores. Though the Act provides that the Government would cover any other costs, which would shift the burden on the taxpayer. Also, the cost of nuclear disasters as already stated necessarily exceeds this amount. The Government on its part has failed to even come up with an estimate of the damage that can be caused in the event of an accident. Thus the figure so presented in the Act is not only arbitrary but also hugely insufficient.

86) If the financial liability is limited, the operator would rather bear the burden of this liability in the event the accident occurs than take measures and pressurize its suppliers for safer technology, as doing that so be more expensive. This can be contrasted with the amount of 20 billion dollars (roughly Rs. 1,00,000 crores) that was recovered from the company BP for causing an oil spill. This amount was recovered only when marine life was put to danger. Hence, the amount sated in the Nuclear Liability Act is grossly insufficient especially considering human lives, the loss of which cannot be put in monetary terms, is involved**.**

87) By limiting the financial liability and by indemnifying the supplier we are facilitating an environment where operators and suppliers would prefer to invest and develop cheaper nuclear reactor rather than safer reactors, which is the need of the hour and in the best interest of the people. The fact that the liability cap is much less compared to the cost of a reactor, which may be Rs. 30,000 crores, means that cost of even small repairs on the reactor may easily exceed the maximum liability. Hence this provides a huge incentive to the supplier and operator to take risks with safety.

88) Thus it is evident that these clauses are not in the interest of the people but in the interest of nuclear suppliers and corporates. This highlights the anti-

democratic nature of the Act itself. By allowing a mindset where suppliers and operators find it more beneficial to adopt technology that is cheaper and less safe we are endangering the safety of the people of the nation. This clearly violates the Right to Life, Health and Safe & Clean Environment that is encompassed in the broader Right to Life enshrined in Article 21 of the Constitution.

89) The Act provides that the liability of the operator will be strict and on a no fault basis. It also states that the operator will not be liable when the accident occurs due to a grave natural disaster of an exceptional nature and an act of armed conflict, hostility of war or civil war. An earthquake would amount to a grave natural disaster of an exceptional nature. Thus is in India, as in the case if Japan, there is an earthquake, as per the act the operator would not be liable for the damage that will be cause. In light of the Fukushima accident we have seen that the damage that can occur as a result of a natural disaster is immense and people need to be protected from the same.

90) The provisions of the Act go against the principle of Absolute liability as laid down by this court in M.C. Mehta v UoI (*Oleum Gas leak case)*. Understanding the need of increasing liability, this court in the Oleum gas leak case used the principle of strict liability as laid down in Rylands v Fletcher to devise the principle of Absolute liability. This was a step forward as the court desired to do away with the drawbacks of the strict liability principle and bring about greater accountability, thus the strict liability principle was made more rigid. This Hon'ble court in the said case (1987 1 SCC 395) held that if an enterprise engages in an inherently dangerous and hazardous activity and if some harm is caused as a result of this activity then the liability is absolute and not subjected to any exceptions as stated in Rylands v Fletcher. The rationale of the court for coming to this decision was because keeping in mind the change in industrial society that was technologically advanced and consisted of many hazardous industries. The court also believed that only the industry had the resources to discover, guard and warn against the hazards and dangers. The facts need to be acknowledged that the industry is in the best

position to absorb the cost of the accident and in the courts opinion the industry should bear the cost of the accident irrespective of what the cause of the accident was. As far as the supplier is concerned, the Act goes even further and grants full immunity. Two well-known physicists M V Ramana and Suvrat Raju have written extensively on the dangers of indemnifying suppliers. Three such articles published in Economic & Political Weekly (17.04.2010), Hindustan Times (15.08.2010) and The Hindu (20.08.2010) are collectively annexed as **Annexure P57 (Colly)**. (Page_____) An article written by senior journalist Praful Bidwai stating that the nuclear liability law is unconstitutional since it violates several legal norms, in his column in Frontline is annexed as **Annexure P58**. (Page_____)

91) Hence by, in effect, discouraging the use of safe practices, the Act puts the citizens of India at great risk of colossal damage that any nuclear accident can cause and therefore it violates the rights under Article 21 of the Constitution. The Act also goes against the settled principles of polluter pays and absolute liability that have become part of the Article 21 of the Constitution of India.

92) The Government's defence in support of this patently irrational law that privatises the profits and socialises the risks is that this is made in conformity with international law. Government states that it has signed Convention on Supplementary Compensation for Nuclear Damage. The petitioners submit that this Convention was pushed by nuclear industry and the United States, and there was no reason for India to sign this Convention. The said agreement was signed just 6 days before the US President was to visit India. A release of CSE states that India signed this Convention as a gift for the US President. A copy of the said release is annexed as **Annexure P59**. (Page_____) By signing this agreement and thrusting on the citizens a liability law that flouts constitutional norms is a singular act of bad faith on part of the Government.

93) The United States refused to ratify any treaty of this nature till 2008 because under the domestic law in US, nuclear suppliers/manufacturers are, in fact, legally

liable. US signed this agreement in May 2008 because under a so-called ‘grandfather clause’ it allows them to retain their domestic law while forcing others to change their domestic legislation. The said Convention is discriminatory and US recognizes this fact. US President in a statement issued said that US benefits by joining the Convention as it allows them to keep their existing law while mandating others to change. A copy of the said statement is annexed as **Annexure P60**. (Page_____) Only 4 countries in the world have ratified the said treaty and there is no reason for India to do so, especially when the treaty is in conflict with the Constitution of India. The petitioners submit that the Government must be stopped from ratifying the said Convention. A copy of the IAEA publication that gives the record of signatures and ratifications is annexed as **Annexure P61**. (Page_____)

Nuclear Regulatory System

94) The administration of the Atomic Energy Act, 1962, is entrusted to the DAE. The Secretary, DAE, in turn constituted the Atomic Energy Regulatory Board (AERB) by an executive order in 1983, because of which the AERB is a subordinate entity of the DAE. The AERB is answerable to the Atomic Energy Commission (AEC), whose Chairman is also the Secretary, DAE. Indeed, one cannot conceive of a more subservient existence - the regulatory agency has to report to those whom it is required to regulate and control in the public interest. Hence AERB is riddled with conflicts of interests, as it is answerable to a department whose stated aim is to build more and more nuclear plants. Former AERB Chairperson Dr. Gopalakrishnan in an article published in Frontline stated “The independent safety assurance and regulation has thus been made the responsibility of the same people who manage these installations, defeating the very principle of unbiased external scrutiny.” A copy of the said article dated 24.06.2000 is annexed as **Annexure P62**. (Page_____)

95) This organizational anomaly, compounded by the AERB's lack of technical staff and facilities, has crippled the regulatory process in many ways. Today, 95

per cent of the members of the AERB's evaluation committees are scientists and engineers on the payrolls of the DAE. This dependency is deliberately exploited by the DAE management to influence, directly and indirectly, the AERB's safety evaluations and decisions. The interference has manifested itself in the AERB toning down the seriousness of safety concerns, agreeing to the postponement of essential repairs to suit the DAE's time schedules, and allowing continued operation of installations when public safety considerations would warrant their immediate shutdown and repair. According to a report published in Tehelka, rules are consistently broken at India's nuclear facilities. A copy of the said report dated 02.12.2010 is annexed as **Annexure P63**. (Page_____)

96) Dr. Gopalakrishnan has also written that Nuclear Power Corporation of India Ltd (NPCIL)'s "strategy is to have their favourite consultants generate the kind of seismicity data that suits the NPCIL and there is practically no independent verification of their data or seismic design methodologies. A captive AERB with its Chairman reporting to Secretary, DAE makes the overall nuclear safety management in India a farce and worthless." A copy of the said article dated 18.03.2011 published in Financial Express is annexed as **Annexure P64**. (Page_____)

97) Moreover, in the past some general safety audits have been conducted by AERB i.e. one just after the Three Mile Island accident in the US and one after the Chernobyl disaster. The third one was conducted after Dr. Gopalakrishnan took over Chairman of AERB. In all these cases the reports have been kept "top secret" and no follow-up action has been taken to remedy the deficiencies revealed and thus putting to grave risk the safety of the people. In an article published in the DNA newspaper on 26.04.2011, Dr. Gopalakrishnan has given a account of the 3 nuclear safety audits he was aware of. He has stated the following:

> *"After I took over as AERB Chairman in June 1993, officials told me about the earlier safety audit reports. I insisted and got these reports from the DAE. Upon reviewing them, I was appalled at the clearly dangerous lack of*

safety in the various hazardous nuclear installations at that time due to the unattended safety problems over the previous 15 or so years, while the DAE continued to operate these installations at extremely high risk to the public."

"The nuclear safety audit reports from 1979, 1986 and 1995 and a detailed action taken report corresponding to each of these audits must be submitted to parliament and made publically available through the websites."

A copy of the said article is annexed as **Annexure P65**. (Page_____)

98) The non-disclosure clause under Section 18 of Atomic Energy Act has to be read in harmony with Article 19(1)(a) of the Constitution and the provisions of Right to Information Act, 2005 that empowers the citizens to obtain information on the functioning of all public authorities. In the aftermath of the agitation at Jaitapur and the use of coercive action against the protestors, a meeting took place on 26.04.2011 led by the Prime Minister who assured the nation that "the initial results of the six safety review Committees set up by the Government of India after the Fukushima accident will be made public. Action taken on previous safety reviews will be put in the public domain." Till date the respondents have not complied with this assurance, which reinforces our apprehension that they have no intention to take the public into confidence on nuclear safety. In the case of *S.P. Gupta v. President of India and Ors*, AIR 1982 SC 149, a 7 Judge Bench of this Hon'ble Court on the issue of people's right to information held:

"*If secrecy were to be observed in the functioning of government and the processes of government were to be kept hidden from public scrutiny, it would tend to promote and encourage oppression, corruption and misuse or abuse of authority, for it would all be shrouded in the veil of secrecy without any public accountability. But if there is an open government with means, of information available to the public there would be greater exposure of the functioning of government and it would help to assure the people a better and more efficient administration. There can be little doubt that' exposure to public gaze and scrutiny is*

one of the surest means of achieving a clean and healthy administration. It has been truly said that an open government is dean government and a powerful safeguard against political and administrative aberration and inefficiency." (Para 65)

99) Hence, it is essential that India's nuclear establishment functions transparently and puts out its safety audit reports, radiation, past accidents & near accidents, costs, power generation, fuel spent etc. of all existing & proposed nuclear facilities, in the public domain. The Aarhus Convention signed and ratified by 40 European countries gives their citizens right to information, public participation and access to justice in governmental decisions that have a bearing on environment. There is no reason why the same should be denied to our citizens.

100) In the U.S. the nuclear regulatory system was substantially strengthened only after experiencing the harsh realities of the Three Mile Island accident. Post-Chernobyl investigations found that the lack of independence of the then existing Soviet regulatory body was a major contributor to that accident. The Government has recently announced that a statutory nuclear regulatory body will be set-up. Thus it is essential that a completely independent expert nuclear regulator be created which should then take up extensive cost-benefit and safety assessment studies and would work in a completely transparent manner. The said regulator and the government must first make a case for viability of a proposed nuclear plant, before such a plant can be cleared. The said regulator, preferably, should be accountable to the Parliament. And till such a regulator is created, all proposed projects must remain stayed.

101) Prime Minister's Office issued a press statement on 26.04.2011 stating the Government would set-up an independent regulator, which petitioners submit, is implied acknowledgment of the fact that currently the regulatory system is virtually dysfunctional. A copy of the said statement is annexed as **Annexure P66.**

(Page_____) Now in a bid to push for more reactors and counter the charge of having a dysfunctional regulatory system, Government has introduced a Bill called Nuclear Safety Regulatory Authority Bill 2011 creating a Nuclear Safety Regulatory Authority (NSRA). A copy of the said Bill is annexed as **Annexure P67**. (Page_____) The said Bill envisages a regulator, whose chairperson and members would be selected entirely by central government, and hence regulator would be selected by an establishment that it is supposed to regulate. The central government would also have the power to remove the chairperson and the members in various circumstances including 'public interest'. The central government may exempt any nuclear material, activity or facility from the jurisdiction of the said authority. The authority is mandated to discharge its functions consistent with 'international obligations'. The said Bill envisages that the authority would be bound by law to follow all directions of the central government. The government is authorized o supersede the authority if those directions are not followed or in 'public interest'. The authority would be completely subservient to the wishes of the central government even for its staff or finances. Hence, for example, it would be no position to question a project like Jaitapur that the Prime Minister and Cabinet have so strongly supported. Such a law, if passed, would obviously not inspire confidence and would necessitate a safety study by an independent body appointed by this Hon'ble Court.

102) Dr. Gopalakrishnan had written a detailed article as to how the nuclear regulator should be constituted giving it an independent status, and making provisions for public participation and transparent functioning. A copy of the said article dated 26.05.2011 published in DNA is annexed as **Annexure P68**. (Page_____) However, the Government has done just the opposite in the Bill it has introduced. Dr. Gopalakrishnan has stated that the proposed "NSRA will, in fact, have fewer powers and less independence than the existing AERB." A copy of the said article dated 16.09.2011 analyzing the new Bill published in The Hindu is annexed as **Annexure P69**. (Page_____) The petitioners submit that an independent regulator must have its members selected transparently with broad-

based consultations by a representative committee and be given a fixed tenure, the regulator must have all functional autonomy, transparent working, be independent from the government and must be only accountable to Parliament.

Jaitapur Nuclear Project

103) The biggest of the projects that the Centre has planned, which also happens to be on paper the largest nuclear power station in the world, is planned in Jaitapur, in Maharastra's Ratnagiri district on the scenic Konkan coast, to be executed by Nuclear Power Corporation of India Ltd (NPCIL), a subsidiary of the DAE with 6 giant reactors of 1650 megawatts each, designed and manufactured by French nuclear company Areva. The environment clearance was hastily given only six days before French President's visit to India in December 2010. The environment ministry lists some vague "conditions" and grants environment clearance to the project. A copy of the letter dated 26.11.2010 issued by MoEF granting clearance is annexed as **Annexure P70**. (Page_____) The press release of the MoEF signed by the Minister states: "The decision to accord environment clearance for NPCIL's Jaitapur power generating complex has been difficult...But at the same time there are weighty strategic and economic reasons in favour of the grant of environmental clearance now." A copy of the said press release dated 28.11.2010 is annexed as **Annexure P71**. (Page_____) Thus it is clear that the MoEF was constrained and armed-twisted by extraneous reasons to grant environment clearance over-ruling all the environment and safety concerns. For this reason alone the said clearance is liable to be set-aside.

104) Konkan region is extremely rich in biodiversity. The Konkan ecology contains virgin rainforests and an immense diversity of plant, animal and marine life. Botanists say it is India's richest area for endemic plant species. The Sahyadri mountains in the Western Ghats are home to over 5,000 species of flowering plants, 139 mammal species and 508 bird and 179 amphibian species, including 325 globally threatened ones. Two great peninsular rivers (the Krishna and the Godavari) originate there. The Konkan region's rich natural resources are already

under severe threat on account of several “development” projects along the Western Ghats. These include 15 coal-based power projects totalling nearly 25,000 MW, 40 medium and small ports, nearly 40 medium and mega Special Economic Zones, major mining projects, and “chemical hubs”. Construction of a mega nuclear power plant would damage the entire ecology of the Western Ghats Konkan region irreparably. Water discharged from the plant into the sea will be 5 °C hotter than the ambient sea temperature. But “even a 0.5 °C of continual thermal stress will lead to mortality of marine species,” says a Bombay Natural History Society (BNHS) report. BNHS has mapped 407 hectares of mangrove vegetation in a 10 km-radius around the nuclear plant. A report by renowned environmentalist and Chairman, Western Ghats Ecology Expert Panel Mr. Madhav Gadgil encapsulates the natural beauty of the entire region. A copy of the report is annexed as **Annexure P72**. (Page_____) This is precisely where the Government has set-up many power plants and other industries near the coast. This has been done by “assessing” the environmental impact project-by-project without taking account the cumulative impact of all the projects on the Konkan-Western Ghats region. The Government plans to build new massive nuclear plants across the country including Jaitapur have met huge opposition from local people. To tackle protests that have stalled land acquisition process in some places, the Government has reportedly planned to amend Atomic Energy Act to outlaw the residents from any area near any proposed power plant by declaring any area as “prohibited.” A copy of news report on this is annexed as **Annexure P73**. (Page_____)

105) There are serious and genuine concerns about the safety and viability of Areva’s EPRs that are to be imported for the Jaitapur nuclear power “park”. Nowhere in the world has an EPR been fully built or commissioned so far. Two EPRs are already beset by serious safety and financial problems and delays. Areva itself has been going thorough a devastating financial crisis. In 2009, it sought $4 billion in a short-term bailout from French taxpayers. Its shares plunged by over 60 per cent. Over 3,000 safety and quality problems were recorded with

the construction by the Finnish safety agency STUK, the French nuclear safety agency Autorité de Sûreté Nucléaire, and the UK's Nuclear Installations Inspectorate. A joint press release issued by nuclear regulators of UK, French and Finland on 26.11.2009 states that safety aspect of reactors made by Areva need to be assessed. A copy of the said release is annexed as **Annexure P74**. (Page_____) A press release issued by Nuclear Regulatory Commission regarding safety issues of reactors built by Areva dated 23.07.2010 is annexed as **Annexure P75**. (Page_____) A detailed feature report on serious safety concerns regarding French EPRs published in New York Times on 26.07.2010 is annexed as **Annexure P76**. (Page_____)

106) Dr. A Gopalakrishnan in an article published in India Today stated "The import of (nuclear) reactors was the price that the prime minister paid as a quid pro quo arrangement for the NSG clearance (for the Indo-US nuclear deal), which has now landed India in the precarious position of becoming the dumping ground for hitherto unbuilt and untested high-cost nuclear reactors, such as the French EPRs at Jaitapur, which could endanger several thousand lives." A copy of the said article dated 07.02.2011 is annexed as **Annexure P77**. (Page_____) Prof. Brahma Chellaney has written "…multibillion-dollar (nuclear) imports constitute a giant scandal in the making, with long-term safety implications. Take the plan to install 9,900 MW of nuclear-generated capacity at Jaitapur: not only was the environmental impact assessment hurriedly approved, coercive efforts are also being made to acquire land to allow France's Areva to build six reactors-none of these of a type operational anywhere." A copy of the said article dated 29.12.2010 published in The Mint is annexed as **Annexure P78**. (Page_____)

107) The EPR is the largest-ever nuclear reactor designed in the world and has a much higher density of fission-causing neutrons and fuel burn-up than do normal reactors (of 500-1000 MW capacity). The EPR's high fuel-combustion rate will lead to greater production of harmful radionuclides, including seven times higher production than normal of iodine-129, with dangerous implications for radioactivity

releases, damage to the fuel cladding, and waste generation. India's DAE has a long history of poor or non-existent regulation, persistent below-par performance, and accidents. Moreover, it has no experience of running huge reactors like EPRs. Most existing Indian reactors are up to eight times smaller (220 MW), the biggest ones being one-third (540 MW) the size of an EPR (1,650 MW).

108) It should also be noted that Jaitapur is located in an earthquake prone area. Although the Department of Atomic Energy claims that Jaitapur is located in Zone III in the earthquake hazard-zoning map, ranging from I to V in the order of increasing seismic intensity, over the past 20 years alone, there have been three earthquakes in Jaitapur exceeding 5 points on the Richter scale. In 1993, the region was traumatized by the Latur Earthquake, which registered 6.3 on the said scale and left 9,000 people dead. And last year, an earthquake caused the bridge to Jaitapur to collapse. The assumptions underlying seismic zoning are liable to change dramatically, as evidenced by the disastrous Koyna Earthquake, measuring 6.5 on the Richter scale, which struck in the vicinity of Pune in December 1967. The possibility of a high intensity earthquake near the eastern sea-board cannot be discounted. A news report published in Times of India states that in the past 20 years there have been 92 earthquakes in and around Jaitapur. A copy of the said report dated 16.03.2011 is annexed as **Annexure P79**. (Page_____)

109) An impact assessment report of Tata Institute of Social Sciences (TISS) states that the Jaitapur nuclear project would have huge negative impact on social and environment development as it is on an earthquake-prone site. A copy of the news report on this dated 29.12.2010 is annexed as **Annexure P80**. (Page_____) This would make the site unsafe, considering the disaster at the Fukushima-Daiichi nuclear power station in Japan, where reactors suffered serious accidents damaging their cores, and released harmful radiation, resulting in radiation burns and other injuries. The people had to be evacuated from the area

of radius of tens of kilometers, which is impossible in a densely populated country like India were even a minor radiation leak to occur. The EIA clearance of the project too has been criticized by Centre for Science and Environment (CSE) in their technical analysis of the EIA. Release of the CSE on this is annexed as **Annexure P81**. (Page_____) Because of the persistent danger to life near the Jaitapur plant, a 1000-acres education hub that was planned 15 km away from the plant site has been aborted. A news report on this dated 30.08.2011 is annexed as **Annexure P82**. (Page_____)

110) Serious questions have been raised about the economic costs of the Jaitapur project based on the extremely expensive European Pressurised Reactors. Each of the six 1,650 MW reactors would cost around $7 billion assuming the capital cost of the EPR being built at Olkiluoto does not escalate beyond the latest estimate of 5.7 billion Euros. This works out to Rs 21 crores per megawatt (MW) of capacity. An article on this written by senior journalist and researcher Praful Bidwai published in EPW dated 19.02.2011 is annexed as **Annexure P83**. (Page_____)

111) In an article published in Tehelka on 07.05.2011, Dr. Gopalakrishnan states that “An EPR will cost no less that RS. 20 crore per MWe…As against this, an Indian Pressurised Heavy Water Reactor (PHWR) will cost at the most Rs 8 Crore per MWe.” A copy of the said article is annexed as **Annexure P84**. (Page_____) This cost estimate, however, does not include other cost components—storage of nuclear waste; the cost of reactor decommissioning which could amount to one-third to one-half of the total construction cost; the extensive additional physical security costs, including anti-aircraft batteries and the extra coast guard deployment. The above cost calculation also does not include environmental costs, and health costs imposed on miners, plant workers, and the public living close to nuclear installations, and the associated medical expenses.

112) Comparing the likely cost of electricity generation in Jaitapur, based only on the capital cost, with other available options leads to alarming conclusions. According to the current Finnish estimate, itself conservative, the EPR's capital costs (Rs 21 crores per MW) are far more expensive than those of the indigenous reactors installed at the Rajasthan, Madras, Narora and Kaiga power stations, which are about Rs 10 crores per MW. They are even higher than the capital costs of supercritical coal-fired thermal power stations (Rs 5 crores per MW). Put another way, the six EPRs at Jaitapur will together cost the Indian public about Rs 2 lakh crores. Hence, even the basic cost factor alone makes the Jaitapur nuclear plant unviable. It is an even bigger scandal in the making than the Enron power project in Maharashtra ever was.

113) The Government plans for setting up nuclear plant at Jaitapur have already met huge resistance from local people where the Government has had to impose Section 144 CrPC, detain hundreds of people, blocked information from the plants and now one person has died & several injured in police firing of the protestors. A statement issued by a well-respected local association of people Konkan Bachao Samiti against the project is annexed as **Annexure P85**. (Page_____)

114) The TISS Study quoted above states that that it would be a mistake to construe the people's struggle against the plant as an agitation for higher compensation. News report published in The Hindu on 29.12.2010 on this is annexed as **Annexures P86**. (Page_____) Greenpeace International has released a briefing strongly opposing the Jaitapur project on the grounds noted above. A copy of the said brief is annexed as **Annexure P87**. (Page_____) According to an investigative report published in Tehelka, the human cost of the project would be huge. A copy of the said report dated 18.09.2010 is annexed as **Annexure P88**. (Page_____) Dr. EAS Sarma, Former Union Power Secretary (Petitioner No. 3) had written a piece giving detailed arguments as to why Jaitapur power project would be completely redundant for meeting the electricity needs. A

copy of the said piece dated 15.02.2011 is annexed as **Annexure P89**. (Page_____)

115) A statement has been issued by 70 eminent citizens opposing the go-ahead given to Jaitapur project by completely disregarding local opposition and grave safe risks. It states: "*We are shocked at the government's sheer insensitivity in announcing on the 25th anniversary of the Chernobyl catastrophe that it is going ahead with the Jaitapur nuclear power project. This means disregarding the overwhelming opposition to the project by 40,000 local people and the larger public, the caution counseled by numerous experts, and the grave safety concerns raised by still-unfolding Fukushima nuclear disaster in Japan.*" A copy of the said statement dated 30.04.2011 along with its list of signatories is annexed as **Annexure P90**. (Page_____)

116) Now French company Areva, whose reactors Government wishes to import, has been found to be guilty of introducing toxic substances into underground water and for delay in communicating the leaks to the French safety authority. French appellate court has fined them Euro 40,000. A report on this published in The Hindu dated 11.10.2011 is annexed as **Annexure P91**. (Page_____) Such a massive nuclear plant would always be vulnerable to threats from terrorists as can be seen from examples from across the world. A list of attacks on nuclear plants and facilities worldwide is annexed as **Annexure P92**. (Page_____)

117) Thus it is absolutely essential, when huge costs and damage is likely, that under 'Precautionary Principle' (which is part of Article 21 of the Constitution) environmental clearance to Jaitapur plant is revoked and the project be halted till a comprehensive safety assessment and cost-benefit analysis is carried out by an independent expert body or commission.

118) The Petitioners have not filed any other writ, complaint, suit or claim in any manner regarding the matter of dispute in this Hon'ble court or any other court or tribunal throughout the territory of India.

GROUNDS

A. The Government's plans for expansion of nuclear power programme and construction of newer and huge nuclear power plants without undertaking a thorough safety and comparative cost-benefit analysis, clearly made under the influence of foreign countries and multi-billion dollar nuclear industry, shows arbitrary decision-making, based on extraneous considerations and non-application of mind. The same is in violation of Article 14 and Article 21 of the Constitution of India.

B. The non-existence of an independent nuclear safety authority or regulator puts public safety to extreme risk public safety and is therefore violative of Article 21 of the Constitution which guarantees the rights to life, clean environment, health and safety. The expression 'clean environment' includes an environment free from radiation. Right to a radiation-free environment is part of the rights guaranteed under Article 21 of the Constitution of India.

C. The Government plans to construct mega nuclear power plants without any assessment of the safety risks of new technology, seismic risks, risk of uranium mining and the risks of radiation, using imported reactors of extremely dubious quality and safety standard, violates the precautionary principle and right to safety and clean environment guaranteed under Article 21 of the Constitution and are a result of non-application of mind.

D. Public hearings, that are mandatory under law before an environment clearance is given, have not been properly conducted and the strong opposition of large local populations has been ignored. The same is

arbitrary, defeats the objective of mandatory public hearings and violates Article 14, 19 and 21 of the Constitution of India. EIAs are funded by project developers creating a situation of clear conflict of interest. This Hon'ble Court has abhorred such practice in the Lafarge case.

E. The Government plans to order imports of nuclear plants and material of billions of dollars from select foreign companies through private negotiations, without proper technical and safety evaluation and without any competitive bidding/auction, are arbitrary and violate Article 14 of the Constitution. This Hon'ble Court has repeatedly held that contracts by the State must be made after public auction/tender and with requisite transparency. This Hon'ble Court has held (2004 3 SCC 214) that "In all actions, even in the field of contracts, an instrumentality of the State must be governed by Article 14. It cannot afford to act with arbitrariness or capriciousness…In the field of contracts, the State and its instrumentalities ought to design their activities as would ensure fair competition and non-discrimination." Not only has the Government entered into agreements with foreign nuclear suppliers without any competitive process, without any transparency and without a public notification, the Government has also not evaluated the technical specifics of the various nuclear reactors of different manufacturers/suppliers and has ignored the safety aspects as is now clear about the lack of safety of French and Russian nuclear reactors that are being imported.

F. The Government's plans to construct newer mega nuclear power plants with each one costing tens of thousands of crores of rupees without any proper comparative cost-benefit analysis of nuclear power per se and in comparison with other alternative sources of energy is arbitrary and violates Article 14 of the Constitution. Therefore, without a thorough calculation and determination of the true risks & costs of nuclear energy and without carrying out a comparative cost-benefit analysis, the Government plants to

promote nuclear energy at a massive unmanageable scale are therefore made without proper application of mind, by ignoring relevant considerations, by taking into account irrelevant considerations and are arbitrary. The same, therefore, violate the mandate of Article 14 of the Constitution of India.

G. The Civil Liability for Nuclear Damage Act, 2010 by capping the financial liability of operators and by making suppliers not liable violates the 'polluter pays' principle and the 'absolute liability' principle which have become recognized as part of the law of the land under Article 21 of the Constitution, and puts to grave and imminent risk the right to safety, health, clean environment and life of the people of India guaranteed under Article 21 of the Constitution.

H. The non-transparent, non-accountable functioning of the nuclear facilities and the complete secrecy over the safety audits and other information regarding radioactivity, accidents and costs violates Article 19(1)(a) of the Constitution which guarantees the right to information, and the same being arbitrary is violative of Article 14 of the Constitution.

I. This Hon'ble Court in A. P. Pollution Control Board vs. M V Nayudu (1999 (2) SCC 718) held that precautionary principle is applicable to India. The principle mandates that when a new technology or process can cause serious and irreversible harm to human health and the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context, the proponent of the uncertain activity rather than the public has to bear the burden of proof.

J. This Hon'ble Court in Vellore Citizens' Welfare Forum v. Union of India (1966) 5 SCC 647 held that "precautionary principle", "polluter pays

principle", shift of burden of proof, are part of the law of the land derived from Article 21, 47, 48A and 51A(g) of the Constitution of India and customary international law.

PRAYERS

In view of the facts & circumstances stated above, it is most respectfully prayed that this Hon'ble Court in public interest may be pleased to: -

a. Direct that an expert body, which is independent of the government and the nuclear establishment, conduct a thorough safety reassessment of all existing and proposed nuclear facilities in the country and of all the mining facilities of uranium and other nuclear fuel in the country

b. Direct such an expert independent body to conduct a thorough health and safety review of the uranium mining regions in the country

c. Direct an independent expert body to conduct a thorough cost-benefit analysis of all proposed nuclear facilities and a thorough comparative cost-benefit analysis vis-à-vis other sources of energy

d. Direct the Union of India to set-up an expert nuclear regulator, independent of the government

e. Declare the Civil Liability for Nuclear Damage Act, 2010 as unconstitutional and void *ab initio*.

f. Declare that in the case of a nuclear accident, all nuclear operators and nuclear suppliers, would be jointly & severally, and absolutely liable for civil damages, and their financial liability would be unlimited

g. Issue an appropriate writ cancelling clearances given to proposed nuclear power plants and staying all proposed nuclear power plants till requisite safety assessment studies, thorough comparative cost-benefit analysis and meaningful public hearings are carried out by or under the supervision of an independent expert body.

h. Declare all the agreements signed between the Government and private companies, for supply of nuclear reactors & equipment, based on private negotiations, without any competitive process/bidding/tender, without proper technical & safety evaluation, without transparency as void ab initio.

i. Declare that in future all agreement for purchase of nuclear reactors and equipment would only be made only after proper technical & safety evaluation, with competitive process/bidding and with full transparency.

j. Direct that all information regarding previous safety audits, radiation, past accidents & near accidents, costs in all forms, power generation, fuel spent, all agreements signed between Government & nuclear suppliers and all other information concerning public safety and interest, of all existing & proposed nuclear facilities be put in the public domain & on the website of Department of Atomic Energy.

k. Issue or pass any writ, direction or order, which this Hon'ble court may deem proper in the interest of nuclear safety and clean environment.

Petitioners
Through

PRASHANT BHUSHAN
Counsel for the Petitioners

Drawn By: Pranav Sachdeva
Drawn On: October 2011
Filed On: October 2011
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