

## NATIONAL CONFERENCE ON TECHNOLOGICAL DEVELOPMENTS AND CHANGING DIMENSIONS OF LAW

-JAANVI PANDEY<sup>1</sup>, APOORVA SINHA<sup>2</sup> & RUDRESH KUMAR SRIVASTAVA<sup>3</sup>

### ABSTRACT

#### Explicating Nuclear Power in India: A Utilitarian Postulation

*“The conflict might’ve been between AC & DC, but it did leave the whole world lightened up.”*

*-Anonymous*

Power is the essence of any developed nation. One might try and stick to the old and traditional ways, but *the only way to move forward is to leave something behind*. Every single nation relies heavily upon electricity for its everyday work, and India is the same when it comes to this. The demand for electricity in India is met mostly by Thermal Power Plants, which account for almost 75% of the Power Generation in the nation, other factors being Hydro-Electric Plants (9%), Natural Gases (5%), Solar and Wind (4%) and Nuclear Plants (2.6%). Though Thermal Plants are heavily accountable for Power Generation in the nation, they are neither cost-friendly nor eco-friendly when it comes to their operations. Hydroelectric power plants are also not at all reliable when it comes to long term power output, owing to regular maintenance and less output.

It is estimated that the probability and intensity of a disaster occurring out of a nuclear power plant is more or less the same when compared to the Thermal Power Plants. Yet, there is a stigma revolving around, on the usage of nuclear resources in the power generation sector. There is a very big misconception regarding the use of Nuclear Resources in the minds of the masses. It is a kind of conditioning that nuclear resources are hazardous; the nuclear weapons used back in World War II has left an everlasting fear and trauma in the minds of generations to come.

This paper aims to blow the lid off and embrace the nuclear resources and set up more and more Nuclear Power Plants in the nation. India in its present state requires strictly defined civil laws governing nuclear power in India as well as a liberal approach from the side of the bureaucracy

---

<sup>1</sup> Student B.B.A LL.B (Hons.) 2<sup>nd</sup> year ICFAI law School, The IFCAI University Dehradun

<sup>2</sup> Student B.B.A LL.B (Hons.) 2<sup>nd</sup> year ICFAI Law School, The IFCAI University Dehradun

<sup>3</sup> Student B.B.A LL.B (Hons.) 3<sup>rd</sup> Year ICFAI Law School, The IFCAI University Dehradun

towards maximum utilization of our nuclear resources, thereby, being harmonious with Bentham's theory of Utilitarianism. It is time when India should opt for Nuclear Plants for the production of a major portion of its Electricity. Not only is the production of electricity through the Nuclear Plants cost-effective but, also, eco-friendly. Far from being the Devil's excrement, nuclear power can be, and should be, one major component of our rescue from a hotter, more meteorologically destructive world.

### **INTRODUCTION**

The term "Nuclear" always instills a sense of fear, depravity, and discomfort amongst the general public. This feeling of the public has also developed overtime certainly because this very term has always come up in times of a real world crisis. The term sprang out and made sense to the people of this world in 1945, when the United States dropped 2 bombs on Hiroshima and Nagasaki and it has been amongst us throughout in the Cold War, Nuclear Tests, 9/11 aftermath etc. But this term is certainly not limited to it, solely because we have only seen one face of it.

Just like Wind, Solar, Hydroelectric, Thermal etc. Nuclear is also a form of energy which can be utilized in many ways except of just making nuclear bombs. Radioactive elements have a lot of energy closely packed amongst them, and nuclear energy is the way to utilizing them in a proper, efficient and a green way. The law of conservation of energy states that "*energy can neither be created nor be destroyed; it can only be changed from one form to another*". Simply speaking, we are here on this planet with a certain amount of energy, though we will never run out of it, because it can't be destroyed, just changed, we will indeed run out of forms of energy which can be channelized for fulfilling our needs.

Electricity today is more like a fundamental right to every person, and its importance has been increasing every single day since Michael Faraday found the idea of Electromagnetic Induction, through Nikola Tesla's Alternating Current and how it is carried on in the modern day. The world can literally 'stop' when there is no electricity. The problem which the world has started facing today and which will be a really big one in the coming days is the method of production of electricity which is efficient and particularly one which does not harm the environment in any way. The leading way of production of electricity in present time is unquestionably Thermal Power. There is no denying that Thermal Power accounts for the highest gross electricity production in the world, but in no way possible is it a way which is efficient, clean, or reliable for a long time. The very reason of reliability being that Thermal Power is achieved by the

burning of coal and other fossil fuels in Thermal Power Plants, which cannot last long because we have a limited supply of fossil fuels, so when these fuels cease to exist, we won't be left with anything else to produce our electricity from. Solar, Wind, Hydroelectric are great sources of electricity as long as they are used secondarily, solely because they are not made in such a way to be a primary source of supply for electricity, each having their own shortcomings at times. This leaves us with Nuclear energy, which is extremely efficient, reliable, and very green towards the planet. Nuclear power plants use nuclear fission to split an atom into two lower atomic number elements, which results in release of energy, which can be utilized towards production of electricity. This energy which we obtain from nuclear power plants is completely green, because there is no release of greenhouse or other poisonous gases because of this. Also, the amount of nuclear fuel required to produce a unit of electricity is 1/100<sup>th</sup> of that required from fossil fuels.

Nuclear Energy is legit the only way to go forward in production of electricity because it has a number of benefits without any collateral cost. But, for it to be implemented in India, there is a long way to go. Partly because India lacks on its part on proper legislations which control the same, proper sources for procurement of fuel, or any support on part of government regarding the use of such resources on a larger scale. The Indian Government, for what godforsaken reason is not presumably active in extending proper support to the authorities regulating Nuclear Power. The very idea of production of electricity could become efficient, the cost of procurement of electricity to the poor could go down, just by implementation of Nuclear Resources in the production of electricity. For it to be implemented, proper R&D funding needs to be allocated towards such research and the government should promote such establishments for the better productivity from such resources.

### **THE EMERGING NEED FOR ELECTRICITY IN INDIA**

“Every village in India now has electricity. But millions, still live in darkness.”. India is one of the fastest growing economies where the demand of every sector is an unending story. The energy sector is one of the most critical components of an infrastructure that affects the growth of economy in India. India is even the world's third largest producer and the third largest

consumer of electricity.<sup>4</sup> India also has one of the highest potentials for harnessing the renewable energy as it is bestowed with such natural resources and geographical and climatic conditions that support the promotion of renewable energy technologies like solar, wind, biomass and small hydro. There is a high demand for electricity but the supply is limited. It is reported by World Bank that the demand for electricity in India will almost be triple between 2018 and 2040<sup>5</sup>. The main reasons for the high demand is because of continuously increasing population and the continuous economic growth. This clearly depicts that there is an imbalance of demand and supply with the sector. While, industrial sector is the main energy consuming sector- an almost of 50% ; the demand is expected to rise heavily. In the recent years, the rise in the demand of electricity has been so high that many villages are still surviving in darkness. There are numerous of villages in India who have no access to electricity at all. The problem here is the power capital energy consumption in India is very less with respect to other developing countries. Electricity is a development indicator and critical for India's economic growth. India in 2016 produced 1478 TWh of electricity, 1105 TWh (75%) of this from coal, 138 TWh (9%) from hydro, 71 TWh (5%) from natural gas, 59 TWh (4%) from solar and wind, 38 TWh (2.6%) from nuclear, 44 TWh from biofuels, and 23 TWh from oil.<sup>6</sup>

India has both exhaustible and renewable sources of energy where coal, oil and natural gas constitutes the primary sources for the production of energy.<sup>7</sup> Coal is the most important sources for the generation of electricity in India where it accounts for 55% of total energy supplies.<sup>8</sup> India even have crude oil reserves like petroleum which is again a source for generating electricity. The various sectors including industries and agricultures are moving towards the consumption of Natural Gas which in turn is increasing the demand for it. The renewable energy sources like solar energy, wind energy and hydro energy are viable sources for the generation of

---

<sup>4</sup> "Business Standards", available at: [https://www.business-standard.com/article/economy-policy/now-india-is-the-third-largest-electricity-producer-ahead-of-russia-japan-118032600086\\_1.html](https://www.business-standard.com/article/economy-policy/now-india-is-the-third-largest-electricity-producer-ahead-of-russia-japan-118032600086_1.html) (last visited on 11 April, 2019)

<sup>5</sup> "Power Sector Distortions Cost India Billions", available at: <https://www.worldbank.org/en/news/feature/2018/12/17/new-report-power-sector-distortions-cost-india-billions> (last visited on 11 April, 2019)

<sup>6</sup> "Nuclear Power in India", available at : <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/india.aspx> (last visited on 11 April, 2019)

<sup>7</sup> "Indian energy sector: an overview", available at- [http://www.indiaenergyportal.org/overview\\_detail.php](http://www.indiaenergyportal.org/overview_detail.php) (last visited on 11 April, 2019)

<sup>8</sup> *Supra* Note 4

electricity. But the very fact that the energy generated from Solar plants and Wind plants are not even able to produce even half of the amount of energy which is needed to satisfy the supply in the country, the country is solely dependent on coal, nuclear power and hydro power.

The energy sector of India is largely disrupted and is challenging; because of this, the demand for electricity in the country is not fulfilled completely. The demand for reliable and sustainable resource of energy is highly needed. India fulfills most of the need of electricity through coal burning power plants which accounts for Greenhouse emissions. Nuclear energy on the other hand release least amount of Carbon Dioxide and makes itself as an eco-friendly resource.

Need for electricity has also been a source of political Manifestation too. The States have the full authority to set the electricity prices along with the average subsidy level. The political parties in the past as well as in the present have always used “Electricity for all” as an agenda for their elections. When Modi’s government came into power, most of the rural population survived under candlelight. PM Modi during his campaign rallies for the 2014 General elections claimed that if elected, he would ensure ‘power for all.’ It was also in this year that the World Bank ranked India as having the world’s largest un – electrified population.<sup>9</sup> While the present government has made some progress towards fulfilling its promise for ‘power for all, India’s most marginalized citizens still have no access power. The supply of electricity which is one of the major concern for the country has been an objective for the ruling parties contesting elections. AAP’s manifesto currently for Punjab elections carries promises to supply power at the cheapest rates in the State. Power supply rate in villages is still very low which is a big issue currently. This issue is manipulated by the parties to fill up their vote banks. These manifestos clearly prove as to how serious is the issue of supply of power to the country is. Electricity thus has become the basic amenity today. We as a nation need it, for education, for health, for economic activities, for survival.

### **POWER GENERATION IN INDIA**

The power sector in India has perceived high growth over the years. With growth, comes demand and with the demand comes the need to supply. India is a land of agriculture; where

---

<sup>9</sup> “Year in Review: 2018 in 14 Charts”, available at- <https://www.worldbank.org/en/news/feature/2018/12/21/year-in-review-2018-in-14-charts> (last visited on 11 April, 2019)

majority of the population resides in villages and rural areas and uses wood, agricultural wastes and livestock dung as a source of energy. Whereas the scenario in the urban areas are completely opposite where people use oil, natural gas, hydroelectricity or nuclear power to consume electricity from. To list, most of the energy generation in India comes from coal and petroleum. The Government has constituted numerous Ministries to control the power supply in India. The **Ministry of Power** governs the power sector of India. It is the apex body which is responsible for the electricity generation as well as electricity development.

India has 22 operating nuclear reactors and 7 under construction. It produces 38 TWh of electricity from its nuclear resources, that is just 2.6% of the total. A majority of electricity is produced from the burning of coal, 1105 TWh, i.e., 75% of the total. Other sources are hydro (9%), natural gas (5%), and, solar and wind (4%).<sup>10</sup> It is estimated that the probability and intensity of a disaster occurring out of a nuclear power plant is more or less the same when compared to the Thermal Power Plants. Yet, there is a stigma revolving around, on the usage of nuclear resources in the power generation sector. In the opinion of the United Nations, climate change is a serious threat to the existence of humans. Despite this fact, there is a rapid increase in the emission of carbon dioxide (CO<sub>2</sub>). While on the other hand, the residues from the nuclear reactors, i.e., the radioactive wastes, do not emit greenhouse gases. In fact, nuclear reactors produce about the same amount of CO<sub>2</sub> equivalent emissions per unit of electricity as wind. In this growing modern world, there is increasing demand of electricity which can be easily met by using the available nuclear resources and without harming the environment and the existence of mankind.<sup>11</sup>

Thirteen countries in 2017 produced at least one-quarter of their electricity from nuclear. France gets around three-quarters of its electricity from nuclear energy; Hungary, Slovakia and Ukraine get more than half from nuclear, whilst Belgium, Sweden, Slovenia, Bulgaria, Switzerland, Finland and Czech Republic get one-third or more. South Korea normally gets more than 30% of its electricity from nuclear, while in the USA, UK, Spain, Romania and Russia about one-fifth of

---

<sup>10</sup> Nuclear Power in India, available at: [www.world-nuclear.org/information-library/country-profiles/countries-g-n/india.aspx](http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/india.aspx) (last visited on 11 April,2019)

<sup>11</sup> Nuclear Energy and Climate Change, available at: <http://www.world-nuclear.org/nuclear-basics/nuclear-energy-and-climate-change.aspx> (last visited on: 11 April, 2019)

electricity is from nuclear. Japan is used to relying on nuclear power for more than one-quarter of its electricity and is expected to return to somewhere near that level.

There is an acute demand for more reliable power supplies, though early in 2019 India was set to achieve 100% household electricity connection, yet, here it stands. The government's 12th five-year plan for 2012-17 targeted the addition of 94 GWe over the period, costing \$247 billion. By 2032 the plan called for total installed capacity of 700 GWe to meet 7-9% GDP growth, with 63 GWe nuclear. The OECD's International Energy Agency predicts that India will need some \$1.6 trillion investment in power generation, transmission and distribution to 2035.<sup>1213</sup>

In March 2018, the government stated that nuclear capacity would fall well short of its 63 GWe target and that the total nuclear capacity is likely to be about 22.5 GWe by the year 2031 India has a priority to alleviate poverty from the ground level and transform itself from an economically developing nation to an economically developed nation.<sup>14</sup> As the IEA WEO<sup>15</sup> 2017 puts it "*coal remains a key pillar of the power system in India*". India is the third largest producers of coal in the world. The importance of coal means that CO<sub>2</sub> emission reduction is not a high priority, and the government has declined to set targets ahead of the 21st Conference of the Parties on Climate Change to be held in Paris in 2015. The environment minister in September 2014 said it would be 30 years before India would be likely to see a decrease in CO<sub>2</sub> emissions.<sup>16</sup>

Due to the three major nuclear disasters, the world and especially India is drawing itself back from making the nation and at large the environment safe for the future generations. We have facts and figures indicating the effectiveness of Nuclear Power Plants in generating the electricity; yet, India ends up producing just 2.6% of the total electricity from its nuclear resources. It does not lack behind because of science or technology, it does have enough of that; it lacks behind because it lacks on the will to stand out, to properly implement laws. We have

---

<sup>12</sup> Annual Report 2014-2015, available at: <http://dae.nic.in/writereaddata/areport/ar1415.pdf> (last visited on: 11 April, 2019)

<sup>13</sup> Nuclear Power in India, available at: <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/india.aspx> (last visited on 11 April, 2019)

<sup>14</sup> *Ibid*

<sup>15</sup> Key World Energy Statistics, available at : <https://www.iea.org/publications/freepublications/> (last visited 11 April, 2019)

<sup>16</sup> NITI Aayog Report, available at: <https://in.reuters.com/article/india-coal-energy/coal-to-be-indias-energy-mainstay-for-next-30-years-niti-aayog-report-idINKCN18B1XE> (last visited on: 11 April, 2019)

enough laws, rules and directives; the need of the hour calls out to those in the centre with the authority to take decisions to stop with their appeasement policy and vote bank agenda and take a leap keeping the primary concern of the welfare of public and environment at large.

The question is, will we allow an accident in a 40 year old reactor to derail our dreams to be an economically developed nation?

### **NUCLEAR ENERGY: ENVIRONMENT FRIENDLY**

With the rise and population and the increase in demand for electricity, there is a need to use a source of energy which is more reliable, which is more efficient and which is more sustainable. Nuclear Energy fulfills all the three purposes. The production of electricity at a reasonable price while causing least harm to the environment is a goal for many countries. Yet no country till now has been able to implement this goal completely. But, use of nuclear energy can be a stepping stone to achieve this goal. India has the third largest coal reserves in the world, and where most of the power generated in India is by burning coal, it is a big concern because the coal-based thermal power plants are the least efficient and the most polluting source. Coal-fired power sector was found to be one of the most resource wasteful and polluting sectors in the world.<sup>17</sup> Although Nuclear power plant and Fossil thermal power plant both use steam to convert the heat or thermal energy to produce electricity but the only difference is with the heat source. Nuclear power plants use nuclear reaction to produce electricity but thermal power plants use combustion of coal. Although the effective implementation of nuclear power plants is very systematic requiring lots of care and precaution but it contributes to the environment immensely.

Coal based power plants has numerous side-effects on air, water, soil and people. It causes respiratory ailments, affects historic structures Causes climate change, affects water quality and thus reduces quantity available for human consumption, affects fishing as hot water let into sea kills or causes migration of marine species, limits crop cultivation due to increase in alkalinity of soil , limits crop cultivation as land available for agriculture reduced, affects plant growth, affects livelihood for farmers and fishermen and increases risk of accidents due to hazardous

---

<sup>17</sup>“Thermal Power” available at: <https://www.downtoearth.org.in/news/energy/thermal-power-53219> (last visited on 11th April)

working conditions.<sup>18</sup> Summing all of them, coal based power plants have numerous hazardous effects to the environment and the continued use of them can prove to be detrimental to the survival of Human species. Coal based power plants release majority of carbon emissions when their carbon-containing fossil fuels are burnt which release carbon Dioxide in return. Yet, it is very disheartening to accept the fact that the use of thermal power plants in India is the most. Unlike fossil fuel power plants which produce methane and carbon dioxide which are the primary of greenhouse gases (GHG) nuclear power also produces gases in the form of water vapor which is not a GHG. The amount of greenhouse gases has been declined by nearly half because of the acceptance in the utilization of nuclear power.<sup>19</sup> Nuclear power produces very cheap electricity.

The cost of the uranium is very low. Although the capital cost of setting up nuclear power plants is moderately high, the operating and maintenance cost are quite low. The normal life of nuclear reactor is between 40-60 years, depending on how often it is used and how it is being used.<sup>20</sup> Thus nuclear power plants are more cost-effective than thermal power plants. Nuclear power doesn't release carbon dioxide as a by-product and causes less harm to the environment as compared to the thermal power plants and this very fact accounts for it being more reliable and eco-friendly. The very fact that there is no shortage of suitable sites for the installation of nuclear power plants when land use, carbon footprint, materials and fuel density is taken into consideration, nuclear power plants proves to be the best way to generate electricity.<sup>21</sup> The Paris Agreement that was signed in 2016 by 175 countries and India being one of them calls to limit the increase in global average temperature to well below two degrees Celsius above pre-industrial levels.<sup>22</sup> The points in the agreement asks the countries to continue the use of Nuclear

---

<sup>18</sup> “ Impacts of Power Plants’, available at: <https://www.thermalwatch.org.in/environmental-impact-assessment/impacts-power-plants> (last visited on 11th April)

<sup>19</sup> “The Environmental Impact Of Nuclear Power Plants With A Focus On Calvert Cliffs Nuclear Plant And How CO2 And CO2e Contribute To Climate Change”

<sup>20</sup> *Supra* note 3 at

<sup>21</sup> “ Why we Need Nuclear Power to Save the Environment” available at- <http://energyforhumanity.org/en/climate-energy/need-nuclear-power-save-environment/> (last visited on 11 April,2019)

energy as a source of electricity because of its unarmful and unobjectionable effects to the environment.

Taking inspiration from the words of our very own, Dr A.P.J Abdul Kalam, : “Nuclear power is our gateway to a prosperous future.”, the implementation of nuclear power plants holds supreme importance for the Government. The image of black hole released on April 10<sup>th</sup>, 2019 revealed the dark shadow of the enormously big Black Hole, pinpoints the very fact that existence of Human beings is at risk. Therefore, it is of utmost importance to take steps to reduce Global warming and at the same time, satisfy the needs of the country and thus the effective use of Nuclear Power Plants is the most crucial step to be taken right now.

### **WASTE MANAGEMENT**

Every industry generates some waste and does the Nuclear Industry. The Nuclear Power Plants emit radioactive waste, which no doubt is hazardous to the people and sometimes to the generations to come. The radioactive waste takes a very long time to decay.<sup>23</sup> In simple terms radioactive decay is the loss of elementary particles from an unstable nucleus.<sup>24</sup> This process involves a transformation of the unstable element into a more stable element. Every radioactive element has a half life, that is, the time taken for half of its atoms to decay, losing half of its radioactivity. Those of the radioactive elements with long half life tend to emit alpha and beta rays, which can be handled easily. The ones with short half life emit the gamma rays, which is more penetrating in nature. The theory is that ultimately all the of radioactive elements end up decaying into non-radioactive elements.

The Atomic Energy Regulatory Board of India governs both, the radioactive and chemical wastes that are generated from Nuclear Power Plants and Nuclear Fuel-cycle facilities.<sup>25</sup> The basic philosophy in dealing with the Nuclear Waste is that no waste is to be released into the environment before it has been cleared, exempted and excluded from regulations. The waste

---

<sup>22</sup> “Nuclear power and climate change” available at- <https://www.iaea.org/topics/nuclear-power-and-climate-change> (last visited on 11 April, 2019)

<sup>23</sup> Indian Programme on Radioactive Waste Management, available at: <https://www.ias.ac.in/article/fulltext/sadh/038/05/0849-0857> (last visited on: 11 April, 2019)

<sup>24</sup> Radioactive Decay Rates, available at: [https://chem.libretexts.org/Bookshelves/Physical\\_and\\_Theoretical\\_Chemistry\\_Textbook\\_Maps/Supplemental\\_Modules\\_\(Physical\\_and\\_Theoretical\\_Chemistry\)/Nuclear\\_Chemistry/Nuclear\\_Kinetics/Radioactive\\_Decay\\_Rates](https://chem.libretexts.org/Bookshelves/Physical_and_Theoretical_Chemistry_Textbook_Maps/Supplemental_Modules_(Physical_and_Theoretical_Chemistry)/Nuclear_Chemistry/Nuclear_Kinetics/Radioactive_Decay_Rates) (last visited on 11 April, 2019)

<sup>25</sup> Radioactive Waste Management, available at: <https://aerb.gov.in/english/regulatory-facilities/radioactive-waste-management> ( last visited on 11 April, 2019)

management aspects are reviewed throughout the life cycle of the plants, right from the siting stage, to construction, commissioning, operation and decommissioning stage of a NPP.<sup>26</sup> Operating nuclear power plants generate solid, liquid and gaseous wastes. The Nuclear Wastes are divided into the following three categories:

1. Low level wastes
2. Intermediate level wastes
3. High level wastes

The low level waste comprises of 90% of the total volume and only 1% in radioactivity; the intermediate level waste comprises of 7% of the total volume and 4% in radioactivity while the high level waste comprises of just 3% of the total volume with 95% in radioactivity.<sup>27</sup>

Wastes at different levels come with difference in the way of handling and decomposing the same. While the low level waste does not require much attention and precaution, the handling of high level waste comes with a great lot of precaution and procedure. The high level waste can either be disposed or reprocessed. India opts for the reprocessing of the high level waste as it has 90% of the radioactivity left in store. The highly radioactive liquid waste stream from fuel reprocessing units currently is stored in high-integrity stainless steel tanks. These are located in underground vaults lined with stainless steel to provide secondary containment as well as biological shielding. A three-stage programme has been drawn up to manage these wastes:

1. Immobilization of the waste oxides in solid matrix;
2. Engineered storage of solidified wastes for about 25 years; and
3. Disposal of the solidified wastes.

Based on technical and economic considerations, it has been planned to provide for interim tank storage of liquid waste for about 3 to 5 years in fuel reprocessing complexes. For incorporation of HLW oxides, vitreous and other ceramic matrices satisfy acceptability criteria. Advantages of

---

<sup>26</sup> Nuclear Power Plant

<sup>27</sup> Radioactive Waste Management, available at: <http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/nuclear-wastes/radioactive-waste-management.aspx> (last visited on: 11 April, 2019)

borosilicate glass as a matrix is good leach resistance, high radiation and thermal stability; high mechanical strength and relative ease of handling and transporting.<sup>28</sup>

To sum up, the high level wastes are the most hazardous wastes to be handled. India is working closely and completely focusing on optimal procedure for handling it.

### **CIVIL LIABILITY**

To drive the masses beyond the gateway of darkness, a lot of determination, compassion and responsibility is to be kept intact. The Civil Liability for Nuclear Damage Act, 2010 lays down laws fixing liability for nuclear damages and specific procedures for compensating the victims.<sup>29</sup> The act fixes the liability of the operator at Rs. 500 Crore; and for damages exceeding this amount, and up to 300 million SDR, the central government will be liable. Also, for facilities owned by government the entire liability up to 300 SDR will be taken care by the government.<sup>30</sup> The act also lays down in detail about who all can claim the compensation and what authorities will assess and award the compensation. The act lays down systematic procedures regarding all the facts and figures about who will be liable and up to what extent; who will be compensated and up to what extent; who will be liable on environmental damage and how will the same be compensated to name a few.

Yet, not everything is laid down in black and white; there is a lot left in the grey, open to assumptions and discretions. The act says that if the facility is government owned, the operator would not be held liable. But, it is nowhere specifically mentioned if the government would be allowing private operators to operate and participate in Nuclear Power Plants sector. Also, in case of any environmental damage, clause 2(f) of the bill says that the government is entitled to notify about the economic loss.<sup>31</sup> Now this creates a conflict of interest where the government itself is party in the operation.

---

<sup>28</sup> Policy and Practice in India, available at: <https://www.iaea.org/sites/default/files/28104693740.pdf> (last visited on: 11 April, 2019)

<sup>29</sup> Civil Liability For Nuclear Damage Act, 2010, available at: [https://www.prsindia.org/sites/default/files/bill\\_files/The\\_Civil\\_Liability\\_for\\_Nuclear\\_Damage\\_Act.pdf](https://www.prsindia.org/sites/default/files/bill_files/The_Civil_Liability_for_Nuclear_Damage_Act.pdf) (last visited on: 11 April, 2019)

<sup>30</sup> *Ibid*

<sup>31</sup> The Civil Liability for Nuclear Damages Bill 2010, available at: <https://www.prsindia.org/billtrack/the-civil-liability-for-nuclear-damage-bill-2010-1042/> (last visited on: 11 April, 2019)

Clauses 5 and 46 of the bill talks about specific laws regarding liability under other laws, that is, other than the liability for nuclear damage act. The Bill explicitly states that (a) compensation to be paid by an operator under this Bill shall not reduce his liability under any other law, and (b) this Bill will not override any other law in force in India that the operator can be held liable under.<sup>32</sup> However, the Bill does not clearly define what type of laws will be applicable. Differing interpretation by courts may constrict or unduly expand the scope of these provisions.

The most questioned part of the act is the one mentioning the time period specified for claiming the compensation. Clause 18<sup>33</sup> of the said act writes about the time limit for claiming of the compensation with a period of ten years from the date of notification of a nuclear incident.<sup>34</sup> The mentioned time period for claiming the compensation regarding any nuclear damage, does not seem very viable and thought upon. This clause seems very inadequate in the face of the fact when where the effects of a radiation are discovered after a substantial period of time. Nuclear disaster does not affect only one generation, but in fact, it leaves open the door of sufferance for generations to come. This part of the act is most conflicted upon. Therefore, it demands an urgent need for amendments regarding the time period for claiming the compensation, if India is to see a consensus in setting up more Nuclear Power Plants.

It is evident that there is a conflict of interests. The operators and suppliers have the fear that someday they will have to pay large amount of compensations, keeping in light the point that the chances of this can be lowered with their careful actions, but, never eliminated. While on the other hand, the interest of the public is at stake, not neglecting the fact that someday they might be left amidst the chaos of nuclear damage with not enough time and funds to avail and compensate them respectively.<sup>35</sup> Its time when the government should take a firm stand and make amendments keeping the interest of the people and the nation as the core objective of its legislation.

## **CONCLUSION**

---

<sup>32</sup> The Civil Liability and Nuclear Damage Bill, 2010, available on: <https://www.prsindia.org/uploads/media/Nuclear/Final%20Brief%20-%20civil%20liability%20for%20nuclear%20damage%20bill.pdf> (last visited on: 11 April, 2019)

<sup>33</sup> *Ibid*

<sup>34</sup> *Supra* note 7 at 3

<sup>35</sup> An Analysis of the Civil Liability for Nuclear Damage Bill, 2010, available on: [http://www.indialawjournal.org/archives/volume3/issue\\_4/article\\_by\\_dipesh.html](http://www.indialawjournal.org/archives/volume3/issue_4/article_by_dipesh.html) (last visited on: 11 April, 2019)

To conclude the very idea of this paper, the only way forward for the energy sector in India is Nuclear. Every idea, which has come and has gone always is left over with some or the other inconsistency. Not concluding that Nuclear is the way with no inconsistency whatsoever, but indeed it is the way which has the least amount of drawbacks and is the most promising idea for Power Generation in India. The present status of Nuclear Power in India, though not draconian, still isn't something commendable or worth expecting support from. The government should start inculcating Public-Private Partnerships in order to support the growth of Nuclear Power in India. The relations between SpaceX and NASA should be something which could be marked as a benchmark for a healthy Public-Private partnership and must be taken seriously in India to be an example for an exponential growth of Nuclear Power in India. The nation might've Liberalized, Privatized, and Globalized its economy in 1991, but there still is a long way to go when it comes to the idea of having a state which uses Nuclear Energy for purposes other than war and weapons. To quote Neil Armstrong, "*One small step for a man, one giant leap for mankind.*"