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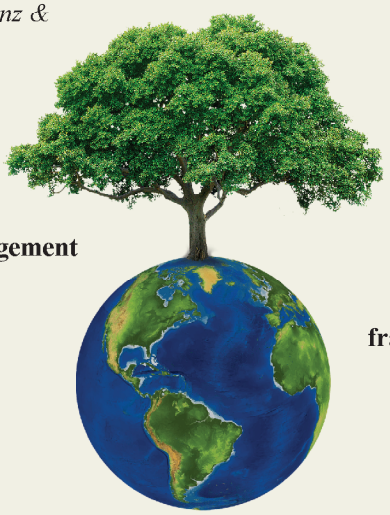

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MESSAGE FROM THE PATRON-IN CHIEF

Sooner or later we will have to recognize that the E*arth* has rights too, to live without pollution. What mankind must know is that human beings cannot live without Mother Earth, but the planet can live without humans (Evo Morales).

Those who contemplate the beauty of the Earth find reserves of strength that will endure as long as the Earth lasts. There is something infinitely healing in the repeated refrains of nature……. The assurance that dawn comes after night, and spring after winter (Racheal Carson).

Alas! What are we doing in the name of development? Are we liquidating Mother Earth?

It delights me to know that Centre for Environmental Education, Research and Advocacy (CEERA) is releasing the fifth volume of its flagship Journal on Environmental Law, Policy and Development (JELPD) 2018. The journal, in particular, focuses on conservation & sustainability through a mosaic of articles which is commendable.

I congratulate the Coordinator and the members of the Editorial Board for yet another luminous output.

Prof. (Dr.) R Venkata Rao
Vice Chancellor, NLSIU

MESSAGE FROM THE PATRON

The litmus test for any research outfit lies in its ability to translate its academic accomplishments into something that the society can put to use, to transform lives for the better. The Environmental Law Centres in our institution (namely, CEERA, Commons Cell and the Environmental Law Clinic) have time-and-again proved themselves successful on this score. Environmental Law capacity-enhancement exercises, making policy interventions in advising the Government of India in Climate Change Negotiations and advising the higher judiciary over the issue of Conservation of Lakes are only a few of the scores of such endeavours of these entities. Evolving a Policy and legal frame for Conserving and Protecting the Nandi Hill Eco-system is the latest assignment taken up by this Team led by Professor (Dr.) Sairam Bhat. The young team being groomed by him, ever ready to take on new challenges, to break fresh ground and lay the high-way of knowledge and its application for others to emulate, has had a very positive impact on this "aging" being (that is yours truly), to dismiss the thought of having become a "dinosaur" and to even think of producing a paper on this new venture for the next issue of the journal!

The issue on hand is yet another testimony to the scholastic strides made by this bee-hive of a great creative unit. Blessed by a write-up by Prof. Armin Rosencranz, who laid the foundation stone for this Environmental Law teaching, research and extension phenomenon in the Law School, the edition carries with it concerted research efforts of both the "evergreen" and "green" scholars in Environmental Law. I am grateful that as a fellow traveller along with the other readers, I am getting this opportunity of feasting on this latest set of contributions to the corpus of environmental law literature. I feel proud, happy and privileged to be associated with the **Team led by Prof. Sairam Bhat** in this ever exciting journey in environmental law scholarship.

Prof. (Dr.) M K Ramesh
Professor of Law

EDITORIAL

It is a great pleasure to publish the fifth volume of the JELPD 2018, a flagship publication of the Centre for Environmental Law, Education, Research and Advocacy [CEERA], NLSIU.

CEERA with this edition of the Journal carries on its leadership in the field of environmental law as a premier agency. In the current year, CEERA continues to be involved in research, training and consultancy in the area of Pollution control legislations, PPP in smart cities, Biodiversity related laws, Access and Benefit Sharing agreements, Solid Waste management contracts for the State of Karnataka and others. An important research project that is currently being carried on is in relation to the conservation of Lakes and towards evolving a policy for the protection of the ecosystem surrounding Nandi hills.

The First article in this edition is a notable contribution by Professor Armin Rosencranz and Shubham Janghu on the environmental risks caused by Fracking. The authors state that shale gas has been recently developed and poses as an attractive tool both for political and economic purposes. In the U.S., the prices of oil and gas have dropped substantially thereby causing a reduction in the cost of production of steel, fertilizers, plastic and other petrochemical products. It is critically analysed that the same has arrayed the fear of exhaustion of traditional oil and natural gas in the foreseeable future. Shale gas and oil extraction have faced severe criticism from environmental groups and the Environmental risks posed by fracking (the process of extracting shale gas and oil), especially groundwater contamination, have been recognized in the environmental impact assessments conducted in the European Union and the U.K., which is emphatically discussed in the research article. Due to such concerns, France and Luxembourg and other sub-national governments have declared a moratorium on fracking. Following the footsteps of the U.S. and in the hope of reaping similar benefits, the Indian Government, in 2013, notified its shale gas and oil policy that accords the right of exploration and exploitation of shale deposits to the National Oil Companies. The authors discuss potential socio-political and environmental impacts of fracking in India and the various legal hurdles that it might encounter in international forums and Indian courts. With respect to the former, India is bound by the procedural and substantive obligations under the precautionary principle and the duty not to cause transboundary harm to the aquifers. Under Indian law, there might be a threat to the fundamental right of the local people to clean and safe water, environmental law principles like the public trust doctrine and the precautionary principle, and the ground-water laws of the states.

Dr. T R Subramanya and Aaditya Dighe critically analyze the impact of the Public Liability Insurance Act and the way forward with respect to this legislation. Public Liability Insurance has over twenty six years of long jurisprudential existence. While the Act was enacted by the Parliament, in light of the onslaught caused by Bhopal Gas Disaster and Oleum Gas Leak incident, it sought to comprehensively consolidate the law in relation to an enterprise's liability while handling any hazardous substance. However, in face of the ever increasing economic development, it is criticised that the provisions of this law are archaic in nature. This has been stated due to the fact that there seems to be a lag in the delivery of the law's objective of protecting members of the economically weaker sections of the society, who cannot afford prolonged litigation in a court of law. The maximum eligible compensation under the Act is a paltry sum of Rupees 25,000, in the case of an occurrence of a fatal accident. There are such other lacunae wherein all workmen and the accidents arising out of radioactivity are excluded from getting any compensatory relief under the Act. Furthermore, the Act has an ambiguous Relief Redressal Mechanism, under which there exists a confusion regarding the scope of District Collector's discretionary power to award compensation, over and above the provisions on mandatory compensation. As a result of several such loopholes, only a few claims have been filed under the Act in the past twenty six years. To that end, the authors through their paper advocate for bringing in several structural reforms to the Act through the recognition of dual compensation schemes, increasing the compensatory relief and bringing government corporations within the purview of the Act.

Avani Dubey has submitted a paper on the Wetlands (Conservation and Management) Rules, 2017. India is home to about 201,503 wetlands, which are under a serious threat due to reckless exploitation by citizens and the government. In the prevailing conditions, the Wetlands (Conservation and Management) Rules, 2017 have brought about several much-needed changes in the existing regime, such as a complete prohibition on encroachment, poaching and constructions of permanent nature in the notified areas. However, the Act it is not free from loopholes and unfortunately allows room for many destructive activities that can occur in wetlands. The author critically analyses the Rules, discussing various changes brought about by them; their probable impact and the areas which inexpediently permit destruction, such as the 'wise-use' concept.

Praneeta Ragji examines the legislative framework to support the concept of Extended Producer's responsibility in India. Rapid growth coupled with rapid product obsolescence has contributed to discarded electronics becoming the fastest growing waste stream in the industrialized world, with India estimated to be generating over

2.7 million tonnes of e-waste every year. A holistic picture of the legislative provisions governing Extended Product Responsibility (EPR), which essentially places the burden upon the manufacturer to retrieve the electronic product sold after its shelf life and dispose it off in an environment-friendly manner, is attempted by the Author. Thereafter, the lacunae in the provisions with regard to their implementation are analysed, keeping in mind factors such as compliance, awareness and the informal sector. An endeavour is made to address the shortcomings in the legislative provisions by means of various suggestions put forth by the author.

Sudhanshu Pathani in his article evaluates the Bio-Medical Waste management Rules 2016. The author states that with the growth of medical technology and country's aim to provide affordable healthcare to everyone, hospitals and healthcare businesses are growing rapidly. With the tremendous growth of these health care units, there has been a surge in the amount of bio-medical waste that is been generated. To handle bio-medical waste, Bio-Medical waste (Management and Handling) Rules, were notified first in the year 1999, then in 2011 which now has been replaced by Bio-Medical Waste Management Rules, 2016. The author seeks to identify the shortcoming of the 2011 rules and analyse how the new rules try to overcome these shortcomings.

Utkarsh Agrawal highlights the Electronic waste management policy in India. E-waste is currently a serious concern, since over the past few decades the generation of e-waste has grown exponentially and will continue to do so in the foreseeable future. Instead of acknowledging the growing problems of e-waste and working towards a solution, industrialised nations have chosen to export such waste to developing nations, who use it as a source of raw material. Without effective policy and infrastructure, these developing nations are often burdened with heavy metals and associated health risks. As India moves on towards development, keen to earn an industrialised nation tag, it can no longer afford to be a third-world dumping ground for e-waste. Instead, India must use this opportunity to upgrade its e-waste management and create a safe and affordable source of raw material. The first step towards this, as suggested by the author is the need for a robust e-waste policy that can spur investment and infrastructural developments in this sector.

The shortlisting of the aforementioned research contributions was a demanding task, and for the overwhelming outreach for the publication of JELPD, I would profusely thank Prof. [Dr.] R Venkata Rao, Vice Chancellor, NLSIU, for his continued patronage in all our activities, especially for his support of all research activities and for his zestful leadership in the UNDP and other projects.

CEERA endeavours to continue its environmental stewardship under the guidance of Prof.[Dr.] M K Ramesh, by far the tallest teacher and subject expert in environmental law.

I thank the members of the Editorial board, ably led by Mr. Manjeri Subin Sunder Raj, comprising of vibrant and dedicated Teaching Associates at the NLSIU, Ms. Raagya Zadu and Ms. Archita Narayanan.

Dr. Sairam Bhat
Professor of Law
Coordinator
Centre for Environmental Law, Education, Research and Advocacy
NLSIU

CONTENTS

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SOCIO-POLITICAL AND ENVIRONMENTAL IMPACT OF FRACKING

Prof.(Dr.) Armin Rosencranz
Shubham Janghu*

INTRODUCTION

With the recent increase in its production in the United States, shale gas is widely perceived as abundant, available and low cost. The shale revolution has allowed politicians to boast of energy independence in front of the electorate.[1] But it has also faced severe criticism from environmental groups for contaminating drinking water.

In this paper, we will analyses recent developments in the field of fracking. In Part I, we discuss the worldwide trend in producing shale gas and describe India's Shale Gas and Oil Policy, 2013. In Part II, we discuss the socio-political, economic and environmental impacts of shale gas experienced around the world. In Part III of this paper we analyse the possible legal hurdles (international law and Indian law) that fracking could face. In Part IV, we indicate the possible way forward for Indian policymakers that minimize the detrimental impacts of fracking.

INTRODUCING FRACKING

Shale gas is an unconventional gas found almost 3,000 meters below the earth's surface, among highly impermeable rocks. Unlike traditional methods of extraction,

* Armin Rosencranz is a Professor of Law at O.P. Jindal University, where Shubham Janghu is a law student. The author can be contacted at armin@stanford.edu.

1 Daniel Yergin, Congratulations, America. You're (Almost) Energy Independent, Politico Magazine, Nov. 1, 2013, https://www.politico.com/magazine/story/2013/11/congratulations-america-youre-almost-energy-independent-now-what-098985 (last visited Jan. 25, 2018).

an L-shaped shaft is employed that goes thousands of meters into the ground. Other then deep vertical drilling, there are ways to drill horizontally to extract the shale gas. The most common way to extract the shale gas is hydraulic fracturing – fracking -- whereby high volumes of water mixed with certain chemicals are pushed down to break the rocks and release the trapped gas.

Fracking has been employed on a commercial scale in the U.S. From 2000 to 2015, the number of hydraulically fractured wells increased from 23,000 to 300,000.[2] The boom in fracking can be best expressed in the words of the Former U.S. President Barack Obama, who described the U.S. as "the Saudi Arabia of Natural Gas".[3]

To reap fracking's benefits,[4] the Indian Government, in October 2013, announced its Policy Guidelines for Exploration and Exploitation of Shale Gas and Oil ("the Policy").[5] Pursuing the Policy, areas to explore shale gas in Andhra Pradesh, Arunachal Pradesh, Assam, Gujarat, Rajasthan, and Tamil Nadu have been identified. The Indian Government has concluded Memoranda of Understanding (MoU) with the U.S. and Canada for cooperation in this field.[6]

Under the Policy, the right to explore and exploit shale oil and gas has been given only to National Oil Companies (NOCs).[7] The company engaging in fracking will

2 US Energy Information Administration, Hydraulic fracturing accounts for about half of current U.S. crude oil production (2016), https://www.eia.gov/todayinenergy/detail.php?id=25372 (last visited Jan. 25, 2018).

3 Jason Koebler, *Obama: U.S. 'Saudi Arabia of Natural Gas',* US News, Jan 26, 2012, https://www.usnews.com/news/articles/2012/01/26/obama-us-saudi-arabia-of-natural-gas (last visited 25 Jan. 2018).

4 Oil and Natural Gas Corporation*, Environment Impact Assessment Report for Exploratory Drilling of Shale Gas and Oil Wells in KG Basin, Andhra Pradesh-2017*, Corporate Health Safety and Environment 28 (2017).

5 Ministry of Petroleum and Natural Gas, *Policy Guidelines for Exploration of Shale Gas and Oil by National Oil Companies under Nomination Regime,* Directorate General of Hydrocarbon 11 (2013).

6 Ministry of External Affairs, *Fourth India-US Strategic Dialogue: India-US Fact Sheet on Sustainable Growth, Energy and Climate Change,* MEA (2018), http://mea.gov.in/bilateral-documents.htm?dtl/21869/Fourth+IndiaUS+Strategic+Dialogue+IndiaUS+Fact+Sheet+on+sustainable+growth+energy+and+climate+change (last visited Jan. 25, 2018); Ministry of Petroleum and Natural Gas, *Memorandum of Understanding between Ministry of Petroleum and Natural Gas of the Republic of India and the Department of Natural Resources of Canada Concerning Cooperation in the Field Petroleum and Natural Gas,* MPNG (2013) http://petroleum.nic.in/sites/default/files/CANADAMoU.pdf (last visited Jan. 25, 2018).

7 *Ministry of Petroleum and Natural Gas*, *supra* n. 5.

be responsible for health, safety, environment and restoration of the site.[8] It will have to employ equipment designed in accordance with Good International Petroleum Industry Practices (GIPIP), at a depth deeper by 100 meters (or as may be specified by the Ministry of Petroleum) to protect all the sub-surface freshwater aquifers identified by the local government.[9] The Policy makes it mandatory for the NOC to disclose the content, volume and chemical composition of the fracturing fluid to the relevant regulatory authorities.[10] The NOC must identify the water sources it will use and take approvals from the Central Ground Water Authority, the State Ground Water Authority, the State Pollution Control Board and other relevant regulatory authorities.[11]

IMPACTS OF FRACKING

Across the world, countries where fracking has proved to be feasible and is being conducted on a commercial scale, various kinds of impacts have been felt by the local population and the economy as a whole. If fracking is conducted on a commercial scale in India, similar impacts are likely to be experienced here as well. Such possible impacts are discussed below.

I. *Social Impacts*

Fracking, on a large commercial scale, requires a high volume of water (average15, 000 m3/well). Much of the water used in fracturing fluid is not recoverable and remains underground. In areas of scarce water, fracking can deplete the water table, affect biodiversity and deprive the local community of its agriculture. Similar concerns have been expressed in an EU Impact Assessment Report.[12] The U.S. Environment Protection Agency has found that fracking can impact drinking water resources where (i) there are limited or declining groundwater resources; (2) spilling of fracturing fluid in large quantities percolates into the groundwater; (3) fracturing

8 *Id.* at 9.
9 *Id.*
10 *Id.* at 10.
11 *Id.*
12 E.U. Commission Staff, *Exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU*, 1 European Commission 26 (2014), http://eur-lex.europa.eu/resource.html?uri=cellar:a46647dd-843b-11e3-9b7d-01aa75ed71a1.0001.01/DOC_1&format=PDF (last visited Jan. 25, 2018).

fluid is injected into wells with poor mechanical integrity, leading to gases and fluids moving to the groundwater; and (4) there is improper treatment and disposal of flow-back fluid.[13]

The Environmental Impact Assessment (EIA) Report prepared by the Oil and Natural Gas Corporation (ONGC) states that the total consumption of water in the process is merely 1800-2400 m3 per day. The water is said to be "transported from nearby sources through a tanker after due approvals". Since fracking is not yet being conducted on a commercial scale, the water consumption could be less. However, the EIA fails to inform us about the current water source from where the "tanker" is getting the water supply,[14] and maintains that "ONGC [obtains] the water requirement from the nearby areas without hampering the local resources".[15] It also does not provide any plan for the source of water when the activity would be conducted on a commercial scale.

II. *Geopolitical Impacts*

The US has gained significant political advantage and a say in deciding global oil and gas supply and their prices. Recently, the Secretary of the Organisation of Petroleum Exporting Countries (OPEC) met the American shale producers for negotiating global production and prices. Despite production cuts, OPEC has been unable to increase prices of fuel because of shale.[16]

The Indian Government over the past years has been trying to enter into international agreements for constructing gas pipelines. However, to the dismay of the Government, many such negotiations have failed. For instance, India withdrew from Iran-Pakistan-India gas pipeline project citing over-pricing and security issues.

13 U.S. EPA, *Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States (Final Report)*, U.S. Environmental Protection Agency (2016), https://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=332990 (last visited Jan. 26, 2018).

14 *Id*, at 35.

15 *Id.*

16 Ellen R. Wald, *The Mystery Behind OPEC's Meeting with Shale Oil Producers*, Forbes, Jul 12, 2017, https://www.forbes.com/sites/ellenrwald/2017/07/12/the-mystery-behind-opecs-meeting-with-shale-oil-producers/#3acc375c7842 (last visited March 20, 2018); Handan Kazanci & Baris Saglam, *OPEC, US Shale Producers to Continue Dialogue,* Analdolu Agency, Jul 12, 2017, https://aa.com.tr/en/americas/opec-us-shale-producers-to-continue-dialogue/859975 (last visited March 20, 2018).

Recently, the ambitious 1,800 km Turkmenistan-Afghanistan-Pakistan-India (TAPI) project has run into trouble due to continuous political disagreements between India and Pakistan and security concerns in Afghanistan.[17] If Shale gas is successfully exploited commercially, it might settle such tensions and gain political advantage.[18]

III. *Economic Impacts*

The US has benefitted from the decrease in prices of fuel, electricity, and imports, and improvement in its balance of payment. The prices of fuel in the US and Canada have decreased dramatically as compared to other countries.[19] For instance, the average gas prices at Henry Hub have dropped to USD 2.9 per MMBtu in 2012 from USD 8.8 per MMBtu in 2008.[20] As a consequence of falling gas prices, the price of electricity has also fallen.[21]

Energy poverty is still prevalent in India as 25% of the population does not have access to electricity. Energy demand has doubled over the past 20 years and is set to triple by 2035.[22] According to government figures, the country's dependence on imported gas is likely to increase significantly. The share of imported natural gas in India's total supply would increase from 22.5% in FY 2012 to 54.2% in FY22. Such an increase would severe as an adverse consequence on the balance of payment (BoP) situation.[23] Exploitation of shale gas might result in reducing energy poverty.[24]

17 Casey Michel, *Survey Projects Show Progress on TAPI Pipeline*, The Diplomat, Apr. 12, 2017, https://thediplomat.com/2017/04/survey-projects-show-progress-on-tapi-pipeline/ (last visited March 20, 2018).

18 39 Yongsheng Wang & William Hefley, The Global Impact of Unconventional Shale Gas Development (2016).

19 U.S. Energy Information Administration, *Technically Recoverable Shale Oil and Shale Gas Resources: An Assessment of 137 Shale Formations in 41 Countries Outside the United States*, EIA 11 (2013), https://www.eia.gov/analysis/studies/worldshalegas/pdf/overview.pdf (last visited Jan. 25, 2018).

20 Ernst & Young, *Shale gas: Key considerations for India. 10th International Oil & Gas Conference and Exhibition*, EY 3-11 (2012), http://www.ey.com/Publication/vwLUAssets/Shale_Gas_-_Key_considerations_for_India/$FILE/EYIN1210-084-Shale-gas.pdf (last visited Jan. 26, 2018).

21 *Id.*

22 International Energy Agency, *India Energy Outlook*, World Energy Outlook Special Report 21 (2015), https://www.iea.org/publications/freepublications/publication/India Energy Outlook_WEO2015.pdf (last visited March 20, 2018).

23 Ernst & Young, *supra* n. 20.

24 Wang, *supra* n. 18.

IV. *Environmental Risks*

Fracking gives rise to various environmental risks such as pollution of groundwater, air and land and increased seismic activity. It is undoubted that fracking has a greater environmental footprint than conventional gas extraction.[25] The most agreed upon high-ranked risks arise from the use of chemicals, emission of air pollutants (including GHGs), insufficient underground characterization and well casing, impact on transport, land and water use. Other medium-ranked risks include the increased probability of seismic activity. These risks are also aggravated by the increased number of wells, chemicals, and additives that are required to extract shale gas and oil in comparison to conventional fossil fuels.[26]

However, there are scientific uncertainties with respect to the magnitude and the likelihood of risks. Because fracking has been recently deployed, adequate, consistent and comprehensive data is lacking. Moreover, specific and unique geological conditions are encountered at every project site.[27] In the US, where significant fracking has been going on, non-disclosure agreements between operator and landowners and strong trade secrecy laws have succeeded in suppressing information. The U.S. EPA has also expressed concerns over under-reporting.[28]

The ONGC's EIA has dismissed possible environment impacts. It characterizes the risk of pollution to be insignificant,[29] and predicts that any impact on the quality of air and land would be "temporary".[30]

The two main environmental risks are mentioned below:

a. Risk to Underground Water

Pollution of underground water has been one of the worst fears of all because of the high volume of chemicals used to increase the permeability of the shale rocks.

25 E.U. Commission Staff, *supra* n. 12.

26 Y.K. Kharak, *The Energy-Water Nexus: Potential Groundwater-Quality Degradation Associated with Production of Shale Gas*, 7 Procedia Earth and Planetary Science 417-422 (2013), http://www.sciencedirect.com/science/article/pii/S1878522013002130 (last visited Jan.26, 2018).

27 E.U. Commission Staff, *supra* n. 12.

28 E.U. Commission Staff, *supra* n. 12.

29 Oil and Natural Gas Corporation, *supra* n. 4 at 85.

30 Oil and Natural Gas Corporation, *supra* n. 4 at 86.

Groundwater could be polluted due to leakage of gases and fluids from the faults developed in the well casing, poor well design, improper storage, treatment and disposal of flow-back fluid. Such instances of pollution have been noticed in the US and Canada.[31] Out of 260 chemical substances that are being used in the US for fracking, 58 of them have been identified to pose risks to human life and environment; eight are carcinogenic and 17 are toxic to freshwater organisms.

England's Environmental Agency has concluded that the consequences of pollution caused by materials released during site preparation, introduction of chemicals due to loss of fracturing fluid (25% to 90% of the fracturing liquid is irretrievable) will be "severe" .[32] The Environmental Impact of EU and ONGC has also raised concerns regarding long-term presence of fracturing fluid in the ground, and its "cocktail effect"[33] and reaction with other natural substances and displaced materials.[34]

Although, the ONGC's EIA mentions that a part of the fracturing fluid (approx. 400 m3) would be retrieved,[35] it refuses to comment on the environmental impacts of irretrievable fluid.

b. Increase in Air Emissions

There have been concerns regarding air emissions (including GHGs) arising from

31 U.S. E.P.A., Retrospective Case Study in Northeastern Pennsylvania (2015), https://www.epa.gov/hfstudy/retrospective-case-study-northeastern-pennsylvania (last visited Jan. 26, 2018); U.S. E.P.A., Retrospective Case Study in Southwestern Pennsylvania (2015) https://www.epa.gov/hfstudy/retrospective-case-study-southwestern-pennsylvania (last visited Jan.26, 2018); U.S. E.P.A., Retrospective Case Study in the Raton Basin, Colorado (2015), https://www.epa.gov/hfstudy/retrospective-case-study-raton-basin-colorado (last visited Jan. 26 2018); Gregory S. Mcrae & Carolyn Ruppel, *The Future of Natural Gas*, MIT 39 (2011), https://energy.mit.edu/wp-content/uploads/2011/06/MITEI-The-Future-of-Natural-Gas.pdf (last visited Jan.18, 2018); Stephen G. Osborn et al, *Reply to Saba and Orzechowski and Schon: Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing*, 110(37) PNAS E665-E666 (2011), http://www.pnas.org/content/pnas/108/20/8172.full.pdf (last visited Jan.7, 2018).

32 England Environmental Agency, *An Environmental Risk Assessment for shale gas exploratory operations in England,* Environment Agency 4-28 (2013), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296949/LIT_8474_fbb1d4.pdf. (last visited Jan. 27, 2018).

33 'Cocktail effect' is where different chemicals combine giving rise to adverse effects either on humans or the environment.

34 E.U. Commission Staff, *supra* n. 12. at 23; Oil and Natural Gas Corporation, *supra* n. 8.

35 Oil and Natural Gas Corporation, *supra* n. 4 at 98.

on-site machinery, drilling, Heavy Goods Vehicle (HGV) movements, hydraulic fracturing and flaring.[36] The U.S. EPA has confirmed the increased emissions of methane, volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) in fracking, and therefore, has tightened regulations on air emissions.[37] Recent studies have also concluded that the life cycle GHGs emissions (especially methane) from the fracking process are significantly higher than emissions released in the conventional extraction of fossil fuels.[38]

LEGAL CHALLENGES TO FRACKING

Due to the adverse environmental impacts of fracking mentioned above, it could face several below-mentioned International and Indian legal challenges.

I. *International Law*

Two relevant international law principles that hamper fracking are (a) the precautionary principle, and (b) the duty not to cause transboundary harm.

Precautionary Principle

The principle states that where there is significant risk to the environment or human health, precautionary measures must be undertaken irrespective of the scientific uncertainty in the area. In the case of *Nuclear Tests* case (second), the International Court of Justice (ICJ) ruled that the precautionary principle has been widely accepted in contemporary international law.[39]

36 Economic Affairs Committee, *The Economic Impact on UK Energy Policy of Shale Gas and Oil,* UK Parliament (2018), https://publications.parliament.uk/pa/ld201314/ldselect/ldeconaf/172/17210.htm (last visited Jan. 26, 2018).

37 US E.P.A, Addressing air quality impacts associated with hydraulic fracturing activities https://www.epa.gov/uog (last visited Jan. 26, 2018); US E.P.A, Final Rules for Oil and Natural Gas Industry, https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/2012-final-rules-oil-and-natural-gas-industry (last visited Jan. 26, 2018).

38 Robert W Howarth, *Methane Emissions and Climatic Warming Risk from Hydraulic Fracturing and Shale Gas Development: Implications for Policy,* Energy and Emission Control Technologies 45 (2015) https://www.eeb.cornell.edu/howarth/publications/f_EECT-61539-perspectives-on-air-emissions-of-methane-and-climatic-warming_100815_27470.pdf (last visited Dec. 5, 2017).

39 Legality of the Threat or Use of Nuclear Weapons (1995) I.C.J. Reports 290 (International Court of Justice).

It has been embraced in several International declarations,[40] treaties and conventions,[41] and ICJ cases.[42] To invoke the precautionary principle, two elements must be satisfied – probable risk to the environment or human health and scientific uncertainty.[43]

A decision not to undertake any action must give due regard to potential consequences of such inaction. Such decisions must be taken with full transparency and *"absence of scientific proof of the existence of a cause-effect relationship, quantifiable dose/response relationship or a quantitative evaluation of the probability of the emergence of adverse effects following exposure should not be used to justify inaction". In some cases, "the very existence of divergent views presented by qualified scientists, who have investigated the particular issue at hand, may indicate a state of scientific uncertainty"*.[44] The precautionary measures required to be undertaken under the principle have to be proportionate to the risk.

As stated above, there is *prima facie* scientific evidence that fracking poses a significant threat to the environment and human health due to the pollution caused by substances released during the exploration and site preparation process. There might be disagreement and scientific uncertainty regarding the degree of risk emanating from each of the above-mentioned impacts; however, the threat of irreversible damage to environment and human health is not disputed.

After determining that the precautionary principle applies to fracking, the question remains: what measures must be taken to mitigate the risks? As a first step, the Indian

40 Rio Declaration on Environment and Development, G.A. Res. 47/190, UN Doc. A/CONF.151/26 (I) (Dec. 22, 1992); World Charter for Nature, G.A. Res. 35/7, A/RES/37/71982 (Oct. 28, 1982).

41 Convention on Environmental Impact Assessment in a Transboundary Context, Feb. 25, 1991, 1989 UNTS 309; United Nations Framework Convention on Climate Change, June 4, 1992, 31 ILM 849; Paris Convention for the Protection of the Marine Environment of the North-East Atlantic, Sep. 22, 1992, 2354 UNTS 67; Cartagena Protocol on Biosafety Concerning the Safe Transfer, Handling and Use of Living Modified Organisms Resulting from Modern Biotechnology, art 10, para 6, May 26, 2000, 2226 UNTS 208; Agreement on Sanitary and Phytosanitary Measures, art. 5.7, April 15, 1994, 1867 UNTS 493.

42 Argentina v. Uruguay (Case Concerning Pulp Mills on the River Uruguay), (2010) I.C.J. Reports 135 (International Court of Justice); Hungary v. Slovakia (Gabčíkovo-Nagymaros Project case), (1997) I.C.J. Reports 62 (International Court of Justice).

43 *Communication from the Commission on the precautionary principle*, COM (2000) 0001 final. 16 (2000) (Mar. 14, 2000).

44 Appellate Body Report, *European Communities – Measures Concerning Meat and Meat Products (Hormones)* DS26 (Sept. 25, 2009) (*adopted* Jul. 12, 1999).

Government must stop fracking in high-risk and eco-sensitive areas. A moratorium would satisfy the proportionality requirement if the threat is significant and damage would be irreversible. Such a moratorium/ban has already been implemented in various parts of the world such as Germany,[45] France,[46] Luxembourg,[47] Bulgaria,[48] Wales,[49] New York,[50] Scotland,[51] Maryland,[52] Victoria,[53] New Jersey,[54] and six counties in California (Monterey, Alameda, Los Angeles, San Benito, Santa Cruz, Mendocino and Butte).[55]

b. Transboundary Harm to Aquifers

If fracking is conducted on a large commercial scale, there might be concerns regarding the harm caused to shared aquifers. As States like Pakistan, Bangladesh

45 D. Tost, *German Government Upholds Fracking Ban*, Euractiv, Jan 29, 2010 https://www.euractiv.com/section/energy/news/german-government-upholds-fracking-ban/ (last visited Jan. 27 2018).

46 Agence France-Presse, *France Bans Fracking and Oil Extraction in All of its Territories,* The Guardian, Dec 20, 2017, https://www.theguardian.com/environment/2017/dec/20/france-bans-fracking-and-oil-extraction-in-all-of-its-territories (last visited 27 Jan. 2018).

47 *No Fracking of Shale Gas in Luxembourg*, Luxtimes, Apr. 9, 2013, https://luxtimes.lu/archives/23819-no-fracking-of-shale-gas-in-luxembourg (last visited Jan. 27, 2018).

48 *Bulgaria bans shale gas drilling with 'fracking' method*, BBC News, Jan 19, 2012, http://www.bbc.com/news/world-europe-16626580 (last visited Jan. 27, 2018).

49 Rachel Flint, *Fracking ban: What is the situation in Wales?*, BBC News, Oct.3, 2017. http://www.bbc.com/news/uk-wales-politics-41489253 (last visited Jan.27, 2018).

50 Thomas Kaplan, *Citing Health Risks, Cuomo Bans Fracking in New York State*, The New York Times, Dec.17, 2014, https://www.nytimes.com/2014/12/18/nyregion/cuomo-to-ban-fracking-in-new-york-state-citing-health-risks.html (last visited Jan.21, 2018).

51 Severin Carrell, *Scottish government bans fracking after public opposition*, The Guardian, Oct.3, 2017, https://www.theguardian.com/uk-news/2017/oct/03/scottish-government-bans-fracking-scotland-paul-wheelhouse (last visited Jan. 21, 2018).

52 *Maryland Governor Signs Fracking Ban Into Law*, US News, Apr. 4, 2017, https://www.usnews.com/news/best-states/maryland/articles/2017-04-04/maryland-governor-signs-bill-to-ban-fracking (last visited Jan.22, 2018).

53 Luke Cooper, *Victoria Becomes First State to Ban Fracking*, Huffington Post, March 7, 2017, http://www.huffingtonpost.com.au/2017/03/07/victoria-becomes-first-state-to-ban-fracking_a_21874991/ (last visited Jan. 22, 2018).

54 Carol Linnitt, *New Jersey Senate Passes Fracking Ban,* Railroad Earth, Jun. 29, 2011, http://railroad.earth/theforecast/new-jersey-senate-passes-fracking-ban (last visited Jan. 22, 2018).

55 Timothy Cama, *California county votes to ban fracking*, The Hill, Sep. 11, 2016, http://thehill.com/policy/energy-environment/305198-california-county-votes-to-ban-fracking (last visited Jan. 22 2018).

and Myanmar share aquifers with India,[56] these Border States might be concerned about the pollution and inequitable utilization of the aquifers.

It is one of the foundational principles of international law that a State must use its own property in a way not to cause damage to any other State. The principles can be traced back to the historic arbitral decision of *Trail Smelter*.[57] The principle is also applicable where two States share an aquifer (transboundary aquifer). In 2008, the International Law Commission adopted the draft articles codifying the law of transboundary aquifers. There is an obligation to not cause 'significant' harm, [58] and adhere to international law[59] and the principle of equitable and reasonable utilization. [60] If a State has reasonable grounds to believe that a certain planned activity will cause significant harm to a shared aquifer, it is obliged to notify the other aquifer State with available technical data.[61] It must cooperate with the other State giving due regard to the principles of sovereign equality, sustainable development, mutual benefits, good faith, and the equitable and reasonable use and protection of the shared, and often transboundary, aquifer.[62]

As discussed above, there has been scientific proof that fracking can cause pollution of aquifers due to the use of chemicals in fracturing fluid. Due to fracking in India bung conducted in areas close to the transboundary aquifer, the legal obligations mentioned above might be triggered.

Further, as already stated above, fracking could lead to disproportionately high exploitation of aquifers as it might require about 1 million to 5 million gallons of water.[63] Since identified sites of fracking might be extracting water from a

56 S. Dhiman & S. Jain, *An overview of Transboundary Aquifers of the Indian Sub-continent*. Bhujal News Quarterly Journal (2010), http://hindi.indiawaterportal.org/node/53251 (last visited Jan.27, 2018).

57 Trail Smelter (U.S. v. Canada), 3 U.N. Rep. Int'l Arb. Awards 1905 (1941).

58 International Law Commission, *Draft articles on the Law of Transboundary Aquifers*, Yearbook of the International Law Commission 46, 54 (2008). https://www.internationalwaterlaw.org/documents/intldocs/Draft_articles_on_the_Law_of_Transboundary_Aquifers-Commentaries-Eng.pdf (last visited Jan.27 2018).

59 *Id*. at 38.

60 *Id.* at 40, 43.

61 *Id.* at 65.

62 *Id.* at 48.

63 Environment Agency, *Environmental Risk Assessment for Shale Gas Exploratory Operations in England*, 1 England Environment Agency 9 (2013); E.U. Commission Staff, *supra* n. 12.

transboundary aquifer, such sites might violate the duty to not use the aquifer inequitably.

II. *Indian Law*

Under Indian law, fracking can be challenged on four grounds – (a) right to water, (b) public trust doctrine, (c) precautionary principle and (d) ground-water regulations. These challenges are discussed below:

a. Right to Water

The Indian Supreme Court has interpreted 'the right to life and liberty' enshrined in Article 21 of the constitution to include the right to water.[64] This is supplemented by Article 48A of the Indian Constitution which status that thus should be on "endeavour to protect and improve the environment". The State has the duty to provide fresh drinking water to the populace affected by excess presence of fluoride.[65]

If the fears regarding possible pollution by harmful contaminants due to fracking materialize, then the Indian Courts can hold the State responsible for the same and it could be asked to stop the activity and undertake other corrective and preventive measures. Further, intensive requirement of water in fracking could interfere with already scarce water availability in areas such as Rajasthan, Andhra Pradesh, Telangana and Madhya Pradesh, thereby violating 'right to water' under the Indian Constitution.

b. Public Trust Doctrine

The Indian Supreme Court imported the Public Trust Doctrine in Indian jurisprudence and held that, *"It was founded on the ideas that certain common properties such as rivers, sea-shore, forests and the air were held by Government in trusteeship for the free and unimpeded use of the general public"*.[66]

The Court held that it is in the interest of humankind and future generations to preserve the pristine nature of natural resources. In the case of *Th. Majra Singh v. Indian Oil Corporation*, the Court elevated the status of the doctrine and held it be a part of Article 21 of the Indian Constitution.[67] The Supreme Court has, in one case,

64 Susetha v. State of Tamil Nadu, (2006) 6 SCC 543 (Indian Supreme Court).
65 Hamid Khan v. State of M.P., (1997) AIR 191 (Madhya Pradesh High Court).
66 M.C Mehta v. Kamal Nath, (1997) 1 SCC 388 (Indian Supreme Court).
67 Th. Majra Singh v. Indian Oil Corporation, (1999) AIR 81 (J&K High Court).

dismantled all the construction done in violation of the doctrine and restored the site to it *status quo ante*.[68]

Since underground water is also a natural resource, it is foreseeable that the Court would include it within the ambit of the public trust doctrine. In an event of an aquifer getting polluted, the Court might ask the company engaging in fracking and the government to stop the activity and restore the aquifer in its original form.

c. Precautionary Principle

The precautionary principle has been recognized by legislation[69] and judgments.[70] The National Green Tribunal has taken a stern interpretation of the precautionary principle and has ruled that the principle embodies two obligations – (1) *"the project proponent must take all expected precautions and preventions to ensure that no pollution results from its activity"* and (2) *"it has to take into consideration the Principle of Inter-Generational Equity and therefore ensure that it causes no irretrievable damage to natural assets."* [emphasis added][71]. *In another case, the NGT ruled that "irretrievable damage to the environment is not acceptable".*[72]

Given NGT's strong efforts to protect the environment, fracking could encounter legal challenges because of its large environmental footprint.

d. Ground-Water Regulations

The Model Bill floated by the Central Government for effective regulation of groundwater has been adopted by 15 states and four Union Territories.[73] It provides that groundwater is a common pool resource and common heritage of the people,

68 M.I. Builders Pvt. Ltd v. Radhey Shyam Sahu, (1999) 6 SCC 464 (Indian Supreme Court).

69 National Green Tribunal Act, 2010, No. 9, Acts of Parliament, 2010 (India), s. 20; Government of India: Ministry of Environment & Forest, *National Environment Policy, 2006*, MoEF 11 (2006) http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan042378.pdf (last visited Jan. 22, 2018).

70 Vellore Citizens Welfare Forum v. Union of India & Ors, (1996) 7 SCC 375 (Indian Supreme Court).

71 Vimal Bhai v. Tehri Hydro Development Corporation, (2016) M.A. No. 376 of 2016 (Indian National Green Tribunal, Principal Bench).

72 Durga Dutt and Ors. v. State of HP (2014) Application No. 237 (THC)/2013 (Indian National Green Tribunal, Principal Bench).

73 Planning Commission of India, Draft Model Bill for The Conservation, Protection and Regulation of Groundwater, PCI 2016) http://www.planningcommission.nic.in/aboutus/committee/wrkgrp12/wr/wg_model_bill.pdf (last visited Jan. 25, 2018).

held by the Government in public trust.[74] It declares that the Government "is responsible for ensuring that groundwater is allocated and used equitably in public interest, while promoting environmental values".[75] It sets the priority for use of groundwater – right to water for life, achieving food security, agriculture, sustainable livelihood, and eco-system needs. The allocation of water must be made in a manner that promotes conservation and efficient use.[76]

In states where fracking would be conducted on commercial scale in the future and where the Model Bill has been adopted in same status such as Chhattisgarh, Andhra Pradesh, Telangana and Assam, there could be legal challenges on the basis of the Model Bill. Because of large water needs and the high possibility of pollution in the process of fracking, it might not satisfy the requirement of equitable use of groundwater or the priority set out in Section 20(1) of the Model Bill.

WAY FORWARD

In light of the looming environmental crisis, the most suitable option would be to declare a moratorium on fracking and wait for science and technology to measure the costs and benefits of fracking. Given the incumbent Government's urge to decrease energy poverty, boost economic growth and counteract international pressure to abandon the use of coal to generate electricity, this option would not be politically viable. In such circumstances, the Government must consider learning from other jurisdictions like the U.S. and Canada where fracking has been carried out for almost two decades. We feel that, at the minimum, strong disclosure requirements must be imposed.

Currently, the Policy requires the companies permitted to engage in fracking to disclose the "fracking fluid, volume, chemical composition for both injection and flow back fluids to statutory agencies such as MoEF [Ministry of Environment and Forest], State Pollution Control Board-SPCB, DGH [Directorate General of Hydrocarbons] on a regular basis and may also disclose such details on the Company's website for public viewing".[77] There are three objections: (1) It does not provide

74 *Id.*
75 *Id.*
76 *Id.*
77 Ministry of Petroleum and Natural Gas, *supra* n. 5 at 9, 10.

definitive number of authorities to which the company has to report as it uses the words like "such as" and "etc.", (2) It does not specify any obligation on the part of the agencies (3) The requirement of public disclosure is discretionary.

To respond to public concerns about fracking, the companies should engage in full disclosure of chemicals used. In the EU's assessment of various fracking policy options, it was concluded that non-mandatory disclosures would be low in preventing, managing and reducing environmental impacts and responding to public concerns. On the other hand, it was found that if the law provided for mandatory disclosures of chemicals with specific content and public consultation before giving the license, the effectiveness would be high. [78]

In the U.S., by the end of 2013, seventeen States have enacted legislative acts or regulations mandating compulsory disclosures.[79] Generally, there are two types of regulations that can be seen, namely those that require (1) disclosure of *all* compounds in fracturing fluid additives, and (2) disclosure of substances that have been declared as "hazardous chemicals" under the US Occupational Safety and Health Act.[80] Many have favoured the first approach over the latter given the distrust and concern among public and the fact that many substances that might be hazardous have not been yet tested.[81] This position has been supported by the United Kingdom's Onshore Oil and Gas Well Guidelines.[82]

At the present moment, full disclosure might be the way forward to allay public fears and support the measures mandated under the precautionary principle.

78 E.U. Commission Staff, *Exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU*, 4 European Union 81 (2014); E.U. Commission Staff, *supra* n. 12 at 51.

79 Keith Hall, *Hydraulic Fracturing: Trade Secrets and the Mandatory Disclosure of Fracturing Water Composition*, 49 Idaho L. Rev., 409-11 (2013) https://www.uidaho.edu/~/media/UIdaho-Responsive/Files/law/law-review/articles/volume-49/49-2-hall-keith-b.ashx (last visited Jan.22, 2018).

80 *Id.*

81 *Id.*

82 UKOOG, *UK Onshore Shale Gas Well Guidelines,* 4 United Kingdom Onshore Oil and Gas (2016). http://www.ukoog.org.uk/images/ukoog/pdfs/Shale_Gas_Well_Guidelines_Issue_4.pdf (last visited Jan. 22, 2018).

CONCLUSION

Countries, like the U.S. and Canada, have certainly accrued benefits from commercial exploitation of shale deposits. The reduced prices of fuel and electricity have been helpful in promoting growth and improving the balance of payment. If India were to follow the footsteps of the US, she would enjoy similar benefits.

These benefits need to be weighed against the detrimental social, and, especially, environmental impacts that might have to be borne by the future generations. Although the Environmental Impact Assessment conducted by ONGC in KG Basin recognizes the benefits, it does not give any weight and dismisses the environmental concerns. It fails to recognize any possible cracks in the fracking shaft, and impact of fracking fluid not retrievable from the ground.

In the future, if fracking is conducted on a full commercial scale, its users might face legal challenges under international law and Indian law. With respect to the former, India might be bound by the procedural and substantive obligations under the precautionary principle and the duty not to cause transboundary harm to the aquifers. Under Indian law, there might be a challenge under the fundamental right to water of the local populace, environmental law principles like the public trust doctrine and precautionary principle, and groundwater laws.

In light of growing opposition all around the world and increased number of national and sub-national governments imposing a moratorium on fracking, the Indian Government should follow suit. If this option does not seem feasible to the Government, it must at least set up strong disclosure requirements for all entities engaged in fracking.

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PUBLIC LIABILITY INSURANCE: ITS RELEVANCE, APPLICATION, SHORTCOMINGS AND THE WAY FORWARD

Dr. T.R. Subramanya* *
& Aaditya Dighe* **

INTRODUCTION

India met one of its first and worst industrial disasters in 1984, when a major gas leak took place in Bhopal. The severity of the gas leak was depicted by the casualties 5,200 people lost their lives[1] and thousands more were left injured due to the leakage of toxic Methyl Isocyanate from the Union Carbide Plant. As a result of this, a complex litigation ensued where in an enormous claims were made against Union Carbide for compensation. Interestingly, when the Bhopal gas case was still being fought in the courts, another accident took place in New Delhi, in one of the chemical plants of Shriram Ltd. This accident did not result in any casualty but the proceedings which were ensued in furtherance of this accident changed the path of Indian jurisprudence in Environmental law. In the *Oleum Gas Leak Case*,[2] the Indian Supreme Court laid down important principles in the realm of relief for mass torts, which was deemed to be ground breaking in the area of liability for mass torts.[3] The Supreme Court

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1 Union Carbide Corporation Ltd. v. Union of India, *Affidavit on Behalf of Union of India*, Civil Appeal No. 3187-88 OF 1998, 146 (S.C.).

2 M.C. Mehta v. Union of India, (1987) 1 SCC 395.

3 Armin Rosencraz, Shyam Divan & Martha Noble, Environmental Law and Policy in India 336 (2nd ed., 1991).

deviated from the principle of 'Strict Liability' as provided under the landmark case of *Rylands* v. *Fletcher*[4] and laid down the principle of 'Absolute Liability' which led to important consequences for industries engaged in hazardous activities.

The principle of 'Absolute Liability' was given legislative backing in the year 1991, when the Public Liability Insurance Act[5] was passed. The Act sought to make it mandatory for every owner of an industry handling hazardous substances to opt for an insurance policy for covering any liability arising out of the handling of such hazardous substance. In spite of its noble objectives, the Act still has not been amended once in the previous 26 years, with most of its provisions becoming archaic in the face of constant economic development. With the current government's proclivity towards making India the most Foreign Direct Investment (FDI) friendly nation in the world,[6] the Act assumes a significant place in the endeavour of country's sustainable development.

This paper is divided into three parts. Part I of this paper traces the trends of Liability Insurance in the United States of America. Part II explains the circumstances which led to the enactment of the Act. Part III provides a critical analysis of the Act by referring to the latest positions which have been adopted by the court. Lastly, the paper ends with a conclusion containing the authors' recommendations.

AMERICAN POLICY PERSPECTIVE ON COMMERCIAL LIABILITY INSURANCE

Liability Insurance was first marketed in the United States of America in 1880's, owing to its conception in Great Britain.[7] One of the earliest forms of liability insurance was 'Employer's Liability Insurance', which was enacted to insure the Employer against liabilities arising out of claims made by his employees.[8] One of the early challenges

4 (1868) LR 3 HL 330.

5 *Hereinafter,* 'The Act'.

6 The Economic Times, *India Now Most Open Economy in World for FDI: PM Narendra Modi*, June 20, 2016, available at http://economictimes.indiatimes.com/news/economy/policy/india-now-most-open-economy-in-world-for-fdi-pm-narendra-modi/articleshow/52831905.cms (Last visited on December 11, 2016).

7 Kenneth S. Abraham, *The Rise and Fall of Commercial Liability Insurance*, 87 VA. L. REV. 86-90 (2001).

8 Kenneth S. Abraham, *Liability Insurance and Accident Prevention: The Evolution of An Idea*, 64 Md. L. Rev. 573 (2005).

to the validity of liability insurance was in the landmark case of *Phoenix Ins. Co. Of Brooklyn* v. *Erie & Western Transportation Co*.[9] It was contended that an insurer could not be made liable to pay for the insureds negligence. This argument was rejected by the Court where it was held that by obtaining insurance, the insured did not diminish his responsibility towards the goods so insured, but rather increases his means of meeting that responsibility.[10] This reasoning was subsequently followed by the Court of Appeals of Maryland in *Boston & A.R. Co. v. Mercantile Trust & Deposit Co. Of Baltimore*, where it was argued that liability insurance had an inevitable effect of inducing lesser degree of vigilance and carelessness on part of the policyholders.[11] This argument too was rejected by the court where it followed the Supreme Court's rationale in the *Phoenix* case and thus the validity of liability insurance was upheld.[12]

A novel feature present in the early coverage of these policies was the coverage against liability to the members of public.[13] Owing to the policy's high demand, by the end of the nineteenth century, there was a significant amount of case law interpreting the language of these policies.[14]

By the third decade of the twentieth century, debates surrounding workers compensation were gaining pace.[15] Resultantly, the demand for Employers' Liability

9 117 U.S. 312 (1886).

10 *Id.*, 324.

11 Boston & A.R. Co. v. Mercantile Trust & Deposit Co. Of Baltimore, 37 A. 778, 786-87 (Md.1896).

12 *Id.*, 786.

13 Abraham, *supra* note 7, 87.

14 William Reynolds Vance, Handbook of the Law of Insurance 604-08 (1904).

15 Prince V. Fishback, A Prelude To The Welfare State: The Origins of Workers' Compensation 94 (2000); Abraham, *supra* note 8, 586 (The predominant rationale deployed in favor of workers' compensation was that with the employer's control over the workplace came responsibility for any injury that occurred there. There was little dispute, of course, that the employer was responsible for injuries caused by its negligence (perhaps subject to defenses); the crux of the debate about the wisdom, and indeed the constitutionality, of workers' compensation was whether the law should impose responsibility on employers for injuries that were not caused by negligence. The ultimately successful policy and legal response given by proponents of the legislation was that workers' compensation would in fact contribute to the health and safety of employees and was therefore both a constitutional and sensible exercise of the police power. The core of the proponents' argument was that neither tort liability on the part of employers nor insurance privately purchased by employees – nor a combination of the two – provided adequate compensation for workplace injuries. Workers' compensation, in contrast, had a better chance of doing so. Ensuring that there was a means of compensating injured employees who would otherwise be left destitute was

Insurance declined but the coverage against liability to members of public still remained significant. The protection of business against conventional tort liability gained importance in the twentieth century. Accordingly, their title was changed to 'Public Liability Insurance' to reflect the extent of their coverage. [16]

These policies eventually turned out to be today's Commercial Liability Insurance after a 'Public Liability' factor was attached to them.[17] The foundation for this change was laid down in 1941 with the introduction of the Comprehensive General Liability (CGL). Since then the policy has undergone revisions multiple times.[18] The 1986 revision is one of the major revisions, as it led to changing the policy's name to 'Commercial General Liability'. Even though the policy remains starkly similar to the one enacted in 1941, it has now been subjected to several exclusions owing to the CGL crisis.

Early CGL policies sought to provide general liability coverage which was not limited by the nature of policy holder's business. In order to avail the insurance benefits, the damage had to be caused by an 'accident'. In a subsequent litigation, insurers had taken up a position citing that the 'accident' had to be of a temporal nature and not a long term exposure resulting in damage or bodily injury.[19] This stand was vehemently opposed by several policyholders. Seeing a business opportunity, some insurers started marketing the CGL policies as ones covering damage caused not by an 'accident', but by 'occurrence'. [20] 'Occurrence' was defined to include accidental damage and bodily harm irrespective of its duration. This was finally incorporated into the CGL policy in 1966 where it was revised to cover for damages arising out of an 'occurrence'. With this revision in policy, the insurers suddenly were subjected to massive potential environmental liability which compelled them to add 'pollution exclusion' clauses to their policies. This change was incorporated in the standard CGL

sufficient contribution to their health and safety to fall within the police power of the state. – Supra 2 (Liability Insurance and Accident Prevention).

16 Raymond N. Caverly, *The Background of the Casualty and Bonding Business in the United States*, 6 Ins. Couns. J. 23 (1939).

17 Abraham, *supra* note 7, 88.

18 Britton D. Weimer et al, CGL Policy Handbook XX (2nd ed., 2016) (Revisions took place in 1947, 1955, 1966, 1973, 1976, 1986, 1988, 1993 1996, 1998, 2001, 2004, 2007, 2013).

19 Beryllium Corp. v. Am. Mut. Liab. Ins. Co., 223 F.2d 71, 72 (3d Cir. 1955).

20 Abraham, *supra* note 7, 91.

policies in 1973 where coverage for liabilities was excluded unless the 'discharge, dispersal, release or escape' of pollutants causing damage was 'sudden and accidental'. These exclusion clauses were then submitted to the state insurance regulators, along with an explanatory note, for their approval. In these explanatory notes, it was cited by the insurer that the purpose of the regulation was merely to clarify the scope of pre-existing coverage because, in majority of the cases, the exclusion would not produce any change in the coverage under CGL policies.[21] Another blow to CGL policies was due to the enactment of Comprehensive Environmental Response, Compensation, and Liability Act ('CERCLA') or 'Superfund' Act.[22] CERCLA went on to impose retroactive, strict and joint liability on the site owner or site operator for cleaning up hazardous waste deposited at a site.[23] As a result of this, several insurers' CGL policies were subjected to a potential liability towards its shareholders under the CERCLA obligations and led to an insurance crisis in the USA. Inevitably, this compelled several insurers to include multiple coverage exclusions to their future CGL policies, whereas other insurers resorted to engage in 'point of claim underwriting' or denial of claims necessary to make profitable operations.[24] This, in turn, has made the CGL coverage less attractive for the policyholders because of the apprehension that the policy will not offer any protection against bigger claims.

RECOGNITION OF THE PRINCIPLE OF ABSOLUTE LIABILITY

The Act was enacted by the Parliament after the country came across two milestones, which have significantly altered and shaped the Environmental law jurisprudence in India. The incidents being referred to here are *first* the Supreme Court's 1987 judgement in the *Oleum Gas Leak Case*[25] and *Second* the Bhopal Gas disaster in 1984.

21 Morton Int'l v. Gen. Accident Ins. Co. of Am., 629 A.2d 831, 853 (N.J. 1993).

22 Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Pub. L. No. 96-510, 94 Stat. 2767 (codified as amended in scattered sections of Titles 26, 33, 42, and 49) (U.S.).

23 United States v. N.E. Pharm. & Chem. Co., 810 F.2d 726, 732-37, 740-41 (8th Cir. 1986), cert. denied, 484 U.S. 848 (1987); J.V. Peters & Co. v. Admin'r, EPA, 767 F.2d 263, 265-66 (6th Cir. 1985); New York v. Shore Realty Corp., 759 F.2d 1032,1043-44 (2d Cir. 1985).

24 Abraham, *supra* note 7, 103.

25 M.C. Mehta v. Union of India, (1987) 1 SCC 395.

A. *OLEUM GAS LEAK CASE*

The case revolved around a writ petition which was filed in the Supreme Court to obtain a direction for the closure of several units of Shriram Industries on the ground of them being hazardous in nature. While the petition was pending in the Supreme Court, a gas leak occurred at multiple Shriram units. Subsequently, applications were filed by Delhi Legal Aid & Advice Board as well as by Delhi Bar Association for compensation to persons who had been affected by the gas leak.[26] The court was faced with multiple issues of paramount importance where it had to first decide the status of Shriram Industries, as to whether it was covered within the definition of 'State' under Article 12 of the Constitution, before deciding its liability.[27] This was because Article 21's violation had been contended. To this, the court preferred not to determine the status of Shriram Industries as it claimed paucity of time[28] and thus went on to address the subsequent issue regarding the nature of liability which accrued to an enterprise engaged in a hazardous or an inherently dangerous industry. The court went on to opine that it had to first determine whether the rule of strict liability as contemplated under *Rylands* v. *Fletcher*[29] would govern the situation in hand. To this, Justice Bhagwati answered that the aforementioned rule was archaic which could not be applied in the context of modern economy, as it was a creation of the 19th century, where the current development of science and technology regarding modern industries had not taken place.[30] This rejection of *Rylands* formulation paved way for the rule of Absolute Liability under which the court went on to formulate that:

> *"We are of the view that an enterprise which is engaged in a hazardous or inherently dangerous industry which poses a potential threat to the health and*

26 *Id.*, 404.

27 *Id.*, 419.

28 *Id.*, 419 (¶ 30: But we do not propose to decide finally at the present stage whether a private corporation like Shriram would fall within the scope and ambit of Article 12, because we have not had sufficient time to consider and reflect on this question in depth. The hearing of this case before us concluded only on December 15, 1986 and we are called upon to deliver our judgment within a period of four days, on December 19, 1986. We are therefore, of the view that this is not a question on which we must make any definite pronouncement at this stage. But we would leave it for a proper and detailed consideration at a later stage if it becomes necessary to do so).

29 (1868) LR 3 HL 330.

30 M.C. Mehta v. Union of India, (1987) 1 SCC 419.

> *safety of the persons working in the factory and residing in the surrounding areas owes an absolute and non-delegable duty to the community to ensure that no harm results to anyone on account of hazardous or inherently dangerous nature of the activity which it has undertaken."* [31]

On the issue of deciding the quantum of compensation, the court stated that the measure of compensation must be correlated to the magnitude as well as the capacity of the enterprise in order to have a 'deterrent' effect. Since the court had not determined the question of Shriram being a 'State' under Article 12 of the Constitution, it directed the Legal Aid Board to pursue claims for compensation in ordinary civil courts.

This decision on liability in cases of mass disaster and hazardous operations has been considered as path breaking.[32] With this pronouncement, the Supreme Court abandoned the test of 'non-natural use of land' test of *Rylands*. Moreover, for invoking the rule of absolute liability, there was no distinction left between persons within the premises and outside the premises as was the norm under *Rylands*.[33] As per the new law, mere running of an enterprise was enough to fasten the liability and likewise, an affected person, who was within the premises, could bring an action against the enterprise in question.

This dictum in the *Oleum Gas Leak* case had its fair share of criticism as it has been deemed as constitutionally a vague formulation which is unjust in the absence of any form of insurance.[34] Nevertheless, the Supreme Court has reaffirmed the principle of Absolute Liability as a settled law of the land in the *Bichari* case.[35]

B. *BHOPAL GAS DISASTER*

On 4th December 1984, a large scale leak of the toxic Methyl Isocyanate (MIC) gas occurred in Bhopal at the Union Carbide Plant. The total number of deaths related to gas release as confirmed by the Government of India in an affidavit filed in the Supreme Court, was 5,200 and the total number of affected people was estimated

31 *Id.*, 419.

32 C.M. Jariwala, *Direction of Environmental Justice in India: A Critical Appraisal of the 1987 Case Law*, 35 JILI 94 (1993).

33 Vikram Raghavan, *Public Liability Insurance Act: Breaking New Ground For Indian Environmental Law*, 39 JILI 103 (1997).

34 Armin Rosencraz, Shyam Divan & Martha Noble, *supra* note 3, 336.

35 Indian Council for Enviro-Legal Action Etc. v. Union of India, AIR 1996 SC 1446.

to be 558,125.[36] In spite of the figures stated in the affidavit, it is widely believed that the lack of documentation of deaths on that night, coupled with the chaos in administering aid to the victims since then, has made it impossible to ascertain the actual number of sick and dead people.[37]

This large scale disaster led to the filing of several claims against Union Carbide Corporation. Pursuant to these claims, interim payment of Rupees 350 crore was ordered by the District Court of Bhopal and on an appeal by the UCC, the Madhya Pradesh High Court reduced the interim compensation to Rupees 250 Crore.[38] On a further appeal to the Supreme Court, it was ordered by the Supreme Court that an overall settlement of the claims arising out of the disaster was to be valued at 470 million US dollars.[39] Under this settlement, the Government of India was to receive the amount of US $ 470 million as a full and final settlement of all the past, present and future civil and criminal claims arising out of the disaster. As per *Bhagwati J,* this decision by the Supreme Court was unprecedented as the court disposed of the entire case when the appeal was only against the interim order of the High Court and even when the arguments had not concluded in the said appeal.[40] The decision has been criticised for being against the principles of criminal jurisprudence. In the words of *Bhagwati J* himself,

"It is no argument that if the case had not been settled, it would have taken several years and the victims would have remained without any relief. It is strange that the Government should confess that its judicial system is so inefficient that it cannot dispose of a case affecting over 2 lakh people in less than 20 years. But apart from that, could the Government not have provided Rupees 600 crore for relief and then reimbursed itself when the case was over?"[41]

36 Union Carbide Corporation Ltd. v. Union of India, *Affidavit on Behalf of Union of India*, Civil Appeal No. 3187-88 OF 1998, 154 (S.C.).

37 Shyam Divan & Armin Rosencranz, Environmental Law and Policy in India: Cases, Materials and Statutes 547 (2nd ed., 2009).

38 Indiatoday.in, *Another Round Won*, April 30, 1988, available at http://indiatoday.intoday.in/story/bhopal-gas-tragedy-high-court-awards-interim-relief-of-rs-250-crore-to-victims/1/329224.html (Last visited on December 12, 2016).

39 Union Carbide Corporation Ltd. v. Union of India, JT 1989 (1) 296.

40 P.N. Bhagwati, *Travest of Justice*, March 15, 1989, available at http://indiatoday.intoday.in/story/supreme-court-judgement-on-bhopal-gas-tragedy/1/323236.html (Last visited on December 14, 2016).

41 *Id.*

Therefore, the Bhopal Gas Disaster along with the Oleum Gas Case led to the need of enacting a legislative mechanism where immediate interim compensation could be provided to the victims of any industry based disaster in order to avoid subjecting them to unduly hardship.

PUBLIC LIABILITY INSURANCE ACT: AN OVERVIEW

A. *OBJECTIVES*

The Act seeks to mandate compulsory insurance for the purpose of providing immediate relief to the victims of an accident caused while handling any hazardous substance. In the backdrop of principles coming out of *Oleum Gas Leak* case and *Bhopal Disaster*, the Act was passed to consolidate the law in relation to an enterprise's liability while handling any hazardous substance.[42] The act's primary goal is to protect members of economically weaker sections of the society who cannot afford prolonged litigation in a court of law.[43] One aspect which the Act fails to touch upon is the principle of 'Accident Prevention' or the 'Deterrence Effect'. The Act has been built around providing of immediate compensation in terms of an industrial accident and disregards preventing the accident in the first place. Given the rapid industrialization in the country, it will be a sound move to expand the focus of the Act on accident prevention or creating a deterrence effect amongst the Industrial owners.

B. *ACCIDENTS*

The Object of the Act clarifies that it is applicable only to accidents or incidents which result from handling of hazardous substances. The term 'accident' has been defined in the act as an accident which involves a fortuitous, sudden or unintentional occurrence while handling any hazardous substance resulting in continuous, intermittent or repeated exposure to death, of or injury to, any person or damage to any property.[44] As per the wordings, this definition fails to provide any remedy to the affected where even a miniscule level of exposure results in after effects.[45] Moreover,

42 Raghavan, *supra* note 33 ,107.

43 Md. A.M. Nomani, *Law Relating to Environmental Liability and Dispute Redressal: Emergence and Dimension*, XXIII (1 and 2), *IBR* 153 (1996).

44 The Public Liability Insurance Act, 1991, § 2(a).

45 *Id.*

the term 'accident' does not include accidents taking place due to radio-activity.[46] Since, Nuclear power in India is controlled and regulated by Governmental Bodies[47], it can be inferred that the Act has consciously decided to exempt Government's liability in the event of any accidents involving radioactive elements.

C. *HAZARDOUS SUBSTANCES*

The term 'Hazardous Substance' has been defined as any substance or preparation which has been defined as hazardous substance under the Environment (Protection) Act, 1986.[48] Furthermore, the hazardous substance, as defined under Environment (Protection) Act, 1986, will be deemed hazardous as per the Act only if it exceeds the quantity as notified by the Central Government.[49] Thus, if any form of accident occurs, which causes death, injuries to people and damages person's property, as a result of a substance which is hazardous but is not covered under Central Government's notification, then the affected have no remedy under this act.[50]

Understanding the difficulty with this interpretation of 'Hazardous Substance' the Indian courts have taken an equitable route. One of the first instances of this interpretation came in the case of *U.P. State Electricity Board and Anr.* v. *District Magistrate and Ors.*, where the court had to decide whether 'Electricity' fell under the definition of 'hazardous substances' as given under the Act.[51] The court identified the need for giving a wide interpretation to the definition in question as the Act

46 *Id.*

47 World Nuclear Association, *Nuclear Power in India*, January 2017, available at, http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/india.aspx#ECSArticleLink1 (Last visited on January 5, 2017) (The Atomic Energy Establishment was set up at Trombay, near Mumbai, in 1957 and renamed as Bhabha Atomic Research Centre (BARC) ten years later. The Indian Atomic Energy Commission is the main policy body. The Nuclear Power Corporation of India Ltd (NPCIL) is responsible for design, construction, commissioning and operation of thermal nuclear power plants. At the start of 2010 it said it had enough cash on hand for 10,000 MWe of new plant. The 1962 Atomic Energy Act prohibits private control of nuclear power generation, and 2016 amendments allowing public sector joint ventures do not extend to private sector companies, nor allow direct foreign investment in nuclear power, apart from the supply chain.).

48 The Public Liability Insurance Act, 1991, § 2(d).

49 *Id.*

50 S.N. Singh, *Public Liability Insurance Act, 1991 – Scope for making Provisions More Effective*, 5 Corporate L. Adv. 234 (1991).

51 U.P. State Electricity Board and another. v. District Magistrate, Dehradun and others, AIR 1998 All 1.

was a beneficial piece of legislation. In pursuance of that, the court went on to hold that the definition included all the substances which were defined as 'hazardous' under the Environment (Protection) Act, 1986 and if any such substances were also notified by the Central Government under Section 2(d) of the Act, then it was to be deemed as hazardous if it exceeded the quantity specified in the notification.[52] With this, the court went on to interpret 'electricity' as a 'hazardous substance' for the purpose of the Environmental (Protection) Act, 1986.[53] As a result of this, electricity was deemed to be a form of 'hazardous substance' under the Act as well. This equitable proposition of law has been followed by several other judicial decisions.[54] Likewise, the term 'handling' has included activities such as manufacturing, processing, treatment, packaging, storing, transporting by vehicle, use, collection, destruction, conversion, offering for sale, transfer or the like of such hazardous substances.[55] It is interesting to note that the act of transportation has been restricted to transportation by way of vehicles.[56] The Act has defined the term 'vehicle' as any mode of surface transport other than railways.[57] This leads to the inevitable conclusion that other modes of transport such as air, water and railways has been excluded from the purview of the act.[58] As a natural result of this, the Act again falls short of fulfilling its objective of being a piece of welfare legislation.

D. *OWNER'S LIABILITY*

Section 3 of the Act mandates that in the event of any death or injury to any person,

52 *Id.,* 6.

53 The Environment (Protection) Act, 1986, § 2(e) (Hazard substance means any substance or preparation which, by reasons of its chemical or physico-chemical properties of handling, is liable to cause harm to human beings, other living creatures, plants, micro organism, property or the environment.).

54 M.P. State Electricity Board and Anr v. Collector and Ors., AIR 2003 MP 156; Rahim and Another v. Collector and Others, 2008 SCC Online All 1172; Mankunwar Vs. Chairman and Anr., MANU/MP/0401/2010; Smt. Sunita Tiwari v. State of U.P. and Ors., MANU/UP/2631/2010; Additional Secretary Officer Incharge of The Case Executive Engineer M.P. Poorv Kshetra Vidhyut Vitr v. Siyaram Yadav, 2014 SCC Online MP 1438.

55 The Public Liability Insurance Act, 1991, § 2(d).

56 Raghavan, *supra* note 33 ,108.

57 The Public Liability Insurance Act, 1991, §2(h)(ii).

58 Raghavan, *supra* note 33 ,108; The Financial Express, *Are Industrial Accident Victims Adequately Insured*, June 20, 2010, available at http://www.financialexpress.com/archive/are-industrial-accident-victims-adequately-insured/635999/ (Last visited on December 24, 2016).

excluding workman, or damage to any property arising out of an accident, the owner shall be liable to provide relief as specified in the Schedule for such death, injury or damage.[59] Sub-Section (2) of Section 3 further provides that in the event of such an accident, the claimant shall not be required to plead and establish that the death, injury or damage, in respect of which the claim has been made, was due to the wrongful act, neglect or default of any person.[60]

It is interesting to note that the Act has clearly excluded workmen from being compensated as they can be compensated under the ordinary labour laws which are not as stringent as the Act in terms of the no-fault liability rule.[61] This defeats the purpose of the Act on two fronts. *First,* the Act makes a needless distinction between workmen and other people who are affected. This forces the workmen so affected to make a claim under through the Workmen's Compensation Act, 1923, which in turn offers certain defences to the employer.[62] This classification renegades on the Act's objective of providing immediate compensation to affected victims through the rule of no-fault liability. *Second,* the definition of 'workmen' has been borrowed from the Workmen's Compensation Act, 1923.[63] After going through the definition of 'workmen' in the said act, one can deduce that a person is deemed to be a workman by virtue of his employment in the industry. He does not cease to become a 'workman' when he is not working during the subsistence of his employment contract. This leads to an absurd result where a workman even if he is affected by the accident outside his working hours, still won't be eligible for any compensation under the Act. He will necessarily have to make a claim through the Workmen's Compensation Act for any remedy. Therefore, the Act has made an unnecessary distinction resulting in depriving the industry's 'workmen' of the benefits of the beneficial legislation.

Moreover, the Act mandates compensatory relief as is specified in the Schedule for any death, injury or damage arising out of the accident.[64] The Schedule provides a relief of Rupees 25,000 per person for fatal accidents along with a reimbursement

59 The Public Liability Insurance Act, 1991, §3.
60 The Public Liability Insurance Act, 1991, §3(2).
61 AK Tiwari, Environmental Laws in India: Contribution of the Supreme Court 159 (2006).
62 Raghavan, *supra* note 33 ,109.
63 The Public Liability Insurance Act, 1991, §3 (Explanation (i)).
64 The Public Liability Insurance Act, 1991, §3(1).

of medical expenses incurred up to a limit of Rupees 12,500.[65] Further, in case of permanent disability a total relief of Rupees 25,000 has been mandated by the Act.[66] The Act also provides for a relief in the event of loss of wages due to temporary partial disability. A fixed monthly relief not exceeding Rupees 1,000 per month for a period, not extending more than 3 months, is to be provided to the victim in cases where the victim has been hospitalised for a period exceeding 3 days and is above the age of 16 years of age.[67] This wording of the provision is problematic on two fronts. *First*, the quantum of relief, as mentioned above, is meagre in today's times and it has not been adjusted as per the current inflation level. On top of that, it seems absurd that a victim or the legal representatives of a victim will have to make an application to claim for relief to the Collector[68] and then undergo a proceeding, lasting for three months, for such a paltry amount.[69].*Second*, the Act while deciding upon the victim's eligibility for compensation, in the event of loss of wages, has unnecessarily mandated the condition of being hospitalised for more than 3 days. This dilution of the provision again leaves a large number of people in the dark who, even though got medically treated within the time period of three days, could not go out for work. Therefore, this dilution needs to be done away with.

E. *INSURANCE STRUCTURE*

The Act mandates that every owner shall take out, before he starts handling any hazardous substance, one or more insurance policies to meet any potential liability arising out of any accident which takes place.[70] Further, the insurance policy so taken shall be for an amount less than the amount of paid up capital of the under taking handling the hazardous substance or an amount not exceeding fifty crores.[71] The liability of the insurer is also restricted to the amount specified in the contract of insurance in the insurance policy.[72]

65 The Public Liability Insurance Act, 1991, The Schedule (ii).
66 The Public Liability Insurance Act, 1991, The Schedule (iii).
67 The Public Liability Insurance Act, 1991, The Schedule (iv).
68 The Public Liability Insurance Act, 1991, §6.
69 The Public Liability Insurance Act, 1991, §7(7). (There have been conflicting interpretations on this topic which have been addressed later in the paper).
70 The Public Liability Insurance Act, 1991, §4.
71 The Public Liability Insurance Act, 1991, §4(2A).
72 The Public Liability Insurance Act, 1991, §4(2B).

The Act then makes an exception to the mandate of this Section, where the Central Government can by notification exempt an 'owner' which can be the Central Government, State Government, any corporation owned or controlled by the Central Government or a State Government and any local authority.[73] This raises some concern, as the interests of the Government have been kept on a higher pedestal as that to of a victim in the event of an accident, where the owner(s) is one belonging from the aforementioned categories. In addition to this, the Act does not envisage a situation where the insurer refuses to pay the amount insured. No liability has been provided under the Act which accrues to the insurer in the event of his non-payment of the sum so insured. Thus, in such a situation, a victim can claim compensation in two ways. Either, he can file a suit for non-performance of the insurance contract against the Insurer in the capacity of a third party beneficiary[74] or he can wait till a suit is filed by the insured company ('owner') against the insurer for recovering the insured money. In the former situation, a suit for compensation will require the establishment of contract and its breach which will likely take a considerable amount of time. This, in turn, fails the objective of the Act of providing immediate relief to victims of any such accidents. Likewise, in the latter case, the Act does not mandate any time period within which any such claim is to be made against the Insurer by the insured owner. Therefore, the victim again becomes helpless and is left with no option, but is at the mercy of the insured owner to file a suit against the insurer.[75]

A solution as proposed by *J Bhagwati*, in the backdrop of Bhopal Disaster, could be applied to the aforementioned situation. As per *J Bhagwati*, the Government should provide immediate compensation in events where any ensuing litigation stops the disbursement of relief.[76] Once litigation comes to a conclusion, the Government can always reimburse itself in such a situation since the liability in question is a no-fault liability. Thus, one can only hope that the Government takes note of the Act's inadequacy immediately before any other major disaster breaks out.

73 The Public Liability Insurance Act, 1991, §4(3).

74 http://www.mondaq.com/india/x/243778/Contract+Law/Treatment+Of+Doctrine+Of+Privity+By+Indian+Judiciary. (Speaking Footnote).

75 Once the said suit is filed by the insured owner, the victim will have to wait till a contractual breach is established and thereafter an order regarding compensation is passed.

76 http://indiatoday.intoday.in/story/supreme-court-judgement-on-bhopal-gas-tragedy/1/323236.html.

F. *ESTABLISHMENT OF THE ENVIRONMENT RELIEF FUND*

Section 7 of the Act provides that the Central Government may, by a notification in the official Gazette, establish a fund to be known as the Environment Relief Fund.[77] An owner has to pay an amount, in addition to the amount of premium, to the insurer which will be deposited by the insurer into the Environment Relief Fund.[78] This fund is to be utilised in the manner as provided under Section 7 of the Act.

G. *RELIEF REDRESSAL MECHANISM*

The Act mandates a duty on the Collector to verify the occurrence of an accident as envisaged in the Act and cause publicity to be given in such a manner he deems fit for inviting applications regarding claims for relief under Section 6.[79] An application for relief is to be made by the person who has sustained an injury or the owner of the property to which damage has been caused.[80] In the event of any death arising out of the accident, the claim is to be made by the legal representatives of the deceased.[81] The Act does not provide any scope for claims being made by social action groups and participation of public in claiming compensation under the Act. [82]

Under Section 7(1) of the Act, the Collector is to hold an inquiry into the claim for relief being made after he has given the parties an opportunity of being heard.[83] After that the Collector may make an award, specifying the persons to whom such amount of relief is to be made and determining the amount of relief which appears to him just. The Act further mandates that the award is to be made by following a summary procedure within three months of filing a claim for relief. Likewise, the payment of the award is also to be made in a recorded time.[84]

These provisions have conferred discretionary powers on the collector which creates a scope for misuse of the power. The discretionary power so conferred goes against

77 The Public Liability Insurance Act, 1991, §7.
78 The Public Liability Insurance Act, 1991, §4(2C).
79 The Public Liability Insurance Act, 1991, §5.
80 The Public Liability Insurance Act, 1991, §6(1)(a); The Public Liability Insurance Act, 1991, §6(1)(b).
81 The Public Liability Insurance Act, 1991, §6(1)(c).
82 Tiwari, *supra* note 61, 160.
83 The Public Liability Insurance Act, 1991, §7(7A).
84 The Public Liability Insurance Act, 1991, §7(3).

the express provision of Section 3 mandating compulsory compensation in the event of any accident.[85] Furthermore, Section 3 has not been mentioned under Section 7. As a result of this, there have been inconsistencies in the judicial interpretation of these provisions. While interpreting a question on the collector's power to grant relief under Section 7of the Act, the Madhya Pradesh High Court reasoned that once the identity of the deceased's legal heir was finalised and the amount was paid as per the Schedule mentioned in Section 3, the Collector had no further role to play.[86] The court here expressed its discontent with the paltry amount of sum given as compensation under the Act but conceded that it was unable to legislate on the same. Recognising the paltry compensation provided under the Act, an equitable interpretation of Section 7 was given by the Allahabad High Court.[87] In the said case, the court was faced with the question of whether the competent authority lacked the jurisdiction to award compensation more than the sum stipulated under Section 3 of the Act. The court went on to hold that compensation to be paid under Section 3 was a mandatory payment where the age, income, number of dependants or other factors were immaterial for awarding compensation, whereas, Section 7 empowered the collector to make an award determining the amount of relief which appears to him to be just and equitable.[88] It was further clarified that the compensation paid in pursuance of Section 3s mandate was independent of the provisions contained in Section 6 along with Section 7of the Act. This was because Section 3 is reflective of the 'no-fault liability' principle and thus the representatives of the deceased will be entitled to compensation in every accident encapsulated within this act. Lastly, the court also explained that even if an application for compensation, under Section 3, was not made by the deceased's dependents, even then it would be open to the Collector to award compensation under the same with regard to death and injury.[89] This interpretation has very well addressed the issue of paltry compensation being provided under the Act by interpreting the Act to meet its true purpose of being a piece of beneficial legislation. One hopes that courts, while addressing future claims made under this Act, follow the latter court's reasoning to fulfil the Act's true purpose.

85 Ali Mehdi, *The Public Liability Insurance Act, 1991 - A Critical Appraisal*, AIR Jour. 38 (1992).

86 M.P.S.E.B. v. The Collector and Ors., MANU/MP/0489/2003.

87 UP Power Corporation Ltd & Anr. v. Kaleemullah & Ors., (2010) 4 All LJ 11.

88 *Id.*, 13.

89 *Id.,* 16.

Furthermore, Section 8 provides that the right to claim relief under Section 3 is in addition to any other right of claiming compensation under any other law in force for the time being.[90] Section 8 holds high relevance as the remedies under the Act comprise of a paltry compensation being awarded under Section 3. In addition to this, there is an air of confusion relating to the extent of Collector's discretionary powers of awarding relief. Therefore, the only choice left for a victim is to resort to any other remedy as provided under any other law in force for the time being. Resultantly, the victim or his heir is left without any effective remedy as claim in any other forum would require proving negligence which might end up in unnecessary hardship.

On a keen perusal of relief dispensing mechanisms under this Act, it will be safe to conclude that the Act is severely outdated which might lead to catastrophic results, if not immediately overhauled.

H. *ACCIDENT PREVENTION*

Section 9 of the Act mandates that in order to ascertain the compliance of the Act, any person authorised by the Central Government may require any owner to submit the necessary information.[91] Any person, authorised by the Central Government, has a right to enter the premises or place, where hazardous substance is being handled, for the purpose of ascertaining that the provisions of this act are complied with.[92] The person authorised by the Central Government exercise the aforementioned right in the event of him having a reason to believe that a hazardous substance is being handled in contravention of Section 4.[93] As a result of the search if it is found that any handling of hazardous substance has taken place then the person so authorised may seize any hazardous substance and other things which, in his opinion, will be useful to any potential proceedings under the Act.[94] The person can also dispose of the hazardous substance if he has a reason to believe that it is expedient to prevent an accident.[95] Moreover, the Central Government has the power to issue directions to

90 The Public Liability Insurance Act, 1991, §8.
91 The Public Liability Insurance Act, 1991, §9.
92 The Public Liability Insurance Act, 1991, §10.
93 The Public Liability Insurance Act, 1991, §11.
94 The Public Liability Insurance Act, 1991, §11(2).
95 The Public Liability Insurance Act, 1991, §11(3).

any owner or any person, officer, authority or agency and such owner, person, officer, authority or agency to direct prohibition or regulation of handling the hazardous substance or regulating the supply of electricity, water or any other service.[96] The Central Government has also being given powers to make an application in a court of law for restraining the owner from handling hazardous substances in contravention of the provisions of this Act.[97]

I. *PENALTIES*

Section 14 of the Act mandates imprisonment for a term extending to six years but not less than one and a half years in the event of non-compliance with the requirements under Section 4 and failing to adhere to directions under Section 12 along with a fine of a minimum of are lakh of rupees.[98] Moreover, the Act also prescribes a penalty for obstructing the right of the person, so authorised by the Central Government, to carry on his functions under Section 10 and 11.[99] The Act also includes the concept of Corporate Criminal Liability where companies can be made liable for proceeding against offences.[100] Lastly, the Act also envisages the possibility of proceeding against the heads of different government departments for committing an offence under this act.[101]

J. *MISCELLANEOUS*

The Central Government has been authorised under the Act to delegate its power to any person.[102] Further, Section 20 of the Act protects Government or any agency acting in relation to the provisions of this act if the said act has been done in good faith.[103] In addition to this, the Act also provides the Central Government to constitute an Advisory Committee on matters relating to Insurance policy under the Act which in turn will include experts of insurance or hazardous substances.[104] Lastly,

96 The Public Liability Insurance Act, 1991, §12.
97 The Public Liability Insurance Act, 1991, §13.
98 The Public Liability Insurance Act, 1991, §14.
99 The Public Liability Insurance Act, 1991, §15.
100 The Public Liability Insurance Act, 1991, §16.
101 The Public Liability Insurance Act, 1991, §17.
102 The Public Liability Insurance Act, 1991, §19.
103 The Public Liability Insurance Act, 1991, §20.
104 The Public Liability Insurance Act, 1991, §21.

the provisions of this act will have effect notwithstanding anything inconsistent contained in any other law.[105]

CONCLUSION

The Act, at the time of its enactment, was considered to be innovative and revolutionary as a natural result of the principles it embodied. The statute was one of the firsts of its kind where it codified the principles on Absolute Liability, as enunciated by the landmark judgement of *Oleum Gas Leak*_case. Even though the legislative intent has been praiseworthy, the Act has failed to realise its full potential. Till date, around twenty judgements have been passed by the Indian courts while adjudicating upon claims made under the Act.[106] Out of these judgements, not a single one has been dealt with by the Supreme Court. This reflects upon the Act's failure to mould itself with the present day requirements. Therefore, the following changes by way of an amendment to the Act are required.

First, the amount of mandatory compensation provided under Section 3, in the event of an injury or death arising out of an accident needs to be overhauled immediately. At this juncture, it is necessary to draw a contrast with other forms of compensation provided by Government in the event of death or injury in transportation accidents. The current government is planning on capping the maximum limit of compensation, in the event death in a road accident to 15 Lakh Rupees by bringing in the Road Transport and Safety Bill.[107] Moreover, under the existing Motor Vehicles Act, 1988, the courts have consistently provided for monetary compensation, in the event of road accident, ranging from Rupees 5 Lakh to Rupees 2 Crore.[108] In addition to this, in the event of death in a railway accident, the compensatory liability upon the

105 The Public Liability Insurance Act, 1991, §22.

106 This is based upon search engine using the term 'Public Liability Insurance Act, 1991' conducted on Manupatra, which is a leading search engine and database of reported judgements in India. On putting in the given search term, the search, while restricting it to judgements of the Supreme Court, High Courts and Trbunals, yields 116 results. On a perusal of these results, one finds approximately 20 judgements under which a claim has been made under the Act. Moreover, this number does not include unreported judgements.

107 Indiatoday.in, *Modi Government Plans to Reduce Compensation Money for Road Accident Victims*, June 8, 2015, available at http://indiatoday.intoday.in/story/modi-government-compensation-money-road-accident-victims/1/442934.html (Last visited on January 2, 2017).

108 *Id.*

railways is Rupees 2 Lakh.[109] Likewise, in the event of death in an aircraft accident, the compensatory liability upon the Aircraft extends to that of Rupees 5 Lakh.[110] With such contrast in compensatory liabilities, it is an absolute travesty of justice where Section 3 mandates the payment of Rupees 25,000 in the event of death arising out of an accident, as envisaged under the Act. Therefore, it is recommended that the public liability compensation should be increased to Rupees 5 Lakh for death and Rupees 1 Lakh for injuries arising out of an accident. *Second,* it is recommended to include 'Workmen' within the ambit of this Act. As explained earlier, such exclusion defeats the Act's objective of providing an immediate relief to victims of an accident on a no-fault basis. *Third*, the definition of 'handling' should be extended to cover other modes of transport such as air, water and railways. With a rapid growth of 23.3% in domestic air travel[111] demand along with Inland Waterways Authority of India planning to improve inland waterways in anticipation of increasing cargo traffic,[112] it becomes imperative to include these modes of transport within the Act's ambit before any major accident takes place. *Fourth*, the Act needs to clear the confusion surrounding the dual compensation schemes provided under Section 3 as well as Section 7(1) of the Act. It is recommended that the Act is amended to provide for a mechanism of one time compensation only. This will increase the ease of accessing compensation and remove the confusion relating to the current compensation scheme. *Fifth,* it is recommended that the Government's power to exempt Government owned corporations from the Act's scheme of mandatory insurance, as provided under Section 4(3) of the Act, should be taken away. On a reading of the Section one can safely conclude that it was brought in to minimise the Government's liability in the event of any accident arising under the Act. Such rationale is purely at odds with the Act's objective of providing immediate relief in

109 The Financial Express, *Are Industrial Accident Victims Adequately Insured*, June 20, 2010, available at http://www.financialexpress.com/archive/are-industrial-accident-victims-adequately-insured/635999/ (Last visited on January 4, 2017).

110 *Id*.

111 The Economic Times, *India Sees Highest Domestic Air Growth in 2016*, February 02, 2017, available at, http://economictimes.indiatimes.com/industry/transportation/airlines-/-aviation/india-sees-highest-domestic-air-passenger-growth-in-2016-iata/articleshow/56938394.cms (Last visited on January 1, 2017).

112 The Hindu Business Line, *IWAI to Improve Inland Waterways Network*, October 15, 2014, available at, http://www.thehindubusinessline.com/economy/logistics/iwai-to-improve-inland-waterways-network/article6503633.ece (Last visted on January 2, 2017).

an accident. *Sixth*, the Act does not provide for any mechanism of redressal where the Insurer refuses to honour any claim for compensation made under this Act. Therefore, it is recommended that amendments are made to the Act which provide for a redressal mechanism in the event of insurer's refusal of providing compensation on a claim made under the Act.

Thus, for needful working the aforementioned recommendations are essential. This will not only give life to the dormant words of the Act but also make it more implementable.

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3

THE WETLANDS (CONSERVATION AND MANAGEMENT) RULES, 2017: A CRITIQUE

Avani Dubey*

The Wetlands (Conservation and Management) Rules, 2017 (hereinafter, the Rules) are a set of rules which have been introduced by the Ministry of Environment, Forests and Climate Change of India. These Rules are in response to the ever-growing urbanization, which has resulted in callous exploitation of natural resources. They succeed the Rules of 2010 and 2016, aiming to conserve and protect through several revised provisions, largely based on the "wise use" principle. India, being a Party to the Ramsar Convention on Wetlands, 1971 (hereinafter "the Convention"), is bound to ensure the well-being of wetland ecosystems of the country, and has notified 26 wetlands as wetlands of international importance under the Convention. These Rules therefore strive for the fulfillment of India national as well as international concerns.

Wetlands, which constitute an interface between land and water, are one of the world's most crucial ecosystems. Wetlands have been defined in the final Rules, 2017[1] as;

"wetland" means an area of marsh, fen, peatland or water; whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters, but does not include river channels, paddy fields, human-made water bodies/tanks specifically constructed for drinking water purposes and structures specifically constructed for aquaculture, salt production, recreation and irrigation purposes."

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1 Wetlands (Conservation and Management Rules), 2017, Rule 2(g).

Wetlands are found where water is the primary factor controlling plant and animal life and the wider environment, and where the water table is at or near the land surface.[2] They are dynamic ecosystems which change over time with change in external conditions.[3] Most importantly, as the world's population increases approximately by 70 million every year, and water consumption increases twice as fast, wetlands are instrumental in maintaining the supply of water.[4] They are a ground for sustenance of many diverse and unique habitats, and are often called 'kidneys' of the earth, playing a major role in carbon sequestration.[5] Furthermore, wetlands are cradles of biodiversity, providing the primary productivity on which hundreds of plants and animals depend for survival, and are hence home to high concentrations of birds, amphibians, fishes, plant genetic material, and invertebrate species.[6] They thrive on merely 4%[7] of the Earth's surface but contribute astonishingly to all forms of life.

Wetlands also provide freshwater for agriculture, animal husbandry, domestic use and drainage, and provide livelihoods to fisherfolk, and provide resources for sustainable tourism and recreation,[8] and regulate floods and droughts, maintain shoreline stabilization, water purification, and erosion. Furthermore, they retain sediments, nutrients and recharge groundwater deposits, while also stabilizing local climate conditions and regulating rainfall.

2 *Managing freshwater, river, wetland and estuarine protected areas. In Protected Area Governance and Management,* (Pittock J, Finlayson M, Arthington AH eds. ANU Press, Canberra. 2015).

3 Stephen Tooth, Fred Ellery, Michael Grenfell, Andrew Thomas, Donovan Kotze and Tim Ralph, Wetlands in drylands research network (10 reasons why the Geomorphology of wetlands is important, 2015) <http://wetlandsindrylands.net/wp-content/uploads/ 2015/ 10/10-Reasons-Geomorphology-of-Wetlands-NEAR-FINAL-PRINTER-FRIENDLY.pdf > (Last Accessed on 4th January 2018).

4 The Ramsar Secretariat (Ramsar Convention Manual, 2004) <http://www.moe.gov.lb/ ProtectedAreas/pdf/ramsar_convention.pdf> (Last Accessed on 4th January 2018).

5 Sushma Panigrahy, T.V.R. Patel, J.G. Patel, and T.S. Singh (2012) 102 (6) Current Science 852-856 <http://www.jstor.org/stable/24084499> (Last Accessed on 4th January 2018).

6 The Ramsar Secretariat (Ramsar Covention Manual, 2004) <http://www.moe.gov.lb/ ProtectedAreas/pdf/ramsar_convention.pdf> (Last Accessed on 4th January 2018).

7 'Abhijeet Bernard Chaves and C. Lakshumanan (Remote Sensing and GIS-based Integrated Studyand Analysis for Mangrove Wetland Restoration in Enmore Creek, Chennai, South India, 2008) <http://www.moef.nic.in/sites/default/files/nlcp/D%20-%20Remote%20 Security%20GIS%20Application/D-9.pdf> (Last Accessed on 13th January 2018).

8 Ministry of Environment & Forests (National Environment Policy, 2006).

Despite their endless list of social, economic and ecological importance such as harbouring a number of IUCN red-listed species[9], maintaining the atmospheric balance by storing carbon within plants and soil, instead of releasing it into the atmosphere as carbon dioxide[10], generating *"detritus"*, small particles of organic matter, which feeds many aquatic insects, shellfish and small fish in the water[11], offering a combination of shallow water, high levels of nutrients, and primary productivity promoting ideal conditions for the development of organisms to maintain the food web, they are under a constant threat and danger of disappearance. This has occurred due to various causes as suggested by scholars[12], such as the public nature of wetlands' products and services; the user externalities imposed on other stakeholders, and policy intervention failures, due to lack of consistency in government schemes and action. These wetlands are under tremendous strain due to urbanization, industrialization, and agricultural intensification, and increasing economic activities which are altering their ecological and hydrological balance. The quality of water has deteriorated due to activities and changes in land use of catchment area for agricultural and urban uses. The urban catchment area generates a lot of waste which flows into the lake with surface run-off. Moreover, agricultural practices in catchment areas cause soil to be eroded and the silt to flow into the river. Moreover, due to inflow of fertilizers from agriculture sites, wetlands are plagued by excessive eutrophication, which is the excess growth of macrophytes, which clog the waterbodies, depriving aquatic plants and animals of oxygen. Eutrophication is a manifestation of the aging process of the wetland, which on being clogged with plants, first becomes a marsh, and eventually becomes dry earth.[13]

Fishing activities, illegal nettling of exotic and migratory birds, and encroachments,

9 Dr. Prasanta Kumar Saikia, North Eastern Space Applications Centre ,(Qualitative and quantitative study of lower and higher organisms and their functional role in the Deepor Beel ecosystem, 2005) < https://www.ndsu.edu/pubweb/~bezbarua/em/Documents/Deepor%20Report-PrasantaSaikia.pdf> (Last Accessed of 4th January 2018).

10 *Ibid*.

11 What Are Wetlands? <https://files.nc.gov/ncdeq/Water%20Quality/Surface%20Water%20Protection/401/Policies_Guides_Manuals/What%20Are%20Wetlands.pdf> (Last Accessed on 4th January 2018).

12 R. Kerry Turner, Jeroen C.J.M, van den Bergh, Tore Söderqvist, Aat Barendregt, Janvan der Straaten, Edward Maltby, Ekko C.van Ierland, 'Ecological-economic analysis of wetlands: scientific integration for management and policy'(2000) 35 (1) Ecological Economics 1.

13 K.J.S. Chatrath, Wetlands of India (1st ed., Ashish Publishing House, 1992).

such as railway lines, garbage dumps, industrial estates are hampering biodiversity, shrinking the area of wetlands, and turning them into wastelands. Deepor Beel, for example, which had original linkage with the Brahmaputra, now has the link severed due to the construction of NH-37 and residential buildings, and has garbage dumps dotting its whole circumference [14]. Another example is the Bhoj wetland, which faces a huge strain as apart from pollution and drainage, it provides 45% of the drinking water to the city.[15] Wetlands have also been used extensively for power generation and technology, and municipal sewage plants, without estimating their assimilating capacities, which has further deteriorated their water quality.[16] The abovementioned complications have arisen due to the fact that public authorities and individuals having jurisdiction over them prefer to use them recklessly, as doing so results in windfall financial gains for them, while using them judiciously hardly fetches high revenues. The reduction in their economic value, while using them as a garbage dump is not taken into account by such unscrupulous users.[17] As a result, Chilika Lake and the Loktak Lake have both been included in the Montreux Records, though the former has now been excluded.[18] The abovementioned reasons evinced that it is high time that India's most valued resources be conserved- through governmental action as well as community involvement, and hence the Rules have been introduced.

The Rules have set up a regulatory mechanism for their conservation and integrated management, and to maintain their ecological character, by mainstreaming environmental protection into decision making and policy regimes. The new Rules-

- Have revised the definition of wetlands, after the previous Rules of 2010 and the Draft Rules, 2016.
- Have decentralised the power for wetland management and activity regulation,

14 Dr. Prasanta Kumar Saikia, North Eastern Space Applications Centre ,(Qualitative and quantitative study of lower and higher organisms and their functional role in the Deepor Beel ecosystem, 2005) < https://www.ndsu.edu/pubweb/~bezbarua/em/Documents/Deepor%20Report-PrasantaSaikia.pdf> (Last Accessed of 4th January 2018).

15 Madhu Verma, (Economic Valuation of Bhoj Wetlands for Sustainable Use, 2001) <http://irade.org/eerc/pdf/WB_FR_MadhuVerma.pdf> (Last Accessed on 13th January 2018).

16 Ministry of Environment & Forests (The National Environmental Policy, 2006).

17 Ministry of Environment & Forests (The National Environmental Policy, 2006).

18 The Ramsar Convention on Wetlands, 1971 (The Montreux Record, 8 September 2011) <http://archive.ramsar.org/cda/en/ramsar-documents-montreux-montreux-record/main/ramsar/1-31-118%5E20972_4000_0__> (Last Accessed on 5th January 2018).

through constitution of State Wetlands Authority and Union Territory Wetland Authority. These Authorities are to be under the National Wetlands Committee. The Rules have described the composition of the Authorities and the National Wetlands Committee at length.

- Have introduced several useful restrictions on activities such as encroachments and poaching, which had been excluded from the Rules of 2010. The ban on encroachment can play an important part to remove many irregularities in states such as Kerala, where the Haritha Keralam Mission has been introduced to conserve wetlands.[19] The Rules have also rectified many misgivings in the 2016 Draft Rules, such as the re-inclusion time limits of notification of wetlands.
- They have also put a stop to any construction of a permanent nature within the wetlands, except for boat jetties up to the limit of 50 metres from the mean high flood level observed in the last ten years from the date of commencement of the Rules.
- A notable provision is the provision for an integrated management plan which is to include strategies for achieving the "wise-use" of wetlands, which has been further dealt with in this research paper. The plan also includes identifying the objectives of site management and strategies and actions for achieving those objectives. The plan calls for identification of factors that are responsible for change in ecological character, and the resources required in implementing the plan. It also provides for a monitoring requirement for checking the management implementation.[20]
- The Rules incorporate a variety of functions prescribed to the State and Union Territory authorities, such as defining strategies for conservation and wise use of wetlands within their jurisdiction[21], adopting an integrated management plan for realizing wise use, review of the integrated management plan for each of the notified wetlands, and support traditional uses of wetlands in harmony with their ecological character[22],

19 Ignatius Pereira, 'New wetland conservation rules notified', *The Hindu* (India, September 2017) <http://www.thehindu.com/news/national/kerala/new-wetland-conservation-rules-notified/article19779100.ece> (Last Accessed on 13th January 2018).

20 Wetlands (Conservation and Management) Rules, 2017, Rule 2(e).

21 Wetlands (Conservation and Management) Rules, 2017, Rule 5(3)(g).

22 Wetlands (Conservation and Management) Rules, 2017, Rule 5(3)(h).

- Provide for identification of mechanisms for convergence of implementation of the management plan with the existing State/Union Territory level development plans and programmes, ensure the enforcement of Rules and other Acts and regulations, and inform the State/ Union Territory government of the status of wetlands, through a reporting mechanism.[23] The Rules also provide for coordination of the integrated management plan through the wise use principle among various responsible agencies[24]

The Rules have been enacted because of the meagre compliance status of the Wetland (Conservation and Management) Rules, 2010. Although the new Rules cover a lot of important fields, which had long needed to be regulated, they still have some gaping lacunae, which threaten the face of wetland conservation in India. In the following paragraphs, the researcher will try to highlight the various loopholes in the legislation.

The definition of wetlands has been starkly altered as compared to the Wetland Rules of 2010. It has been shrunk to a size which has excluded many important forms of wetlands such as human-made reservoirs and tanks that serve crucial interests of communities in many parts of the country, and comprise of 72% of India's total wetlands.[25] The earlier definition had included creeks, estuaries, the 'zone of influence', i.e. the catchment area or the drainage area. The Rules of 2010 had been criticized for not being comprehensive enough[26], as even the aforementioned Rules had excluded river channels and paddy fields from the definition of wetlands: both of which constitute vital forms of wetlands under the Ramsar Convention. This take has been widely denounced by environmentalists because of the sheer essentiality of man-made wetlands in water-deficit areas such as South India. 81% of the wetlands notified in Tamil Nadu are man-made and are, in many areas, sole water suppliers,

23 Wetlands (Conservation and Management) Rules, 2017, Rule 5(3)(k).

24 Wetlands (Conservation and Management) Rules, 2017, Rule 5(3)(l).

25 Nityanand Jayaraman, (India's new wetland rules threaten to destroy 65% of its water bodies rather than protect them, 12 October 2017) <https://scroll.in/article/853515/indias-new-wetland-rules-threaten-to-destroy-rather-than-protect-65-of-its-water-bodies> (Last Accessed on 12th January 2018).

26 Mayank Aggrawal, 'Government's draft wetland rules draw flak from environmentalists' (Livemint, 11 April 2016) <http://www.livemint.com/Politics/dL1y5lPG6Hw3rZqJpgIQMI/Governments-draft-wetland-rules-draw-flak-from-environmenta.html>.

and have developed into vibrant ecosystems, with variant forms of biodiversity.[27] These wetlands, commonly known as *eris* and *kanmais,* provide approximately one-third of the water to irrigated areas in Tamil Nadu. [28] These areas are almost entirely dependent on such man-made water bodies, and therefore not including them under "wetlands" can prove detrimental to community interest.

Rivers alike are of utmost importance to India, as the country frequently faces droughts and flooding due to land usage change, however, they have been left out of the Rules. The only protected Ramsar riverine site in India is the Gangetic Upper Stretch, which has been made so to protect the endangered Gangetic Dolphins;[29] and there is no protection available to rivers under any of the laws prevailing in India. This exclusion from the Rules can hence have a grim impact on the water supply to cities, ecology and livelihoods, and has indirectly paved way for exploitative projects such as hydroelectric plants, dams, etc. The Allahabad High Court has ruled that no more than 50% water can be abstracted out of rivers at a time; however, this order has had little impact on developmental policies.[30] Though it is understandably necessary to keep room for river-based development projects, it is equally prudent and necessary to utilise rivers sustainably and responsibly: a result which cannot be accomplished till the law is inclusive, comprehensive and to an extent, strict. The inclusion of river channels in "wetlands" would ensure that rivers are utilized for various purposes, but in a strictly sustainable manner.

Further, the Rules have confined their applicability to merely two types of wetlands, that is, the ones which are notified under the Ramsar Convention sites, and the ones which are notified to be included in the list of wetlands to be protected.[31] The aforementioned move has its drawbacks as well. The Rules have eliminated

27 ' Saving water, the age-old way: The eris of Tamil Nadu' (*The Alternative,* March 2013) <http://www.thealternative.in/lifestyle/saving-water-the-traditional-way-the-eris-of-tamilnadu/> (Last Accessed on 10th January 2018).

28 *Id.,* 25.

29 South Asia Network on Dams, Rivers and People (World Wetlands Day 2013: Include rivers in India's definition of Wetlands, follow the Ramsar Convention, 5 February 2013) <https://sandrp.wordpress.com/2013/02/05/world-wetlands-day-2013-include-rivers-in-indias-definition-of-wetlands-follow-the-ramsar-convention/> (Last Accessed on 10th January 2018).

30 *Smt. Rajan Yadav & Ors. v. State of U.P* Civil Misc. Writ Petition No.70786 of 2011.

31 Wetlands (Conservation and Management) Rules, 2017, Rule 3.

the comprehensive list of Protected Wetlands from the text, which is sure to result in authorities taking advantage of the callous delineation. The Rules of 2010 had included a comprehensive list of types of wetlands to be included, such as UNESCO World Heritage Sites, wetlands in ecologically sensitive areas such as national parks, coral reefs, reserved forests, etc. and high-altitude wetlands.[32] This list in the final Rules has been shrunk to fit merely minimal area for protection, depriving many vital ecosystems of the protection they need. The authorities have, as a result, become free to notify wetlands according to their whims, and include as small a number as desired. Under the head of restricted activities, reclamation has been excluded which can leave room for reclamation of wetlands for agriculture, etc., cause deforestation, cause soil erosion and siltation[33]; the meaning and scope of "*non-wetland uses*" has not been described, which can facilitate and legitimise harmful practices in the wetlands. Moreover, the list of activities in Rules, 2010, which were not to be undertaken without the prior approval of the State governments, has been deleted from the final Rules. These activities, which included plying motorized boats, agriculture, aquaculture, dredging, harvesting of resources, can have dire consequences on the well-being of wetlands.

The Rules have abolished the Central Wetlands Regulatory Authority[34] (hereinafter CWRA), in an effort to devolving power to State governments. The CWRA has been replaced by the State Wetlands Authority and Union Territory Wetlands Authority, and the National Wetlands Committee has been constituted at the Centre. The latter is similar to what has been recommended by the Ramsar Convention Secretariat in decentralized systems[35]. This, however, may adversely impact implementation, as the National Wetlands Committee is a recommendatory body. It does have the function to monitor implementation of these Rules[36], and review the progress of

32 Wetlands (Conservation and Management) Rules, 2010: Rule 3.

33 K. Ruddle, *The Impact of Wetland Reclamation* (M.G. Wolman and F.G.A Fournier eds, Wiley & Sons Ltd. 1987).

34 Wetlands (Conservation and Management) Rules, 2017, Rule1.

35 Ramsar Convention Secretariat (*Laws and Institutions, Reviewing laws and institutions to promote the conservation and wise use of wetlands*,2010) <https://www.ramsar.org/sites/default/files/documents/pdf/lib/hbk4-03.pdf> (Last accessed on 11th January 2018).

36 Wetlands (Conservation and Management) Rules, 2017, Rule 6(3)(c).

integrated management of trans-boundary wetlands and Ramsar sites[37], however, being of a recommendatory nature, its power is diluted. Several environmentalists have criticized this move, saying, "It makes very little sense to grant states, which have so far not been adhering to the Rules that are already in place, all the power to notify wetlands."[38] Therefore, States may have more discretion than is appropriate, resulting in arbitrariness.

The Rules have, furthermore, not formulated methods of involving communities in wetland conservation or evoking their realization for their responsibility towards the vital ecosystems. Rule 5 (4) (o) says that the Authorities shall undertake measures for enhancing community awareness on values and functions of wetlands.[39] The Rules, however, do not mention any definitive manner of bringing about community awareness and involvement. The Rules fail to identify methods of involving communities, such as incorporating religion in environmental law.[40] Religion can fill the vacuum between communities and the law makers by offering a 'value-laden, unified understanding of creation, humankind, and our obligation as stewards of earth.' Science can only provide 'partial' and 'value-free guidance', but religion can fill the void.[41] Religion can be a way of sensitizing people towards the scientific significance of wetlands. Another catch is the fact that the option of appeal to the National Green Tribunal has been done away with in the Rules. Instead, a grievance committee has been set up as a sub-committee under the National Wetlands Committee, for providing a mechanism for hearing and forwarding people's grievances to the Authority.[42] This, however, reduces their accountability and effectiveness, leaving room for arbitrary action.

37 Wetlands (Conservation and Management) Rules, 2017, Rule 6(3)(g).

38 Kedar Nagarajan, 'New conservation rules may soon apply to wetlands. What are they?' *The Indian Express* (India, 31 May 2016) <http://indianexpress.com/article/explained/wetlands-india-draft-wetland-conservation-management-rules-national-green-tribunal-2826399/> accessed on 12th January 2018.

39 Wetlands (Conservation and Management) Rules, 2017.

40 Dr. Uday Shankar and Arindham Basu, 'Conservation of Nature en route Religion' (2015) (2) eJELPD 27.

41 H. Rolston, 'Saving Creation: Faith Shaping Environmental Policy', (2010) 121 (4) Harv. Law Policy Rev 122.

42 Wetlands (Conservation and Management) Rules, 2017, Rule 5(6)(b).

THE WISE USE CONCEPT OF WETLAND CONSERVATION

This principle has been widely advocated by the Ramsar Convention[43], and has gained wide acceptance among the Contracting Parties. The definition that was formulated by the Parties in 1987 reads as follows;

"The wise use of wetlands is their sustainable utilization for the benefit of humankind in a way compatible with the maintenance of the natural properties of the ecosystem".[44]

The principle of "wise use" has been made the whole basis of conservation and management of wetlands under the Rules. It has been defined as maintenance of their ecological character, achieved through implementation of ecosystem approach, within the context of sustainable development.[45] This principle, though very appropriate if implemented sincerely, suffers from the anomaly of subjectivity. The Rules do provide that the "ecological character" of wetlands must be maintained by implementing the "wise use" concept, however, the manner in which this should be brought about still remains hazy. What constitutes wise use is a matter of interpretation, changing as opinions do. It is submitted that the concept is extremely generic, and can be said to have been implicitly present in all environmental legislations, including the Rules of 2010. Despite it being present, there had been many instances of gross violation of the Rules (and hence the concept), such as the illegal production of 32 tonnes of salt in the Sambhar Lake, degrading its groundwater and overall ecosystem values.[46] Using resources wisely is the very basis of sustainable development, and hence including it explicitly in the present Rules will not prove particularly beneficial unless proper enforcement measures are undertaken.

Wise use includes providing adequate policies, legislations and institutions to ensure that it is being effectively applied. Actual realization of wise use involves treating the environment protection as a mainstream issue rather than as a subsidiary concern.

43 The Ramsar Convention Secretariat (Wise use of wetlands Concepts and approaches for the wise use of wetlands, 2010) < https://www.ramsar.org/sites/default/files/documents/library/hbk4-01.pdf> (Last accessed on 11th January 2018).

44 Ramsar Secretariat (Guidelines for the Implementation of the Wise Use Concept, 1996) <http://archive.ramsar.org/cda/en/ramsar-documents-guidelines-guidelines-for-the-20909/main/ramsar/1-31-105%5E20909_4000_0__> (Last Accessed on 11th January 2018).

45 Wetlands (Conservation and Management) Rules, 2017, Rule 2(i).

46 Amita Bhaduri, 'Is it worth the salt?' <http://www.indiawaterportal.org/articles/it-worth-salt> (Last Accessed on 13th January 2018).

This has been taken care of in the present Rules, through various provisions discussed before, however, the question still remains that how is the enforcement going to be brought about? Firstly wetlands need to be comprehensively defined, encompassing all crucial forms, and classified effectively, and it is then that enforcement can be taken care of, and the wise use can truly be achieved. Moreover, the incorporation of wetland issues into poverty eradication strategies, water resource management and water efficacy plans, coastal and marine resource management plans, and forest, biodiversity and agriculture plans is necessary.[47] Every policy affecting the environment should have an environment impact assessment plan entailing it. The Rules incorporate several measures of monitoring progress and digitally documenting the notified wetlands, however, there is no sophisticated programme for environment impact assessment in the Rules.

THE JUDICIAL APPROACH TOWARDS WETLAND CONSERVATION

The National Green Tribunal and the Supreme Court of India have time and again expressed concern over the state of wetland conservation, the most recent one being *M.K. Balakrishnan & Ors. v. Union of India*[48], wherein the Supreme Court promptly directed the Union of India to identify and inventories all 2,01,503 wetlands (identified in the National Wetlands Atlas) with the assistance of the State Governments. The Supreme Court had expressed consternation over the humongous expenditure which had been made, resulting in merely general changes. Moreover, two of the Ministries which had not made their nominations yet, were directed to do so right away. In another case, National Green Tribunal directed the state of Uttar Pradesh to exercise its powers under the Wetlands (Conservation and Management) Rules, 2010 and take a decision in identifying wetlands in the entire State of UP in accordance with law. In 2016, the Tribunal, in the case of *Forward Foundation v. State of Karnataka & Ors*[49] had put an end to construction in a wetland near Bangalore, which had been proceeding illegally, violating many environmental guidelines. The

47 The Ramsar Secretariat (National Report on the Implementation of the Ramsar Convention on Wetlands, 2015) < https://www.ramsar.org/sites/default/files/documents/library/uk_national_report_cop_12_final.pdf> (Last Accessed on 11th January 2018).

48 *M.K. Balakrishnan & Ors. v. Union of* India Writ Petition(s)(Civil) No(s).230/2001.

49 *Forward Foundation v. State of Karnataka & Ors* M.A. No. 603 of 2015 & M.A. No. 596 of 2015 In Original Application No. 222 of 2014.

Tribunal quashed their approvals with heavy penalties. It also increased the buffer zone around the wetland from 30 metres to 75 metres. In *Delhi Bird Foundation v. Union of India & Ors*[50], the Tribunal took steps to curb environmentally degrading activities in Basai wetland. In a recent batch of petitions, the National Green Tribunal held the Art of Living Foundation responsible for degrading the Yamuna flood plains in the World Culture Festival organized by the same.[51] Apart from the above cases, the Supreme Court has time and again referred to the Constitutional duty of the State and citizens to protect the environment in general, such as in *T Dhamodar Rao v. Special Officer, Municipal Corporation of Hyderabad*[52]. In *M.C. Mehta v. Union of India*[53], collectively cast a duty on the State to improve the environment.[54] There have been many more instances where the Courts have done their bit to ensure protection, but the end to the problem lies in the law itself.

CONCLUSION

Wetland protection in India has now become the need of the hour. The Rules of 2017 are surely the tool to realise adequate protection to wetlands, and have been formulated to achieve it. However, due to a few glitches, the Rules could prove dysfunctional and ineffective, if they are not freed of them immediately. The researcher would, thus, like to make a few suggestions:

- The concept of community involvement can be developed by sensitizing communities through religious significance of the wetlands, as religions coupled with environment and development can help achieve sustainable development in the true sense. Incorporating nature conservation into the educational regime and holding awareness programmes in rural areas can boost involvement and sensitisation. Religion can be a way of sensitizing people towards the scientific significance of wetlands very effectively, as science cannot reach all people, but religion can. Therefore, the Rules should

50 *Delhi Bird Foundation v. Union of India & Ors.*Original Application No. 418/2017 (M.A no. 787/2017).

51 Original Application no. 65 of 2016 (M.A. no. 419 of 2016, M.A. no. 561 of 2016, M.A. no. 977 of 2016, M.A.. no. 55 of 2017 & M.A. no. 479 of 2017).

52 *T Dhamodar Rao v. Special Officer, Municipal Corporation of Hyderabad* AIR 1987 AP 171.

53 *M.C. Mehta v. Union of India* AIR 2002 SC 1696.

54 P Leelakrishnan, *Environmental Law in India* (4th ed. Lexis Nexis Pvt. Ltd. , 2016).

try to incorporate ways to achieve the same.

- The definition of wetlands should be widened to include man-made wetlands as well, due to the fact that they are no less than fully developed ecosystems which extensively support people's drinking water and irrigation needs. River channels and paddy fields should be brought under the definition, so that they can be utilized sustainably and not recklessly in the disguise of economic development.
- The public should be given a definitive option of appeal, apart from approaching the grievance committee under the National Wetlands Committee, so that the accountability and efficacy of the system can be enhanced, reducing chances for arbitrary action.
- Apart from an integrated management plan and a digital inventory of notified wetlands, a detailed environment impact assessment should entail all major policy decisions.
- The list of protected wetlands should be re-incorporated, to include all wetlands designated so in the Rules of 2010, such as UNESCO World Heritage Sites, so that wetland protection can be made more thorough and comprehensive.
- Activities such as reclamation of wetlands should be re-included in the list of restricted practices, keeping in mind its harmful effects.

Wetlands have been and continue to be the very base of human sustenance. It must be realised that the world itself as an ecosystem is maintained by these small ecosystems, which, if not saved from extinction can zero down human, animal and plant life-the earth itself. The Wetlands (Conservation and Management) Rules, 2017 may be the final chance to save our skin, and this might be the only time where the values enshrined under the Constitution may be truly accomplished, so that India can free itself from the shackles of ignorance and non-action, and finally realise our tryst with destiny.

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4

EXTENDED PRODUCER'S RESPONSIBILITY IN INDIA: AN ANALYSIS OF THE LEGISLATIVE FRAMEWORK IN THE BACKGROUND OF KEY CHALLENGES

Praneeta Ragji*

INTRODUCTION

Globally around 50 million tons of e-waste is generated annually. In India, the current estimate projects 2.7 million tons of anual e-waste generation. Electronic waste or E-waste is a growing concern for nations all around the world. Rapid growth combined with rapid product obsolescence resulted in discarded electronics which is now the fastest growing waste stream in the industrialized world.[1] It is in this backdrop that e-waste management has become a pressing concern in nations around the world.

One of the ways to manage this waste is Extended Product Responsibility(EPR) which essentially places the burden upon the manufacturer to retrieve the electronic product sold after its shelf life and dispose it off in an environment-friendly manner. In 1994, an OECD project on EPR was begun, focusing particularly on programmes to address what many regard as the "weakest link" in the product responsibility chain -- the final disposal of products after their sale to and use by consumers.[2] It focused on ways to minimize the municipal waste stream by reducing or ending

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1 Wath, S., Dutt, P. and Chakrabarti, T., *E-waste scenario in India, its management and implications*, ENVIRONMENTAL MONITORING AND ASSESSMENT, 172(1-4), pp.249-262. (Dec. 11, 2017), https://doi.org/10.1007/s10661-010-1331-9.

2 OECD (1996), Extended Producer Responsibility in the OECD Area, Phase 1 Report, Environment Monographs, No. 114, OCDE/GD(96)48, OECD, Paris. (Dec. 11, 2017).

the traditional local-government subsidy, while transferring substantial or complete financial responsibility to private sector enterprises for managing their products also at the post-consumer phase.[3]

In a country like India with its prominent and emerging middle class demographic, the demand for electronic devices has reached alarming proportions. Therefore EPR initiatives in India are necessary to effectively manage the large quantities of waste produced. However in spite of having regulations in place since 2013, the culture of e-waste management is yet to percolate in the general population. This paper attempts to analyse the lacunae in the legislative framework by studying its impact and give suggestions accordingly.

EXTENDED PRODUCER RESPONSIBILITY

EPR is based upon the 'Polluter pays' principle which essentially entails that the polluter is responsible for paying for the damage caused to the environment and compensate for the rights violated.[4] The concept of EPR itself was first formally introduced in Sweden by Thomas Lindhqvist in a 1990 report to the Swedish Ministry of the Environment.[5] However a joint effort towards EPR was first made by the OECD in its project titled Extended Producer Responsibility (Output area 2.3.4). For the purpose of this project EPR is defined as the extension of the responsibilities of producers to the post-consumer stage of products' life cycles.[6]

There are three broad reasons to implement it in any scenario. Those being: Sustainable development, Product Policy and Waste Management.[7] Sustainable development entails development that meets the needs of the present generation without compromising the ability of the future generation to meet their own demands. While emphasis has been laid on resource management to the end of

3 http://www.oecd.org/env/waste/factsheetextendedproducerresponsibility.htm (Dec. 11, 2017).

4 Rio Declaration on Environment and Development, Principle 16, Aug. 12, 1992.

5 The definition was published in English for the first time in: Thomas Lindhqvist, "Extended Producer Responsibility," in the proceedings of an invitational seminar at Trolleholm Castle, 4-5 May 1992: "Extended Responsibility as a Strategy to Promote Cleaner Products," edited by Thomas Lindhqvist, Department of Industrial Environmental Economics, Lund, June 1992.

6 *Supra* note 2.

7 *Id.*

achieving this goal, waste management is an equally important aspect of it. There are two aspects to waste management itself- first, minimal pollution of environment in disposal of waste and second, maximum re-use and recycling to prevent resource depletion. It is only when an effort is made with this two pronged approach in mind that sustainable development may be achieved.

The management of a product has two sides to it- effect on the ultimate consumer and effect on the environment. Historically, product policies have been driven largely by concerns related to consumer health and safety, or the use of ingredients that are potentially or inevitably harmful to the environment.[8] For instance, the use of LED bulb as opposed to CFL ones has been aggressively marketed at least in the Indian market. The stated advantages for using LEDs have been more economic in nature. However, little focus is placed upon the post-usage handling of these products. EPR addresses this specific issue.

Lastly, in terms of waste management, the last decade has seen an increased affordability and accessibility to electronic products. While the onus of waste management has conventionally been placed upon the ultimate consumers and the government, EPR proposes to internalize this environmental cost by shifting the responsibility from municipal authorities to the producers themselves. EPR therefore places an obligation upon the producer to manage the safe disposal of products after having sold them. This is different from product stewardship (which is another strategy for E-waste management) which imparts shared responsibility to all the handlers of the product to dispose it of in an environment friendly manner. Therefore, certain pertinent concerns arise in light of sole responsibility. In the following chapter the author will attempt to analyze three main aspects: the scope and extent of producer's responsibility in India, the mechanism of enforcement and the practical difficulties with respect to implementation of the rules.

EPR Rules in India

The E-waste management rules in India were drawn under the auspices of the Environmental Protection Act, 1986 and therefore have to be read together.

8 *Id.*

Definitions and general applicability

The rules were amended from 2011 to 2016 in light of recommendations from the Standing Committee.[9] However the main theme running through the rules has remained same- Extended Producer Responsibility. The revised Rules of 2016 now apply to manufacturers, producers, consumers, collection centres, dealers, e-retailers, refurbishers, dismantlers and recyclers[10] as opposed to the 2011 rules which apply only to the producers, consumers, bulk consumers involved in the sale, manufacture, purchase and processing of electronic equipment.[11] This is a positive move as inclusion of e-retailers, refurbishers, dismantlers and recyclers included everyone who may handle the product in course of its lifetime. For example if an electronic device is repaired, even the refurbisher has the responsibility to collect e-waste generated during the process of refurbishing and channelize the waste to authorised dismantler or recycler through its collection centre.[12] Moreover as opposed to the previous Rules, the 2016 Rules also provide for the inclusion of factory as defined in the Factories Act, 1948 (63 of 1948) or Small and Medium Enterprises as defined in Micro, Small and Medium Enterprises Development Act, 2006.[13] Given India's general setup with respect to the electronic market, this is a huge move that widens the applicability of the Act.

Secondly, the definition of producer as given in the Rules, includes manufacturers who sell their own products, producers who sell assembled products and entities that offer to sale imported products.[14]This further widens the ambit of the Rules by including not just manufactures who actually build the product but also those who merely design the product and outsource the manufacturing to other firms. For example: Apple Inc. Furthermore, the inclusion of orphaned products[15] also ensures that non-branded or assembled electrical and electronic equipment is also covered by the said Rules.

9 Standing Committee on Science & Technology, Environment & Forests, *266th Report on E-Waste and E-Radiation"*, (2015).
10 E-waste Management Rules, § 2 (2016).
11 *Id.*
12 E-waste Management Rules, § 8 (2016).
13 E-waste Management Rules, § 3.1.z (2016).
14 E-waste Management Rules, § 3.1.cc (2016).
15 E-waste Management Rules, § 3.1.aa (2016).

However one of the most significant changes from the 2011 Rules is the definition of EPR itself. While the 2011 Rules gave a comparatively vague definition of EPR the 2016 Rules even include take back system or setting up of collection centres or both and having agreed arrangements with authorised dismantler or recycler either individually or collectively through a Producer Responsibility Organisation.[16] Therefore the responsibility upon the producers is now specific for ease of implementation and more in the nature of guidelines than just umbrella provisions imposing a liability.

Issues in Implementation

EPR is a wide concept and needs to be understood in its full capacity. As seen above it displaces responsibility from State functionaries to private entities. There are 4 aspects to this: liability of pollution caused, economic responsibility, ownership and informative responsibility. The effectiveness of an EPR strategy may therefore be judged upon these parameters.

• ***Non-inclusive***

The Guidance Manual for Governments[17] prescribes a full continuum of EPR strategy from fully voluntary to mandatory. However, very specific challenges emerge if the legislative framework insists upon a mandatory approach. In India, operation without Extended Producer Responsibility-Authorisation by any producer shall be considered as causing damage to the environment,[18] thereby making it mandatory for every producer to register for EPR. The most important glitch here is that of ownership. Once the product is sold its ownership is transferred to the consumer for all intents and purposes. Now even if the EPR initiative is mandatorily placed upon the producer, it remains contingent upon the consumer to return the product at the end of its shelf life. As a means toward the privatisation of waste management (i.e., internalisation of associated environmental costs) and better overall waste minimisation, EPR requires that producers will retain or regain effective ownership

16 E-waste Management Rules, § 3.1.t (2016).

17 OECD (2001), *Extended Producer Responsibility: A Guidance Manual for Governments*, OECD Publishing, Paris. (Dec. 15, 2017), http://dx.doi.org/10.1787/9789264189867-en.

18 E-waste Management Rules, § 7.7 (2016).

of their products once the post-consumption stage is reached.[19] Secondly, as it works in the mechanism of product repair and guarantee where the guarantee is revoked if the product is operated upon by an unregistered service centre, the rules remain unclear as to whether the same working mechanism is supposed to apply for EPR.

Another aspect to this issue is the massive quantities of electronics and e-waste which is illegally imported in the country. India is one of the largest waste importing countries in the world.[20] A report by the Rajya Sabha Secretariat recognises porous ports, informal economy, lose legislations and relaxed import policies as some of the reasons behind this problem.[21] While an in-depth exploration of these reasons is beyond the scope of this paper, it is advisable to note that as a result of the same large quantities of unregistered e-waste lands up in the country with no one to account for it. The only possible solution for the same is for the government to establish collection centres at convenient locations for the consumer to dispose of such waste. It may also be used as a two pronged strategy. If the collection centres accept such unregistered products and acquire information from the consumer it can crack down upon the sources of illegal imports as well.

It is pertinent to note that the problem here lies in the definition of 'orphaned products' which includes non-branded or assembled electrical and electronic equipment as specified in Schedule I or those produced by a company, which has closed its operations[22]; however the rules remain silent on the aforementioned category of products. If the liability is in fact placed upon the producer it is possible that he may be assuming more of the risk than he signed up for. On the other hand if the responsibility is revoked the consumer may not comply with the adequate method of disposal which fails the ultimate goal of e-waste management.

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19 OECD (1998), Extended and Shared Producer Responsibility, Phase 2, Framework Report, ENV/EPOC/PPC(97)20/REV2, OECD, Paris.

20 Research Unit (Larrdis) Rajya Sabha Secretariat, *E- Waste in India*, p.32 (2011).
India is one of the largest waste importing countries in the world. All types of wastes are imported into the country, in the form of cheap raw materials including hazardous and toxic wastes. Data released by the Customs Department reveal imports of even prohibited wastes like clinical waste, incineration ash, municipal waste and e-waste, all of which exceed 50 lakh tonnes annually. (Dec. 15, 2017),
http://rajyasabha.nic.in/rsnew/publication_electronic/E-Waste_in_india.pdf_

21 *Id.*

22 *Supra* note 15.

• ***Non-compliance***

The problem of implementation seems to have plagued India for time immemorial now and sadly the same tragedy continues to this day. In spite of having the requisite legislation in place, enforcement and implementation remain in limbo. A study conducted by Toxic Links[23] in 2015 shows the dismal state of affairs with respect to E-waste management in India. The study rated producers for their compliance with E-waste Management Rules, 2011 based upon criteria such as take-back consumer friendliness, compliance on Reduction in the use of hazardous Substances, functionality of the collection points, awareness initiatives etc.[24] Out of 51 brands/ producers included in the study only three, namely Lenovo, Ricoh and Microsoft could be placed in the green category whilst brands such as Hitachi, Onida, HTC, Blackberry etc., scored a zero on the green scale.[25] There can be a few reasons for this dismal scene. First, the 2016 Rules adopt a target-based approach. Collection and channelization of E-waste are supposed to be in line with the targets prescribed in Schedule III.[26] The targets set up may be too ambitious for a country that does not even have an adequate system of collection centres in place let alone recycling and re-use. A target based approach is logically the second step of the EPR strategy, the first being collection of e-waste generated. Second, the implementation of Rules requires a robust effort from the Government of the day. Visits by CPCB and SPCBs to check violations must be carried out in a timely manner and defaulting companies must be brought to task. While governments have announced the imposition of financial penalties for non-compliance[27] and the CPCB has also shown activity in pursuance

23 Toxics Link is an environmental NGO based in Delhi, dedicated to bring toxics related information into the public domain, both relating to struggles and problems at the grassroots as well as global information to the local levels. www.toxiclinks.org, They may be reached at: info@toxiclinks.org or +91-11-24328006.

24 P. B. Mahesh, M. Datta, V. K. Sharma, *Time to Reboot II*, (2015). (Dec. 16, 2017), http://toxicslink.org/docs/Time-to-Reboot-2-Full-report.pdf.

25 *Id.*

26 E-waste Management Rules, § 5.1.a (2016) read with Schedule III [30 percent by weight or number of the quantity of e-waste generated in the first two years of implementation of Rules followed by 40 percent in the fourth and fifth years, 50 percent in the fifth and sixth year and 70 percent during seventh year onwards].

27 PTI, *Poor management of e-waste to attract financial penalty: Gov*t, THE HINDU, March 23, 2016.
(Dec. 16, 2017)http://www.thehindubusinessline.com/info-tech/poor-management-of-ewaste-to-attract-financial-penalty-govt/article8389828.ece.

of waste management[28], the extent of financial costs that will be imposed remains unclear. The matter therefore is likely to become a litigious issue and meanwhile companies will end up spending a fortune on litigation rather than on environment-friendly technologies. If the financial liabilities are structured and made specific by legislation, it is likely to provide an impetus to companies to comply with the Rules and reduce unnecessary litigation as well.

• *Informal Sector*

The arguably unsurmountable impediment to e-waste management in India is the fact over 95% of e-waste generated is managed by the unorganised sector and scrap dealers in this market. [29] The unorganized sector has not been adequately dealt with in the 2016 Rules. In fact it finds no mention in the Rules at all. This is alarming for the simple reason that once the unorganised sector is involved it does not remain an environmental concern. The absence of regulatory mechanism and inadequate legislations places weaker groups such as women and children in a vulnerable position where labour is exploited at starvation wages and exposure to hazardous substances.[30] There is a concern that organized business could well lead to more and more waste being imported into the country, only to be outsourced to the poorest and the most unorganized for reprocessing.[31] The current state of Indian economy is such that ignoring the sector and leaving it out of the legislation completely will prove to be a colossal mistake and back fire all the efforts in this direction.

• *Lack of Awareness*

EPR which is the theme of E-waste Management strategy relies heavily upon an environmentally-aware consumer. The study conducted by Toxic Links (referred previously) revealed dismal results. Majority of the producers provided no

28 Malavika Vyawahare, *Apex pollution regulator issues notices to Nokia, Intel, Cisco,* HINDUSTAN TIMES*,* Sept. 6, 2017, (Dec.16, 2017). http://www.hindustantimes.com/environment/apex-pollution-regulator-issues-notices-to-nokia-intel-cisco-among-others/story-8CHW2FObnyy5bOzUr0gUXM.html.

29 ASSOCHAM, *India to sit on e-waste pile of 30 lakhs MT with Mumbai on top of heap: ASSOCHAM-Frost & Sullivan study*, April 21, 2016.
(Dec. 16, 2017). http://www.assocham.org/newsdetail.php?id=5642.

30 For more information: Monika, Kishore J., *E-waste management: As a challenge to public health in India,* 35 INDIAN J COMMUNITY MED, 382-85 (2010).

31 *Supra* note 20.

information regarding e-waste management in the booklets, at time of sale, through customer service or even through social media platforms and media. The help-lines of 78% of the brands were not able to answer queries on e-waste, reiterating the fact that most brands have only set up these to fulfil the laws and not really fulfil their responsibilities-making the whole exercise futile.[32] Even if the entire infrastructure for re-use and recycling is present, it is of no avail if the ultimate consumer is unaware of his duties towards the environment. Although there is a general awareness with respect to environmental conditions- that rarely reflects in the purchasing behaviour of an individual. Consumer demand which is the driving force of investment functions independent of environmental concerns. This can only be corrected by a joint effort of the government and producers by providing adequate information in booklets, commercials and other media and make eco-friendly technology a criteria for purchasing behaviour.

CONCLUSION AND SUGGESTIONS

As Indians become richer and spend more electronic items and appliances, Computer equipment accounts for almost 70% of e-waste material followed by telecommunication equipment (12%), electrical equipment (8%) and medical equipment (7%).[33]As of October 2017, the Parliamentary Standing Committee on Urban Development has identified 'Solid Waste Management Including Hazardous Waste, Medical Waste and e-waste' as an important subject for examination in 2017-2018. It is expected that these issues will be addressed in the same.[34] With the rapid pace of development and emphasis on the 'Make in India' initiative, waste management and particularly e-waste is an unavoidable concern. In light of the above findings the author makes the following suggestions:

- Amend the definition of 'orphaned products' in the Rules to include genuine products worked on by unregistered service centres.

32 *Supra* note 24.

33 ASSOCHAM India, *India`s e-waste growing at 30% per annum: ASSOCHAM-cKinetics study,* June 3, 2016. (Dec. 16, 2017). http://www.assocham.org/newsdetail-print.php?id=5725.

34 Monthly Policy Review, October 2017, (Dec. 16, 2017). http://www.prsindia.org/uploads/media/MPR/MPR-%20October%202017.pdf.

- Open more collection centres in the country under the auspices of the government which will acquire genuine products worked on by unregistered service centres, those sold on re-sale websites such as e-bay and those obtained from unregistered dealers including illegally exported material.
- Decrease the target for producers from 30 percent to 15 percent in Schedule III of the Rules.
- Introduce the concept of E-labels (or grades) as a way to inform consumers of the eco-friendliness of the products they purchase.
- Draft a structured method of imposing financial liability upon producers for non-compliance to avoid unnecessary litigation.
- Make active use of social media, television and radio to increase consumer awareness.

Take advantage of the distributed informal sector by integrating it into the system. The problem with the involvement of informal sector is two-fold- detection and cost competitiveness. Detection can be tackled effectively only with an adequate legislation in place for governing the unorganised sector. Penalties and fines will be counter-productive because a large part of the population depends upon this sector for its livelihood. Secondly, the cost of recycling in the formal sector is higher than that of the informal sector. The take back system where a surcharge is payable by the consumer can either be reduced or completely borne by the producers. Or the take back system can be accompanied with a monetary incentive from the producer's side.

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BIO-MEDICAL WASTE MANAGEMENT RULES, 2016: A COMMENT

Sudhanshu Pathania*

INTRODUCTION

Hospitals and health care units are supposed to be places where people come to get cured and not to get infected. However, it can be so only if the enormous amount of bio-medical waste that is generated by these healthcare units is disposed of properly. In very simple terms, bio-medical waste is waste generated by hospitals, medical centres and pathological laboratories in course of patient care. This waste poses a danger to both heath care providers who spend most of their day at these facilities and to the patients who have weakened immune systems.[1]

To deal with this onslaught of bio-medical waste on the environment, various steps have been taken up by countries all around the world. The very first instance can be seen way back in UK at the time of Industrial Revolution. Now, instances regarding bio-medical wastes and adequate standards can be found in many international instruments from Universal Declaration of Human Rights (UDHR)[2] to International Covenent on Economic, Social & Cultural Rights (ICESCR)[3]. WHO has been at the forefront in ensuring that everyone has the right to health and minimum standards of health and nutrition are followed. As per World Health Organisation, the safe and sustainable management of bio medical waste is a public health imperative and

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1 Health Care waste, *available at*: http://www.who.int/mediacentre/factsheets/fs253/en/ (last visited on: January 10, 2018).

2 Universal Declaration of Human Rights, art 25.

3 International Covenant on Economic, Social and Cultural Rights, art 12.

a responsibility of all. WHO has identified the effects of bio-medical waste on health workers, patients and on general community alike.[4] WHO made a policy paper in the year 2004 which outlined strategies on managing bio-medical waste. These strategies were categorised under three different heads i.e short term, medium term and long term strategies. While short term strategies include some basic steps like recycling the plastic of syringes to identify other recyclable options without any scope of contamination. This have also been long term strategies which insisted that countries make principles and legislations to manage bio-medical waste. There were also medium term strategies which were more on the lines on research and risk assessment to health risks due to exposure to various kinds of bio-medical wastes.

In the year 2007[5], WHO recommended certain core principles to achieve safe and sustainable management of bio-medical waste, these principles divided the duty between Government, Donors and partners, NGOs and the private sector. This was a big step from the 2004 strategies, as these put an onus on not only the government but on the on the private health care providers and private sectors as well. Most of the principles focused on budget allocation and asked every party to allocate a separate budget for bio-medical waste management. In these principles WHO identified that the root problem behind improper management of bio-medical waste was budget constraints and tried to act on these issues.

A policy paper was issued on Bio-Medical waste by the International Solid Waste Association which is an independent association with many international members. This policy paper is one of the most comprehensive documents on bio-medical waste management and talks in great detail about bio-medical waste management. It deals with every aspect of bio-medical waste management from waste segregation to treatment and disposal. It has a separate section on chemical hazardous and bio hazardous waste material and their treatment.[6]

The policy paper advocates a few basic principles for the member countries to integrate within their legislations dealing with waste management. Some of the basic

4 *Supra* note 1.

5 WHO Core principles for achieving safe and sustainable management of health care waste. *available at:* http://www.who.int/water_sanitation_health/publications/hcwprinciples/en/ (last visited on: January 17, 2018).

6 Key Issue Paper *available at:* https://www.iswa.org/index.php?eID=tx_iswaknowledgebase_download&documentUid=3217 (last visited on: January 20, 2018).

principles are:

- Proper attention to be given to recycling waste materials without compromising the health of health care workers and patients.
- Each health care facility to have an in-house bio-medical waste processing unit.
- Proper segregation of hazardous waste from non hazardous waste which is produced within the health care facility. And the segregated hazardous materials to be kept in isolated containers to prevent contamination.

There are not many international documents and resolutions on bio-medical wastes yet few inferences can be drawn from various conventions regarding proper bio-medical waste management. For instance Stockholm declaration Principle 1, Principle 2 and Principle 6 talk about quality of environment, sustainable development and environmental degradation due to harmful toxins respectively.[7] Although, this declaration does not explicitly discuss bio-medical waste, yet the scope of the afore mentioned principles are wide enough to incorporate important aspects of bio-medical waste management.

The Basel convention on the control of Trans Boundary Movements of Hazardous Wastes and their Disposal, 1989 is another very important treaty with regard to bio-medical waste management. Its aim is to prevent release of hazardous waste in the environment, a subject incidental to bio-medical waste[8]. This convention has 186 member countries as signatories thus making it one of the most powerful international convention regarding hazardous wastes and incidentally bio-medical waste as well.

Basel convention also has a few provisions which specifically talk about waste from medical facilities. Y1[9] and Y3[10] specifically refer to waste from medical care in

7 Declaration of the United Nation Conference on Human Environment, 1972, Principle 1, 2, 6.

8 Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, *available at*: http://www.basel.int/Countries/StatusofRatifications/PartiesSignatories/tabid/4499/Default.aspx (last visited on: 10th January, 2018).

9 *Supra* note 8 at 3, Y1.

10 *Supra* note 8 at 3, Y2.

hospitals and waste from pharmaceuticals respectively.

THE INDIAN SCENERIO

Environment Protection Act was enacted in the year 1986 and was the first Indian legislation for the protection of 'Human Environment'. The preamble of the act clarifies that it was made in pursuance of the UN Conference of Human Environment, 1972.[11] Pursuant to the power granted to the government to enact delegated legislations for the purpose of improving and protecting the environment, rules were made to deal with the menace of waste generated by hospitals and health care units.

Prior to this, there was no specific legislation which dealt with bio-medical wastes. And apart from a few provisions here and there, there was no much to regulate bio-medical waste prior to 1998(the year bio-medical waste management and handling rules were enacted). Article 21[12] is one of the most important Fundamental Rights when it comes to tackling environmental problems and from MC Mehta[13] to *Vellore Citizen* Welfare Forum,[14] the Supreme Court has used this provision of the Constitution for the protection of environment.

The very first case where Supreme Court *invoked* Article 21 with regard to Bio-Medical waste was B.L Wadhera v. Union of India.[15] This case was not just about bio-medical waste but was also regarding to the general garbage disposal problem in Delhi. Supreme Court issued directions to New Delhi Municipal Council (NDMC) and Municipal Corporation of Delhi (MCD) regarding garbage disposal. The Supreme Court also issued directions regarding bio-medical waste disposal and management. The Court directed private hospitals to make their own arrangements for proper disposal of the waste generated by them. AIIMS was directed to install sufficient number of inclinators to effectively deal with waste generated by it within the institution only. Even after rules regarding bio-medical waste were made by the Government, the Supreme Court and High Courts continued with their pro-active approach to issue directions to governments and hospitals for proper management

11 Environment Protection Act, 1986, Preamble.
12 The Constitution of India, art. 21.
13 (2009) 6 SCC 142.
14 AIR 1996 SC 2715.
15 1996 (2) SCC 594.

of bio-medical waste by invoking Article 21. Some of the important cases regarding it are *C.S Prakash and Ors v. The Huda and ors*[16], *Environment Monitoring Forum and ors v. Union of India*[17], *Qualified Medical Practitioners and Hospitals* v. Union of India[18].

Apart from the Constitution, some penal laws can also be looked at which could be used to curb bio-medical waste that is being disposed of in the environment without treatment. Section 268[19] of IPC deals with 'Public Nuisance' and can be invoked where a hospital or a health care facility has failed to properly dispose of bio-medical waste that it is generating. Bio-medical waste causing nuisance and any epidemic due to it in the vicinity would fall under 'annoyance to public or people in general' as per the meaning of this section. Section 269[20] and 270[21] which talks about 'negligent act likely to spread infection of disease dangerous to life' and 'malignant act likely to spread of infection of disease dangerous to life' respectively can also be invoked which provids for punishment upto 6 months and 2 years respectively.

As per the above mentioned provisions of the Indian Penal Code, hospital management can be imprisoned in-case they fail to duly treat bio-medical waste before disposing it off in the environment and such an action would lead to spreading of infection or disease. Because the term used in the provision is 'likely to spread infection', hence there need not be any spread of disease or infection only such likelihood is enough to prosecute a hospital within these provisions.

BIO-MEDICAL WASTE MANAGEMENT RULES

The Environment protection act under sections 6, 8 and 25 grants the Government the power to formulate rules to set standards for environment pollutants, procedure in handling hazardous materials, analysis and manner of sampling and other ancillary things. Pursuant to this power granted to the government, Bio-medical waste Management and Handling rules were enacted in the year 1998.[22] These were

16 ILR (2001) A.P 323.
17 MANU/KE/0894/2003.
18 (2006) 4 Kar. LJ 81.
19 Indian Penal Code, 1860, s 268.
20 *Id*. at s. 269.
21 *Id. at* s. 270.
22 Bio-Medical waste (Management and Handling Rules), 1998, preamble.

the rules which applied to everyone who generated, collected, stored and transported bio-medical waste in any form. Although a few basic amendments were brought to these rules, nothing much was done to them till 2011 when a major overhaul was brought.

In 2011, the Ministry of Environment and Forests replaced the older rules with a new set of rules which were formally called as 'Bio-Medical waste (Management and Handling Rules), 2011'. The new set of rules had a twofold purpose, *firstly* it strengthened the existing framework for bio-medical waste management and *secondly*, it plugged in the loopholes in the earlier enactment. The 2011 rules also simplified the rules for better implementation. For instance, in the earlier rules there were 10 categories of wastes which were brought down to 8. A few cosmetic changes were also brought about.

The following major drawbacks were present in the 1998 rules which were removed by the 2011 act-

- *Requirement of Authorization-* The 1998 act mandated that only those establishments which had over 1000 patients per month[23] had to obtain authorization however this requirement was made mandatory by the 2011 rules to all establishments.[24]
- *Duties of operator:* While both set of rules similarly define the operator as the person who owns or controls or operates a facility for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste. However, the 1998 rules failed to mention the duties of these operators which were present in the subsequent 2011 rules.[25]
- *Colour coding of waste bags:* The 1998 rules had created confusion regarding the packing of bags[26] while the 2011 rules clarified the ambiguity by allocating a colour for each category of waste.[27]

Although the 2011 rules were a big step towards proper management of bio-medical waste, it was not free from its fare share of loopholes which made them less effective

23 *Id.* at s. 8.
24 Bio-Medical waste (Management and Handling Rules), 2011, s. 4.
25 *Supra* note 25 at s. 4.
26 *Supra* note 23 at Schedule II.
27 *Supra* note 25 at Schedule I.

and difficult to implement both by the authorities and at the end of Health Care Facilities. Some of the criticisms faced by bio-medical rules of 2011 are-

- *Application-* The 2011 rules did not cover the full spectrum of people who were generating bio-medical waste. Some big producers of bio-medical waste like medical and surgical camps were not included. In a country like India, where to treat the poor in villages, surgical and medical camps are conducted very regularly, not including them under the preview of the rules would mean allowing a big generator of bio-medical waste to continue their operations unchecked.
- *Duties of Health care facilities-* The bio-medical waste rules of 2011 failed to lay down explicit duties that the health care facilities would be required to perform with regard to bio-medical waste. While duties as to the occupier is mentioned, no duty that the health care facility has to adhere to has been stated with regard to packaging, segregation and other similar tasks.
- *No procedure of monitoring-* As per the bio-medical waste rules, 2011 there is no provision for monitoring whether the health care facilities and other occupiers are adhering to the rules or not. Hence, even these rules fall short of the most important criteria used for judging the working of these rules i.e the implementation.
- *Disposal of bio medical waste-* As per the 2011 rules, bio-medical waste shall be disposed within the health care facility. The rules state that proper equipments would be installed within the facility for in house treatment of bio-medical waste like inclinator etc.[28] Thereby making it difficult for the authorities to make sure that the rules regarding proper disposal of the bio-medical waste are being followed.

Due to the above mentioned inadequacies in the 2011 rules, there were in the implementation of these rules. Hence, a need was felt to go through the whole procedure again and make another set of rules. In 2016, bio-medical waste management rules, 2016 were introduced, which were to replace the old and now redundant rules of 2011. The new set of rules now focused on two aspects, firstly on the simplification of the rules and secondly on plugging the loopholes in the earlier rules.

Following are the Salient features of the new rules which were absent in the earlier

28 *Supra* note 25 at s. 4(7).

rules-

- *Application*- Section 2 of the new 2016 rules define the application and have widened the ambit of the rules by bringing vaccination camps, medical camps, surgical camps and even forensic laboratories within their ambit.[29] These were absent from the 2011 rules.
- *Categories of waste*- 1st Schedule of the 2016 has only 4 categories of waste which is just half of what the earlier ones had there by simplifying the whole process and ristriciting the red tapism.[30]
- *Duties of Health Care Facilities*- 2016 rules explicitly mentioned the duties and the norms that the health care facilities had to follow with regard to segregation, packing and transportation.[31]
- *Monitoring*- The new rules talk about the maintenance of records by both the occupier and operator of common bio-medical waste treatment facility which shall be monitored by both the Central Pollution Control Board (CPCB) and the ministry as well.[32]
- *Common bio-medical waste treatment and disposal facility* – Under the 2016 rules, the government will provide the land for a facility that would treat the waste generated by health care facilities and hence, there won't be any need for an in house waste treatment plant in every hospital, which makes the implementation of the rules easy and is beneficial for the hospitals as well.[33]
- *Standards for emissions from incinerators* – In *Qualified Medical Practitioners and Hospitals v. Union of India*[34], the Karnataka High court observed that the method of incineration is not the best one and also causes pollution. The Court further observed that new eco-friendly methods of disposing off bio-medical waste should be adopted. And the bio-medical waste management rules are also trying to reduce the emissions from incinerators. 2016 rules have reduce the emission levels from 150 mg/Nm^3 to 50 mg/Nm^3.[35]
- *Establishing a bar code system* – The 2016 rules have tried to simplify the

29 Bio Medical Waste management rules, 2016, s. 2.
30 *Id.* at. Schedule I.
31 *Id.* at. S. 8.
32 *Id.* at. S. 13.
33 *Id.* at. S. 7(4).
34 (2006) 4 Kar. LJ 81.
35 *Supra* note 30 at schedule II.

management of bio-medical waste by going digital. It mandates the health care facilities to establish a barcode system that would make it easier to track and manage bio-medical waste.[36]

By looking at the new rules, one can notive major improvement over the earlier ones and try to tackle bio-medical waste in a better and more scientific manner. The only issue with the new rules is the problem of implementation. The rules would be only as good as the people who are implementing them. Unless there is proper implementation of these rules, they would be of no use. For instance, Prem Agarwal of National Solid Waste Association of India has said that although bar code system can be used to track the system in a better manner and make it more efficient, onus on providing these bar coded bags is on Common Bio Medical Waste Treatment Facilitation (CBMWFS) and unless these bar coded bags are provided to the CBMWFS, all this tracking and efficiency would be limited to the rule book only.[37]

CONCLUSION

Bio Medical waste poses a very grave health hazard to humans and the environment alike. As per the WHO, 15% of Bio Medical waste is hazardous and if it is allowed to enter the environment without any proper treatment, it would cause havoc. Anyone, be it human or animal if exposed to hazardous bio-medical waste, is potentially at the risk of getting fatally ill. From health care workers to patients, everyone is at risk of such exposure. Hence, the need for improved rules was there. Had there been no such rules then it would have led to massive leaks and probably epidemics. Not only were these rules were necessary to realise Fundamental Right to Life, but other rights like the Right to Healthy Environment and the Right to Safe Working Environment. On paper the, 2016 rules look Concrete sound and have plugged in most of the loopholes in the earlier rules, however on the implementation side much needs to be achived. How the Ministry of Environment and Forests deal with implimenting yet to be seen.

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36 *Id.* at. 4(i).

37 New Rules of Bio Medical Waste Management Released, *available at:* http://www.downtoearth.org.in/news/new-rules-for-biomedical-waste-management-released-53330 (last visited on: 10th January, 2018).

6

TOWARDS AN EFFECTIVE E-WASTE POLICY: CONTROLLING ELECTRONIC WASTE POLLUTION IN INDIA

Utkarsh Agrawal*

INTRODUCTION

There are certain steps that ought to be followed before a country comes up with any policy. As each policy must adapt and evolve to cater to the domestic nuances of the country it is enacted in, it cannot be a mere cumulation of best international practices. Any enactment must be preceded by a realistic assessment of internal issues that plague the country. Based on these assessments, we ought to determine the necessary and suitable characteristics of each policy. Only upon such determination can we move to modify the international best practices to incorporate the said characteristics to finally arrive at a working policy. The final policy is a result of democratic deliberations, involving the stakeholders on the working policy until an efficient solution or compromise is reached. Policies enacted without this exercise is likely to face poor implementation, and even if it is properly implemented, it would not yield the desired results.

This paper attempts to undertake such an exercise with respect to regulations and laws governing disposal of e-waste in India. First, the e-waste problems and its magnitude is analyzed to determine the need for regulations proposing alternative specialized disposal. Second, different international policies on e-waste disposal is highlighted

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and analyzed to identify best international practices. Third, the regulations currently governing e-waste disposal in India are identified. Fourth, a criticism of the current regime is proffered with special emphasis on pragmatic considerations, and lack thereof.

E-WASTE GENERATION IN INDIA

The unprecedented innovation in electronics resulted in a myriad of devices, ranging from laptops to fitness bands, with varying components, making it difficult to assign a standard definition[1] to electronic waste. Several definitions have since been propounded including those by United Nations Environment Programme[2], the Organisation for Economic Co-operation and Development[3], Basel Action Network[4]and the European Union[5]. Drawing form the aforementioned definitions, one may broadly may 'E-waste' as *any discarded electronic equipment*. It is the unique composition, characteristic of electronics goods that necessitate a separate classification of E-waste from conventional waste. Electronic goods, unlike other consumer goods, comprise of materials traditionally not found in households, including heavy metals or radioactive metals such as mercury, lead, and cadmium.[6] These are hazardous materials that require specialized waste disposal mechanisms and cannot be dealt with by conventional waste disposal. If disposed improperly,

1 Jennifer-Ann Hoeveler, *InternationalApproaches to Dealing with Electronic Waste* 13 N.Z. J. Envtl. L. 117 2009 ('Hoeveler').

2 United Nations Environment Programme, Division of Technology, Industry, and Economics, Sustainable Consumption & Production Branch, *E-Waste Management*available athttp://www.unep.fr/scp/waste/ewm/faq.htm[Last Accessed 20 January 2017]: *any electrically powered appliance that fails to satisfy the current owner for its originally intended purpose;.*

3 G. Gaidajis, K. Angelakoglou and D. Aktsoglou, *E-waste: Environmental Problems and Current* Management, Journal of Engineering Science and Technology Review 3 (1) (2010) 193-199 available at http://www.jestr.org/downloads/volume3/fulltext342010.pdf [Last Accessed: January 21, 2017]: *OECD - any household appliance consuming electricity that has reached its end of life.*

4 *Ibid: Basel Action Network - E-waste includes a wide and developing range of electronic appliances ranging from large household appliances, such as refrigerators, air-conditioners, cell phones, stereo systems and consumable electronic items to computers discarded by their users.*

5 Directive 2002/96/EC of the European Parliament and of the Council, Waste Electrical and Electronic Equipment, 27 January 2003 ("WEEE Directive"), Annex IA: *E-waste is defined as Waste Electrical and Electronic Equipment (WEEE).*

6 Hoeveler, *Supra* Note 1 at 122.

E-waste can cause irreparable harm to person and property. For instance, the Cobalt-60 radiation incident in Mayapuri, Delhi which led to radiation poisoning and consequent death of an individual.[7]

There is little doubt that a substantial amount of E-waste is generated in India. With a population of over one billion, the amount of electronics in use, even after estimating low penetration, would be substantial in absolute terms. However, despite its obvious and substantial accumulation, E-waste has received little attention from either the Government or research entities. Up until very recently, no proper estimate was available to determine the amount of E-waste generated.[8] Sporadic data points for reference include 1.47 lakh metric tons in 2005[9], 4.34 lakh metric tons in 2009[10], 8 lakh metric tons in 2012[11] to finally, 18.5 lakh tons in 2016[12]. The final figure in 2016 makes India the fifth largest producer of e-waste in the world.[13] Generation of E-Waste is also particularly skewed with 65 urbanized cities contributing to more than 60 percent of the total e-waste.[14] As of today, public sectors and private industrial sectors, not households or manufacturers, are the major sources of e-waste in India. Contribution of households is still relatively small although it is poised to grow in future with increasing proliferation of consumer electronic goods. Apart from the massive domestic production of E-waste that is poised to grow exponentially[15] in

7 R. Ramachandran, *Lessons from Mayapuri*, The HinduMay 01, 2010 available at http://www.thehindu.com/opinion/op-ed/Lessons-from-Mayapuri/article16297459.ece [Last Accessed: January 21, 2017].

8 Research Unit (Larrdis), E-Waste In India, June 2011 available at http://rajyasabha.nic.in/rsnew/publication_electronic/E-Waste_in_india.pdf [Last Accessed: January 20, 2017] ('Rajya Sabha').

9 *Id at 5:* Central Pollution Central Board estimate.

10 *Ibid:* ELCINA study presented at Componex Nepcon 2009.

11 *Ibid*: CPCB estimate at 2012.

12 CA Bharat Patel & CS V. Balachandran, *E-waste Management: Increasing Concern in India,* International Journal of Research in Economics and Social Sciences (Vol 6 Issue 11) November 2016: Based on a joint study conducted by ASSOCHAM-KPMG.

13 Press Trust of India, India fifth largest producer of e-waste: Study, May 25, 2016 available at http://www.thehindu.com/sci-tech/energy-and-environment/India-fifth-largest-producer-of-e-waste-study/article14340415.ece [Last Accessed: January 20, 2017].

14 Sanjay Jog, Ten states contribute 70% of e-waste generated in India, The Financial Express, 13 March 2008.

15 Virendra Pandit, *India's E-waste Growing At 30% Annually,* BusinessLine, June 3, 2016 available at http://www.thehindubusinessline.com/info-tech/india-likely-to-generate-52-million-tonnes-of-ewaste-by-2020-study/article8686442.ece [Last Accessed: January 22, 2017].

the coming years, India is also the E-waste dumping yard for developed countries.[16]

If environmental concerns and threats to human life are not incentive enough, lucrative business opportunities also underlie E-waste management. If dealt with appropriately, it may turn out to be an important source of raw materials and of refurbished or recycled electronic products.[17] Thus, with its associated costs and benefits, India can ill-afford to ignore E-waste. A proper regulatory scheme is required to both spur efficient E-waste disposal and control dumping of E-waste from developed nations especially that under the garb of re-manufactured goods.[18]

EXTENDED PRODUCER RESPONSIBILITY: AN INTERNATIONAL PERSPECTIVE

In a normal transaction of sale of good, once the good is sold, the producer or retailer ceases to be liable for it. However, by application of EPR, the liability continues even after the sale, throughout the life of the product.[19] It shifts the responsibility associated with the product, such as its proper disposal, from the consumer to the producer.

At this point, it is important to discuss and compare EPR with the concept of Product Stewardship. Relationship between EPR and product stewardship ranges throughout the spectrum. At one end, product stewardship is considered to be an umbrella concept[20] that encompasses EPR, while on the other end, the two are considered as interchangeable concepts[21]. However, in general, product stewardship is regarded as a broad concept devolving responsibilities on all entities involved in

16 Hoeveler, *Supra* Note 1 at 127; *US & China account for 70% of India's E-waste Imports,* Business Standard, March 4, 2016 available at http://www.business-standard.com/content/b2b-manufacturing-industry/us-china-account-for-70-of-india-s-e-waste-imports-116030400460_1.html [Last Accessed: January 21, 2017]: *Delhi-NCR alone getting 85 percent of waste generated in the developed world;* Rajya Sabha *Supra* Note 9 at 28.

17 Hoeveler, Supra Note 1 at 128; Rajya Sabha Supra Note 8.

18 Rajya Sabha *Supra* Note 8 at 34.

19 Nicole C. Kibert, *Extended Producer Responsibility: A Tool For Achieving Sustainable Development*, 19 J. Land Use & Envtl. L. 503 2003-2004 ('Kibert').

20 Department of Environmental Conservation, Product Stewardship available at http://www.dec.ny.gov/chemical/66746.html [Last Accessed: January 25, 2017].

21 Solid Waste Advisory Committee, Product Stewardship-EPR Problems and Prospects, August 7, 2013 available at https://www.seattle.gov/util/cs/groups/public/@spu/@diroff/documents/webcontent/01_026940.pdf [Last Accessed: January 26, 2017].

a transaction, that is, producers, sellers, packagers, customers, recyclers and so on.

OECD, in *EPR Guidance Manual for Governments*, has defined EPR[22] as "*an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle."*

It may be termed as an extension of the internationally accepted *Polluter Pays principle* that underlies environmental law.[23] Producers and sellers under EPR may be required to undertake additional non-monetary obligations such as establishing mechanisms for taking back, recycling products and so on. There are two evident advantages of an effective EPR policy. Firstly, the more direct one that tackles disposal of e-waste with consequent reduction in the environmental pollution. Secondly, it incentivizes producers to innovate and seek designs with minimal environmental impact.[24]

Internationally, EPR evolved with Germany in 1991.[25] Over time, EPR policy has been adopted by several countries in order to effectively deal with the growing concerns related to e-waste. While the crux of the principle is common in all countries, the characteristics of individual EPR policies remain diverse and disparate across nations. EPR policies vary based on the role of State, nature of obligation, imposition of costs and other such parameters.[26]

First, product take-back and target based recycling requirements. Within this approach, producers are required by law to undertake that they would take back the products at the end of its life cycle. Often accompanied by an additional requirement specifying, in absolute terms or percentage terms, the amount of e-waste required to be so disposed. This is the approach followed by Germany, and now, India. Second, a more market-family scheme, in which product take-back and recycling targets is coupled with tradable recycling credit. The approach is largely the same but with target credit requirements. Tradable credits allow individual producers to meet obligations by purchasing credits instead of setting up individual processes. It essentially permits producers to convert the non-monetary obligations into monetary ones, which

22 OECD, 2003 in Environment Policy Committee, *Working Group On Waste Prevention And Recycling,* February 28, 2006 ENV/EPOC/WGWPR(2005)9/FINAL ('EPC').

23 Kibert, *supra* note 19.

24 Aaron Ezroj, *Extended Producer Responsibility Programs in the European Union: In Search of the Optimal Legal Basis*, 20 Colo. J. Int'l Envtl. L. & Pol'y 199 2008-2009 .

25 Kibert s*upra* note 19*:* Ordinance on Avoidance of Packaging Waste.

26 *Id*.

ultimately leads to outsourcing recycling processing in an efficient manner, with an overall reduction in e-waste. The United Kingdom has successfully implemented this scheme by use of packaging waste recovery notes (PRNs). Third, some industries, like US carpet industry, have established a completely voluntary product take-back scheme with self-imposed recycling targets.[27] This model is characterized by a lack of policy intervention by the State. Further, in order to incentivize these mechanisms, State may permit additional branding benefits and associated marketing. Since there is no direct legal obligation to recycle, if a conservative approach is adopted, it may not qualify as EPR. However, that is a narrow approach to EPR that ignores the relevance of other non-State mechanisms. Given that these schemes exist and efficacious, they should also be regarded as a legitimate EPR policy. Fourth, a tax based approach of Advance Recycling Fees (ARF) that may be collected at the time of retail by the State. The proceeds so collected may then be utilized by the State to setup proper infrastructure and undertake recycling e-waste products. This is a traditional scheme of public service where the State imposes a monetary obligation on the producers to provide the public service of e-waste disposal. Fifth, ARF coupled with recycling subsidy. It is closely related to the ARF schemes, except here, instead of the State utilizing the proceeds to directly undertake e-waste obligation, the proceeds are used to provide recycling subsidy to recyclers. Under this program, instead of imposing legal obligations, the State provides incentives to recyclers. For instance, the California used-oil program[28]is an ARF-recycling subsidy program.

In addition to above listed EPR schemes, there are other policies that may be used to either complement the EPR programs or as an alternative to EPR programs. First, ban on disposal of e-waste via landfills or incinerator. E-waste is particularly unsuited for landfills due to leaching[29] of hazardous heavy metals in the groundwater supply and incinerators due to increased toxicity by dispersion of heavy metals in the air. In addition to directly protecting the environment, this practice also prevents use of traditional means of disposal for e-waste thereby giving impetus to an alternate, and safer, means of disposal. For instance, several states in the U.S. have banned e-wastes such computers, light bulbs, batteries, and other such items. Second, a volume-based

27 *Ibid.*

28 Hoeveler, s*upra* note 1.

29 Maria Burke, *The Gadget Scrap Heap*, Chemistry World, June 2007 available at http://www.rsc.org/images/Gadget%20scrap%20heap_tcm18-87902.pdf [Last Accessed: January 29, 2017].

waste disposal fee. Unlike electricity, most countries treat waste disposal as a part of public service, that is, it is a common good existing with its associated *Tragedy of Commons*[30]. In other words, people are not incentivized to reduce waste disposal by optimal utilization of goods as waste disposal is available either free of cost or for a fixed fee. Introduction of a volume-based waste disposal fee, along with stringent waste disposal laws, would incentivize people to reduce individual waste generated. For instance, in some cities in Netherlands, a fee is charged on the basis of the weight of waste collected.

At this point, it is essential to highlight an important limitation of the EPR model across the world. Any EPR model, whether mandatory or voluntary, limits the liability of the producer to collection or take-backs and, in some cases, pre-treatment[31]. While EPR models have largely been successful in channelizing the e-waste through product take-backs and collection centres, the lack of adequate recycling facilities, disparity in labour costs and stringent disposal requirements in developed nations have spurred international dumping of e-waste in developing countries like India, China, Bangladesh and so on.[32] Taking advantage of grey areas of international trade, and in violation of some conventions like the Basel Convention, the collected waste is shipped off to importers in developing countries. The problem is compounded by the fact that e-waste is a particularly lucrative source of raw materials for metals like Gold, Cadmium, Mercury and so on. It is estimated that ninety percent of the E-waste generated globally is dumped in developing countries.[33]

Developing nations lack technology and sophisticated recycling facility for e-waste, which prevents proper disposal or recycling. Additionally, plagued with lack of proper regulatory mandates to effectively tackle such high levels of e-waste, most of it, after being salvaged for recoverable precious metals, is improperly disposed of. The environmental concerns associated with e-waste remains unabated, rather

30 Garrett Hardin, *The Tragedy of The Commons*, Science, New Series, Vol. 162, No. 3859 (Dec. 13, 1968), pp. 1243-1248 available at http://www.geo.mtu.edu/~asmayer/rural_sustain/governance/Hardin%201968.pdf [Last Accessed: January 29, 2017].

31 Rule 5(c) of E-Waste (Management) Rules, 2016.

32 Hoeveler, *supra* note 1.

33 United Nations Environment Programme (UNEP), *Waste Crimes, Waste Risks: Gaps and Challenges in the Waste Sector,* May 12, 2015 available at http://admin.indiaenvironmentportal.org.in/files/file/RRAwastecrime_screen.pdf [Last Accessed: January 30, 2017]; Divya Gandhi, *India, a Victim of E-Waste,* The Hindu, May 13, 2015.

is possibly aggravated, with only a shift in the area of pollution from developed nations to developing nations who are ill-equipped to deal with the increasing e-waste so accumulated and the consequent environmental costs. Therefore, without a stringent recycling mandate, necessary to complete the chain, several successful EPR policies can, at best, only be lauded for achieving logistical efficiency in collection and accumulation of waste and prevention of domestic pollution. It is of little environmental benefit, and perhaps, in a stricter sense, a form of economic imperialism.

The foremost concern while formulating an effective EPR policy for India should be to ensure a complete chain with proper recycling or waste disposal mechanisms. Only after such consideration, can we select an appropriate policy that would entail minimal transaction costs, supplant market-based incentives and minimize state intervention. We shall now critically analyze the current regulatory scenario in India, primarily the principle of Extended Producer Responsibility (EPR). By this analysis, we shall attempt to identify the shortcomings of the present legal regime and suggest changes that could be incorporated to optimize it, both from an economic and environmental perspective.

CURRENT LEGAL REGIME

While a comprehensive analysis of all regulations concerning e-waste may be desirable, we shall, for the purpose of this paper, only briefly touch upon them, with primary focus being limited on the concept of EPR. In consonance with the minimal attention paid to e-waste in India, there was a conspicuous, though unsurprising, and absence of specialized legislation or regulation dealing with e-waste. For the longest time, e-waste was considered within the purview of *hazardous goods*[34] under the *Hazardous Waste (Management and Handling) Rules, 1989*, along with sporadic regulations covering specific items like *Batteries (Management and Handling) Rules, 2001*. While certain restrictions on disposal of e-waste were incorporated in the Hazard Rules of 1989, it was largely irrelevant in shaping the domestic e-waste sector or preventing transboundary dumping under the garb of recycling or remanufacturing.[35]

34 Central Pollution Control Board, *Guidelines for Environmentally Sound Management of E-waste, 2008,* March 12, 2008available at http://tspcb.tripura.gov.in/E_Waste_GuideLines.pdf [Last Accessed: January 24, 2017].

35 *Ibid*.

A relatively serious effort to regulate transboundary dumping of e-waste was Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008, which superseded the Rules of 1989. The Hazard Rules of 2008 introduced licensing and registration requirements in order to limit import of e-waste in India. All involved parties in the transaction from the generator to the transporter to the recycler have to obtain licenses from State Pollution Control Boards (SPCBs). Several other approvals, some requiring inspection, are involved throughout the process including those concerning storage, transport and disposal.[36] Import of hazardous waste to India required permission from Ministry of Environment and Forest (MoEF) with consolation with the relevant SPCB. However, SPCBs, like most of Indian bureaucracy, are hardly efficient, plagued inter alia with lack of financial resources and shortage of staff.[37] Hazard Rules of 2008 was recently replaced by the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. The Hazard Rules of 2016 has since been criticized as a lax regulation that relegates environment to a secondary consideration giving primacy to the commercial importance of transboundary trade.[38] While a comprehensive study of the Hazard Rules of 2016 is beyond the scope of the paper, a prime facie issue may be highlighted. Hazard Rules are generally concerned solely with toxic substances (this which cause danger or is likely to cause danger to the health or environment'). They do not regulate non-toxic waste materials which may not pose a direct threat to the environment but may be harmful due to sheer quantity. E-waste, by itself, comprises in majority of these components such as plastic, silicon which eventually accumulated in overwhelming quantity[39] are equally, if not more, harmful to the environment.

36 National Law School & Environmental Law Institute, Enforcing Hazardous Waste Rules in India: Strategies & Techniques for Achieving Increased Compliance, May 6, 2014 available at https://www.eli.org/sites/default/files/eli-pubs/eli-nlsiu-enforcing-hazardous-wastes-rules-india-handbook.pdf [February 1, 2017].

37 *Ibid.*

38 Gopal Krishna, *New Hazardous Management Rules Makes India Into a Land of Landfills for Foreign Hazardous and Other Wastes*, April 11, 2016 available at http://www.toxicswatch.org/2016/04/new-hazardous-management-rules-makes.html [Last Accessed: February 3, 2017].

39 Balakrishnan Ramesh Babu, Anand Kuber Parande and Chiya Ahmed Basha, *Electrical and Electronic Waste: A Global Environmental Problem,* Waste Manage Res 2007: 25: 307–318 available at http://krc.cecri.res.in/ro_2007/141-2007.pdf [Last Accessed: February 2, 2017].

Contemporaneously with Rules of 2008, for recycling and management of e-waste, a precursor to formal regulation was floated by the Central Pollution Control Board: *Guidelines for Environmentally Sound Management of E-waste, 2008.* It was the first document which referred to the concept of EPR. The first formal regulation to counter e-waste was the *E-waste (Management and Handling) Rules, 2011,* which came into force from May 1, 2012. It was a broad and comprehensive regulation that, following the trend of Government regulations, imposed obligations on most entities involved in the "*manufacture, sale, purchase and processing of electrical and electronic equipment*"[40]including consumers, producers[41], recyclers and so on. Violations of said rules attract strict penalties under Section 15(1) of *The Environment (Protection) Act, 1986.* The Rules of 2011 was the first to incorporate the international principle of EPR in e-waste management in India. Finally, in 2016, the Government enacted the *E-Waste (Management) Rules, 2016,* which replaced the Rules of 2011. The newer regulations are more in line with international practice with extended definition of E-waste, target based requirements for collection, provisions for producer responsibility organization.[42]

CRITICAL ANALYSIS

Laws in India are, generally, an intricate mesh of legal entanglements which manage to confound and discourage even the most conscientious citizen- all leading to the inevitable situation where either the industry is scuttled or the law ignored, mostly the latter. Rules on e-waste are no exception. There are several and diverse shortcomings of the Rules of 2016, which is a symptom of a larger problem concerning the bureaucracy and the legislature, that relegate it to a future of failure and apathy.

First, failure to comply with any of the multitude of regulations can attract severe penalties including imprisonment[43] on each and every participant in the transaction.

40 Ministry of Environment and Forest, *E-waste (Management and Handling) Rules, 2011*http://www.moef.nic.in/downloads/rules-and-regulations/1035e_eng.pdf [Last Accessed: January 24, 2017].

41 *Ibid*: Producer had been broadly defined to include manufacturers and sellers.

42 MAIT, *Salient Features of the E-Waste (Management) Rules, 2016 And Its Likely Implication* available at http://www.mait.com/assets/india-weee-rev---salient-features.pdf [Last Accessed: January 25, 2017].

43 Penalty for Contravention of the Provisions of the Act and the Rules, Orders and Directions.
(1) *Whoever fails to comply with or contravenes any of the provisions of this Act, or the rules made or*

For instance, according to Rules of 2016, a customer failing to dispose an electronic product, qualifying as e-waste, to designated personnel, that is, collection centres, take-back services and so on, are liable to be imprisoned for upto five years. Not only is the penalty ludicrously excessive, it also fails to account for customer's responsibility when there is lack of such disposal infrastructure. For instance, in rural areas, with no collection centres in sight, people are not allowed to dispose their mobile phones without attracting upto five years of imprisonment. It leads to a cascading failure of legislation, where if the producer fails to setup up collection centres, which it has failed to do[44] throughout the country, everyone else involved in the transaction incurs heavy penalties. Poor implementation follows due to inevitable apathy towards the law and, further, due to the game-theory issue[45] which also plagues corruption regulation in India.

Second, in complete disregard for market realities or even pragmatic realities, the Rules of 2016 expect electronic producers to setup and maintain collection centres throughout the country at considerable cost. Imposing considerable specific costs, without any incentives, disproportionately reduces the attractiveness of India as a manufacturing destination. With severe unemployment problems, and an increasing workforce, not to mention consumers, India can ill afford to implement stringent costs to protect the environment upon companies without associated incentives. Therefore, the Rules of 2016 was probably never meant to be implemented. Also, it is important to note, that the Government, after significant investments, has failed to establish, or maintain efficiently, essential goods distribution shops, that is, ration shop through India. That it expects small individual producers to do so, is quite ironic.

Third, as discussed before[46], EPR norms, in consonance with similar international policies in India, do not require producers to actually recycle e-waste but merely to

orders or directions issued thereunder, shall…be punishable with imprisonment for a term which may extend to five years with fine which may extend to one lakh rupees…

(2) If the failure or contravention referred to in sub-section (1) continues…the offender shall be punishable with imprisonment for a term which may extend to seven years.

44 Toxic Links, *Time to Reboot,* 2014: More than 50% of the popular electronics companies have failed to establish satisfactory take-back schemes in compliance with the Rules of 2011, even in Urban Areas.

45 Kaushik Basu, *An Economist in the Real World* (2015).

46 Rule 5(c) of E-Waste (Management) Rules, 2016.

undertake collection and accumulation. With lack of proper treatment or recycling requirement, EPR norms, even if properly implemented, would remain a tool for consolidated dumping of e-waste. At the very least, the Rules of 2016, should also ensure that EPR policy is extended to ensuring proper disposal or recycling rather than fuelling transboundary export or waste dumping. However, as highlighted in the aforementioned points, a mere amendment is not enough. In India, there is an absolute lack of data or organisations dealing with waste disposal in an institutional manner.[47] In a country, without even a conventional waste disposal system, a specialised e-waste disposal setup by producers of electronics is a lot to expect. In comparison, most developed nations have a systematic waste disposal system, with separation of recyclables, organic wastes and so on, which makes it easier to implement an additional classification such as e-waste. In India, until November 2014, the total capacity of registered e-waste dismantler or recycler was 3.5 lakh metric tons which was less than 25% of the total domestic waste e-waste generated in 2016.[48]

Fourth, in keeping with the trend of several legislations in the country, like labour laws, food labelling laws and so on, responsibility of ensuring enforcement and compliance lies solely with the State. These do not confer any individual rights[49], in effect, debarring any individual from seeking enforcement of any such policy. For instance, a consumer seeking to dispose of his ancient computer cannot bring a civil suit against the company for the absence of take-back scheme. Furthermore, even in such a case, the consumer may be liable for wrongful disposal under the Rules of 2016, potentially facing imprisonment. In a country with a reputation for corruption and inefficient bureaucracy, sole reliance on State actors is a recipe for lack of implementation.[50]

Fifth, lack of alternative measure to increasing compliance beyond threat of sanctions. Law is a powerful tool. It sanctions deviant behaviour, which in turn incentivizes

47 Ranjith Kharvel Annepu, Sustainable Solid Waste Management in India, January 10, 2012.

48 Central Pollution Control Board, List of Registered E-Waste Dismantler/Recycler in the Country, November 27, 2014 available at http://www.cpcb.nic.in/Ewaste_Registration_List.pdf [Last Accessed: February 6, 2017].

49 Unless such a right is created by the judiciary through judicial activism such as Public Interest Litigation.

50 Kaushik Basu, *An Economist in the Real World* (2015).

individuals to comply with the law. Additionally, as discovered by sociologists and psychologists alike, people voluntarily tend to comply with legitimate laws.[51] In India, with a myriad of laws that cannot be practicality complied with, people lose interest in voluntary compliance. This works to increase the cost of implementation and increase the burden on the State. Instead, it would be more prudent to invest in awareness campaigns and other methods that also contribute to improving compliance. For example, most consumers are not even aware of their obligation to appropriately dispose e-waste under the Rules of 2016.

RECOMMENDATIONS

It is evident from the above critique that the Rules of 2016 are inadequate in dealing with the e-waste problem in India. A new regulation ought to be brought into place that effectively deals with the aforementioned criticism while incorporating best of the international practices. It would be helpful at this stage to summarize the issue that ought to be dealt with: lack of general waste management infrastructure, excessive state intervention, lack of regard for market functions and multitude of regulations with underlying objectives.

In light of these considerations, we proffer a basic framework for the new regulation. The most important amendment is the change in the nature and extent of liability under the new regulation. Imprisonment is a serious sanction and involves higher judicial scrutiny, which further increases the cost of implementation. Sanction must be limited to exclusively monetary ones. Further, and more importantly, even person involved in the transaction cannot be brought under the purview of the sanction. It is therefore proposed that responsibility be only imposed on waste generators, that is, producers and importers. Customers, recyclers or treatment centres cannot be held liable. It is important to note here that recyclers and treatment centres have a commercial interest to undertake recycling of products. Legal wrangles associated with e-waste would only serves to discourage recycling of the same. At the same instance, individuals should be given recourse against producers, in the nature of

51 Tom R. Tyler, Why People Obey the Law (1990) available at http://www.psych.nyu.edu/tyler/lab/Chapters_1-4.pdf [Last Accessed: February 6, 2017]: *If people view compliance with the law as appropriate because of their attitudes about how they should behave, they will voluntarily assume the obligation to follow legal rules. They will feel personally committed to obeying the law, irrespective of whether they risk punishment for breaking the law.*

an absolute civil liability, in case of injury suffered due to improper disposal of their products. For instance, it can be dealt with by broadening the definition of consumer under the Consumer Protection Act, 1986.

To minimize state intervention, the regulation ought to impose broad obligations on the companies and not an inspection-based model. It is therefore, proposed that we adopt the UK system of tradable recycling credits with a fixed annual quota on each company. As a working structure, the credits may be granted by the State on successful disposal to the recyclers or treatment centres, who will in turn issue the credit to the respective producers. This reduces state intervention from each step of the transaction, to only ensuring appropriate final disposal. While corruption and inefficiency may also plague the present model, it will be significantly reduced by the absolute civil liability on the producers for improper disposal, which will in turn, ensure proper disposal by the recyclers or treatment centres through market mechanism.

CONCLUSION

India has a predisposition for laws and policies that utterly disregard existing market conditions. It is, perhaps, an anachronistic habit from our past as socialists under Nehru or communists under Indira. Our lawmakers are of the opinion that laws or policies will be followed as a direction from the sovereign under the threat of strict sanctions. This is, however, not the case. Most laws and policies are never implemented such as minimum wages provisions, sexual harassment act provisions, labour laws provision and so on, and those which are somehow implemented, mostly fail to have the desired impact such as food procurement policy or metamorphose into a tool of bureaucratic oppression of free market enterprises. Following the same trend, successive rules and regulations concerning electronic waste have largely been ignored.[52]

In a country like India, with a reputation for improper implementation, excessive

52 Toxic Links, *Time to Reboot* available at http://toxicslink.org/docs/Time-to-Reboot.pdf [Last Accessed: January 20, 2017]: Only 7 out of the 50 major companies studied followed the 2011 Regulations diligently; Press Trust of India, *Lighting Firms Flout E-waste Rule in India: Toxic Links,* Economic Times, September 20, 2016 available at http://economictimes.indiatimes.com/news/politics-and-nation/lighting-firms-flout-e-waste-rule-in-india-toxics-link/articleshow/54415484.cms [Last Accessed: January 20, 2017].

reliance on State machinery is a death knell for any legislation, even if with the best of intentions. E-waste regulation is also a victim of the same. While seemingly progressive, it offers no solution to the *sui generis* nature of India. EPR, if implemented properly, has the potential to be a game-changing concept in India. While the recommendations in the paper may not be exhaustive, or even appropriate, the author hopes that it sparks off a debate in the right direction, finally culminating into an appropriate regulation that is more in sync with the pragmatic realities of our country.

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