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EDITORIAL

The Editorial Board of the Environmental Law and Practice Review (ELPR) takes great pleasure in bringing forth Volume VII of ELPR. This issue has submissions from students as well as contribution from scholars and professionals on invitation and solicitation. Keeping up with the tradition of ELPR the editorial team is happy to bring out an issue that discusses extensive issues across various jurisdictions. The journal seeks to initiate discourse surrounding pressing issues assuming primacy in the environmental jurisprudence and form a platform for encouraging scholarship in this nuanced field.

Beginning from a cross-jurisdictional analysis, Manjeri Subin Sunder Raj's paper on "Rights of nature –from spreading its wings to flying high" analyses the philosophical debate of nature being dragged to the court vis-à-vis nature going to court. The author discusses philosophically and also contextualizes them while analysing the challenges in implementing the rights of the nature and the challenges in making nature liable and crystallization of the rights of the nature.

Moving along the lines of such academic discussion, Sharan Balakrishna in his paper titled, "Inland water ways – their sustainable development, possible environmental impacts & An ideal legal regime" discusses water ways as an alternative to pollution free transport. The author tries to analyze them in the context of the cases pending before the green tribunal. The author compares the existing

regime in India with other countries and also discusses the environmental challenges while granting permissions to inland water ways more specially when dredging is involved.

Engaging the readers on pertinent questions plaguing the domestic jurisprudence, Prof. Ali Mehdi in the paper titled, "A Review of Cases decided by the National Green Tribunal under the Water Act, 1974" argues that the limited powers to the tribunal has curtailed the functioning of the tribunal adding further the author opines that polluter pays principle should not be adopted as a parameter in determining damages as the tribunal has to function on "No fault" liability parameter.

Subsequently, Arup Poddar has written on "Indian Supreme Court and Sustainable Development; A Tool for Delivering Environmental Justice". The author analyses the Supreme Court of India decisions to trace the development of sustainable development principles and their interpretation to ensure their effective adaptation to further the cause of environmental justice.

Recognizing the ecological impact of mining activities Anmol Rathore & Hansaja Pandya

Continues the deliberation on a theme titled, "Mining Woes: - Application of Public Trust Doctrine to Preservation of Mineral Resources in India". The authors argue that the application of public trust doctrine in mining activities is essential to protect the intergeneration equity. They argue that to measure the satisfactory compliance of the intergeneration equity principle we should adopt

the Hartwick rule. The authors suggest the measures to be adopted by the State Governments to achieve this.

Engaging the readers on pertinent questions plaguing the climate change jurisprudence, Aastha Kaushal & Lianne D'Souza in their paper titled "Effectiveness of Carbon Markets: From Kyoto to Paris and Beyond" argues that market based strategies can act as a solution for problems relating to climate change. The authors argue that for effectively addressing the issue there is a need for regulated markets and to focus on not just reduction of emissions but also on reduction of concentration of greenhouse gasses in atmosphere.

The board of editors would like to thank the Patrons, Advisory Board and the scholars who helped us with blind peer review of the journal papers for their valuable contribution to the publication of this volume. The board of editors would also like to thank the scholars who contributed papers to the Journal.

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Articles

RIGHTS OF NATURE- FROM SPREADING ITS WINGS TO FLYING HIGH

Dr. Manjeri Subin Sunder Raj[*]

ABSTRACT

Rights and Duties have always been treated as two sides of the same coin[1]*. Forming two basic elements of the law, these concepts have, for long, been able to capture the imagination of the masses. For long seen as a gift of the state*[2]*, the former has had a tremendous change in so far as its subjects are concerned. While rights were given more importance than duties and a secondary treatment was meted out to the latter*[3]*, concerns were raised that both need be given an equal footing. This was amplified by the fact that the concepts are co-relatives*[4]*. This translates into the fact that the act conveys a duty that needs to be done or need not be done*[5]*. So irrespective of whether one likes*

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1 *For more see*, Stephen D. Hudson and Douglas N. Husak, "Legal Rights: How Useful Is Hohfeldian Analysis?", 37 Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition 45 (1980), available at http://www.jstor .org/stable/4319347, accessed on 06/05/2019.

2 *For more see*, David S D'Amato, *The Birth of the State,* available at https://www.libertarianism.org/columns/birth-state, last accessed on 06/05/2019.

3 *For more on rights and duties see*, Arthur L. Corbin, *Rights and Duties*, 33 The Yale Law Journal 501 (1924), at p. 501, available at http://www.jstor. org/stable/788021, accessed on 06/05/2019.; Joseph Raz, *The Nature of Rights*, 93 Mind 194 (1984); Joseph Raz, *Legal Rights*, 4 Oxford Journal of Legal Studies 1 (1984); Alan R White, *Rights*, Blackwell, Oxford, 1984; Arthur L. Corbin, *Rights and Duties*, 33 The Yale Law Journal 501 (1924); Henry T. Terry, *Legal Duties and Rights*, 12 The Yale Law Journal 185 (1903).

4 Ibid.

5 *For more see*, Henry T. Terry, *Legal Duties and Rights*, 12 The Yale Law Journal 185 (1903); Henry T. Terry, *The Correspondence of Duties and Rights*, 25 The Yale Law Journal 171; Henry T. Terry, *Duties. Rights and Wrongs*, 10 American Bar Association Journal 123 (1924).

> *it or not, one will have to do an act or not do an act, because it is his duty*[6].

It is true that *rights* have co-related duties but not the other way round. It leads one to the conclusion that rights assume significance over duties. Now, for duties to assume significance it seems all the more necessary that the line between rights and duties has to disappear; rather there need be a crossing over from the *right* concept to the *duty* concept. This, though it may seem innocuous, is as difficult a task as one would wish not to face.

Both these concepts have been discussed extensively. Different philosophers have provided a different colour to these concepts, thereby adding much needed variety and clarity. While only legal rights were delved into by Hohfeld[7], the differentiation of legal as well as moral rights was looked into by Hart[8]. It is also interesting to note that the differentiation that Hart brought about, providing *moral rights*, was not adhered to by Jeremy Bentham[9], who was of the opinion that such a differentiation will create more problems. However J S Mill[10] stressed upon the fact that the differentiation that Hart brought about was correct and these rights are interconnected. There were other philosophers as well, who believed that the *right*

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6 Joseph Raz, *Liberating Duties*, 8 Law and Philosophy 3 (1989), at p. 5.

7 Wesley Newcomb Hohfeld, Fundamental Legal Conceptions as Applied in Judicial Reasoning, 26 The Yale Law Journal 710 (1917).

8 See, H L A Hart, *Are There Any Natural Rights?*, 64 Philosophical Review 175 (1955). Also see, H L A Hart, *Between Utility and Rights*, 79 Columbia Law Review 828 (1979) and H L A Hart, *Bentham on Legal Rights*, in A W B Simpson (Ed.), *Oxford Essays in Jurisprudence*, Clarendon Press, Oxford, 171 (1973).

9 Jeremy Bentham, in H L A Hart (Ed.), *Of Laws in General*, Althone, London, 1970.

10 J S Mill, *Utilitarianism*, in J Robson (Ed.), *The Collected Works of John Stuart Mill*, Routledge, London, 1969.

concept was present in law as well as morality[11]. There are others like White[12], who have said that this concept is just like all other concepts. While Dworkin[13] is of the opinion that an individualistic approach need be afforded to rights because of their importance, Raz[14] and Wellman[15] suggest that it should be understood in relation to other concepts.

As said earlier, while *rights* have been given some importance, the need arises that *duties* too are provided with equal importance – they are, after all, the co-relative of rights[16]. While one has been cast with a duty, he is, by law, to do or not to do, an act[17]. The very idea behind the duty is what need be done or what need not be done[18] - and this is the crux of the duty[19]. This stresses the fact that such duties are to be fulfilled even if one does not want to do it[20].

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11 Joseph Raz, *The Nature of Rights*, 93 Mind 194 (1984). Also see, Joseph Raz, *Legal Rights*, 4 Oxford Journal of Legal Studies 1 (1984). Also, see, Carl Wellman, *A Theory of Rights*, Rowman and Allanhead, New Jersey, 1985; Carl Wellman, *Real Rights*, Oxford University Press, New York, 1995.

12 Alan R White, *Rights*, Blackwell, Oxford, 1984.

13 Ronald Dworkin, *Hard Cases*, 88 Harvard Law Review 1057 (1975). Also see, Ronald Dworkin, *Taking Rights Seriously*, in A W B Simpson (Ed.), *Oxford Essays in Jurisprudence*, Clarendon Press, Oxford, 202 (1973).

14 *Supra* n. 11.

15 Ibid.

16 Arthur L. Corbin, *Rights and Duties* 33 The Yale Law Journal 501 (1924), at p. 501, available at http://www.jstor. org/stable/788021, accessed on 06/05/2019.

17 Henry T. Terry, *Legal Duties and Rights*, 12 The Yale Law Journal 185 (1903), at p. 186, available at http://www.jstor.org/stable/781938, accessed on 06/05/2019.

18 Henry T. Terry, *The Correspondence of Duties and Rights*, 25 The Yale Law Journal 171, at p. 172, available at http://www.jstor.org/stable/ 786397, accessed on 06/05/2019.

19 Henry T. Terry, Duties. *Rights and Wrongs*, 10 American Bar Association Journal 123 (1924), available at http://www.jstor.org/stable/25711521, accessed on 06/05/2019.

20 Joseph Raz, *Liberating Duties*, 8 Law and Philosophy 3 (1989), at p. 5, available at http://www.jstor.org/stable/3504627, accessed on 06/05/2019.

EXTENDING 'STANDING' BY ATTACHING 'VALUE'

Two concepts, *Intrinsic Value* and *Instrumental Value*, assume significance in so far as attaching such values to different entities are concerned. While the former portrays and attaches value regardless of whether there is any use or not, the latter attaches value in furtherance of other ends[21]. Thereby, the latter assumes an anthropocentric approach and affords higher protection for humans. However, when different philosophers tried to connect the dots between rights and duties, lawmakers had no option but to recognize these inherent rights, or intrinsic rights[22]. Based on these two differential approaches, the concept of standing appeared to be difficult for philosophers. While the original stance was that humans only need be provided standing[23], based on discussions that took place, there arose a line of thought which was pro extension of the concept of standing.

Emerging as a challenge to the traditional anthropocentric approach, Environmental Ethics assumed much needed significance[24]. Commencing with Rachel Carson's *Silent Spring*[25], the

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21 John O'Neill, The Varieties of Intrinsic Value, 75 Monist (1992) 119. Also see, John O'Neill, Ecology, Policy and Politics, Routledge, London, 1993 and Dale Jamieson, Morality's Progress: Essays on Humans, Other Animals, and the Rest of Nature, Clarendon Press, Oxford, 2002.

22 *See*, National Environmental Policy Act, The United States of America, 1969.

23 John Passmore, *Man's Responsibility for Nature*, Scribner's, New York, 1974. See also, William T. Blackstone, *Ethics and Ecology* in Blackstone, William T. (ed.), *Philosophy and Environmental Crisis,* University of Georgia Press, Athens, 16 (1972).

24 For an idea on how Ethics assumed significance and how this acted as a bond between environmentalists, see, B G Norton, *Toward Unity Among Environmentalists*, Oxford University Press, New York, 1991; Avner de Shalit, *Why Does Posterity Matter?*, Routledge, London, 1994 and Andrew Light and Eric Katz, *Environmental Pragmatism*, Routledge, London, 1996.

25 Rachel Carson, *Silent Spring,* Houghton Mifflin Company, Boston, 1962.

movement gained steam with Lynn White's essay[26]. Religion, more so Judeo-Christianity was seen as one major factor which fostered nature exploitation by White. This anthropocentric approach that was propagated ensured that rights assumed significance and provided rights only for humans[27]. Rawls too waded into the debate and threw light on the right conduct[28]. Tribe on the other hand, looked into the relation between law and ethics[29]. With *Population Bomb*[30] the scene was pretty much clear that the exponential growth of human population will cripple resources. The *Earth Rise*[31] photograph was a reminder of the fragile world in which all of us lived. All these led to an animated discussion as regards standing and to whom it should be extended[32].

This was around the time when *value* was being attached to different entities; based on which there was an extension of standing, which was previously the sole domain of humans[33]. Importance was thrust on the concept of *sentience* – the proponents being Peter Singer

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26 Lynn White, *The Historical Roots of Our Ecological Crisis*, 155 *Science* 1203 (1967); For further analysis see, R. Attfield, *Christianity*, Chapter 7 in D. Jamieson (ed.), *A Companion to Environmental Philosophy*, Blackwell, Oxford, 2001.

27 For an in depth analysis of Lynn White's article, see, E. Whitney, Lynn White, Ecotheology, and History 15 Environmental Ethics 151 (1993). Also see, Thomas Aquinas, Summa Contra Gentiles, Bk. 3, Pt 2, Ch 112.

28 John Rawls, *A Theory of Justice*, Harvard University Press, 1971.

29 Laurence Henry Tribe, Ways Not To Think About Plastic Trees: New Foundations For Environmental Law 83 Yale Law Journal 1315 (1974).

30 P R Ehrlich, *The Population Bomb*, Ballantine Books, New York, 1968.

31 This was taken by Bill Anders in 1968, during the Apollo 8 mission and was published in the Scientific American in September 1970

32 Dennis Meadows and his team from MIT came up with some newer concern, during this point of time, as regards environment protection. For more see, Dennis L Meadows *et al,* (Ed.), *Limits to Growth,* Universe Books, New York, 1972.

33 *Supra* n. 23.

and Tom Reagan[34]. This was the concept which brought animals at par with humans. What was noted was that there should be a *will to live*[35]. Paul Taylor also brought in a revised version of this concept by holding that each living organism is a 'teleological centre of life'[36]. The concept grew in strength when Leopold[37] brought about an ethic for an entity that was as abstract as any other- *land.* All these helped grow the concept of standing.

Not to be left behind were judges of a few jurisdictions, especially the United States, wherein there were a few cases where the legality of such extensions of standing was under the radar. While in the *Scenic Hudson Preservation Conference* v. *Federal Power Commission*[38]and the *Citizens to Preserve Overton Park* v. *Volpe*[39] case, the concept was strengthened, the decision in *Sierra Club* v. *Morton*[40] was a turning point. With an imminent change of tide round the corner, anticipated by Stone[41], he through his work, tried to coax the judges to hold on to the existing position. Unfortunately, this was held on to only by Justice William Douglas, whose celebrated dissent, wherein he refers

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34 See, Peter Singer, *All Animals Are Equal*, 1 Philosophical Exchange 243 (1974) and Tom Regan, *The Case for Animal Rights*, University of California Press, Berkeley, 1983.

35 This was yet another concept that was highlighted by Albert Schweitzer. He stressed upon the fact that the existence of this *will* ensures that rights need be provided for such entities. For more see, Albert Schweitzer, *Civilization and Ethics: the Philosophy of Civilization Part II,* (translated by John Naish), A & C Black Ltd, London, 1923.

36 Paul W. Taylor, *Respect for Nature: A Theory of Environmental Ethics*, Princeton University Press, 1986.

37 See, Aldo Leopold, *A Sand County Almanac: And Sketches Here and There*, Oxford University Press, Oxford, 1949.

38 354 F.2d 608 (2d Cir. 1965).

39 1971 U.S. LEXIS 96.

40 405 U.S. 727 (1972).

41 *Should Trees Have Standing- Towards Legal Rights for Natural Objects,* 45 Southern California Law Review 450 (1972).

to Stone's doing, assumes significance[42]. Not to be let down, Stone still expanded his thought[43] and a few cases around that time did a lot of good as well[44].

Courts in Canada as well have had an opportunity to look into this concept. *Finlay* v. *Canada*[45], *Sierra Club of Canada* v. *Canada*[46] and *Imperial Oil Resources Ventures Limited* v. *Pembina Institute for Appropriate Development*[47], give rise to a more liberal approach as far as standing is concerned.

While the concept of a Public Interest Litigation can be drawn into this discussion, it has to be kept in mind that this is, by far, one of the most notable achievements of the legal world. The liberalization of the *Locus Standi* principle has helped water down the strict sense of standing. Thus, by ensuring *representative standing,* environmental jurisprudence grew by leaps and bounds.

THE 'RIGHT' WAY- SPREADING ITS WINGS

Rights were provided for, and a large number of entities were beneficiaries. Courts, across the world have time and again been able to provide some sort of a legal backing to such *Rights of Nature*. *Rights of Nature* have been in the news, quite lately, and this adds much

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42 *Sierra Club* v. *Morton*, 405 U.S. 727 (1972) at p. 742.

43 See, Christopher Stone, *Should Trees Have Standing? And Other Essays on Law, Morals and the Environment*, Oceana Publications, New York, 1996 and Christopher Stone, *Should Trees Have Standing? Law, Morality, and the Environment*, Oxford University Press, London, 2010.

44 See, *Palila* v. *Hawaii Dept. of Land & Natural Resources* 649 F. Supp. 1070 (D. Haw. 1986) and *Loggerhead Turtle* v. *County Council of Volusia County,* 896 F. Supp. 1170 (M.D. Fla. 1995).

45 [1986] 2 S.C.R. 607.

46 [1999] 2 FC 211.

47 [2008] FC 598.

needed jurisprudential gravitas aimed at cataloguing such rights. While there have been numerous instances of such rights being provided for, in India[48], implementation has always been a major hurdle.

However, lessons can be learnt from various other places, where such rights have been provided for. While the *Tamaqua Sewage Sludge Ordinance, 2006*[49] provided a much needed blueprint for such a right, probably for the first time, in the United States, quite a large number of other states toed the line[50]. While instances of such extension of rights can be seen in Belize[51], Ecuador[52], Bolivia[53],

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48 The Supreme Court of India has provided such rights to rivers. Starting with *T N Godavarman Thirumulpad* v. *UOI* (2002) 10 SCC 606, where it was held that rivers were treated as goddesses and were to be afforded protection, the courts have traversed a long way in reaching the decisions rendered in *Mohammed Salim* v. *The State of Uttarakhand,* Writ Petition (PIL) No.126 of 2014, decided on 20/03/2017. See, http://www.tribuneindia.com/news/uttarakhand/courts/uttarakhand-hc-accords-human-status-to-ganga-yamuna/379739.html, last accessed on 21/05/2019, where the holy rivers Ganaga and Yamuna were treated to be as Gods and Goddesses. Later in *Lalit Miglani* v. *State of Uttarakhand and Ors,* WP (PIL) No. 140 of 2015, the judgment made available at http://www.livelaw.in/uttarakhand-hc-declares-air-glaciers-forests-springs-waterfalls-etc-legal-persons/, last accessed on 06/05/2019, brought in that surrounding parts including meadows, waterfalls, lakes and forests were held to have rights. Even if the same has been stayed in *State of Uttarakhand and Ors.* v. *Mohammed Salim and Ors.* Petition to Special Leave to Appeal No. 016879/2019, one does understand the significance it assumes.

49 https://www.huffingtonpost.com/kate-beale/rights-for-nature-in-pas_b_154842.html, last accessed on 06/05/2019.

50 See, http://www.harmonywithnatureun.org/rightsOfNature/, last accessed on 06/05/2019.

51 The Supreme Court of Belize in *The Attorney General of Belize* v. *MS Westerhaven Schiffahrts Gmbh & Co KG and Anr* held that the Belize Barrier Reef was held to be a living thing. Judgment available at https://www.elaw.org/system/files/westerhaven.26.4.10.pdf, last accessed on last accessed on 06/05/2019.

52 Here the Rights were included in the Constitution. Chapter 7, Articles 71- 74, Constitution of Ecuador, available at http://pdba.georgetown.edu /Constitutions/Ecuador/english08.html, last accessed on 06/05/2019.

53 A specific legislation was enacted titled - *Universal Declaration on the Rights of Mother Earth.* Available at https://therightsofnature.org/universal-declaration/, last accessed on 06/05/2019.

Colombia[54], New Zealand[55] and Mexico[56], to name a few, instances of such extension of rights have been on the rise, in recent times.

While this has opened up a new avenue, it is quite pertinent to note that times have changed; so has the judicial as well as the public eye. This has actually helped cater to the need of the present generation and helped a large number of new instances cropping up[57]. It is quite interesting to note that this movement has stabilized

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54 The River Atrato and the Colombian Amazon were given such rights. See, Expediente T-5.016.242. The original decision is available at http://cr00.epimg.net/descargables/2017/05/02/14037e7b5712106cd88b687525dfeb4b.pdf, last accessed on 22/03/2019 and STC4360-2018- Judgment delivered by Judge Luis Armando Tolosa Villabona, on 05/04/2018. Original decision available at http://files.harmonywithnatureun.org/uploads/upload605.pdf, last accessed on 06/05/2019.

55 Legal recognition was given to Te Urewara, Mount Taranaki and the River Whanganui.

56 The State of Guerrero has provided constitutional rights.

57 Bangladesh providing such rights to the River Turag and Lake Erie being provided rights are some of the newer instances.
For more see, https://bdnews24.com/bangladesh/2019/01/30/bangladesh-court-gives-turag-other-rivers-status-of-legal-person-to-save-them-from-encroachment, last accessed on 06/05/2019; https://www.dhakatribune.com/bangladesh/court/2019/01/30/turag-given-legal-person-status-to-save-it-from-encroachment, last accessed on 06/05/2019.; https://www.dhakatribune.com/bangladesh/court/2019/02/01/hc-stop-playing-blind-man-s-bluff-about-rivers, last accessed on 06/05/2019; http://files.harmonywithnatureun.org/uploads/upload763.pdf, last accessed on 06/05/2019.
Also see, Matt Hickman, *Why this Ohio city just granted Lake Erie the same legal rights as humans*, available at https://www.mnn.com/earth-matters/wilderness-resources/blogs/toledo-wants-grant-lake-erie-same-legal-rights-person, last accessed on 06/05/2019.; Pierre Bouvier, In the United States, *Lake Erie now has the legal right to "exist and prosper naturally*, available at https://www.lemonde.fr/planete/article/2019/02/22/les-habitants-de-toledo-dans-l-ohio-appeles-a-donner-un-statut-juridique-au-lac-erie-pour-sa-survie_5426743_3244.html, last accessed on 06/05/2019.; https://www.loe.org/shows/segments.html?programID=19-P13-00009&segmentID=1, last accessed on 06/05/2019.. Also see, https://www.nationalreview.com/corner/nature-rights-movement-lake-erie/, last accessed on 06/05/2019.; Michael Rotman, *Lake Erie*, https://clevelandhistorical.org/items/show/58, last accessed on 06/05/2019.; Jason Daley, *Toledo, Ohio, Just Granted Lake Erie the Same Legal Rights as People*, https://www.smithsonianmag.com/smart-news/toledo-ohio-just-granted-lake-erie-same-legal-rights-people-180971603/#ugOjrl6vAkAbYy3R.99, last accessed on 06/05/2019.; Malory Pickett, *Ohio Just Granted Lake Erie the Same Rights as a Human,* https://medium.com/s/story/ohio-just-granted-lake-erie-the-same-rights-as-a-human-

itself in such a way that newer instances of such rights being provided for are almost heard of daily. This throws light on the importance that the subject has garnered, thereby cementing its position as one of the latest developments in the field of law.

Expanding such *rights* to bring under their scope various other entities has been one of the most notable features of this line of jurisprudence[58]. Attaining strength by adding to this concept is by far the best line of action that has been taken by the proponents of this concept.

While rights have been afforded to different entities, it was only recently that the *Right of a Plant Species* was recognized. The White Earth Band, of the Minnesota Chippewa Tribe, implemented the *Rights of Manoomin.*[59] The Law states thus:

5403783279a, last accessed on 06/05/2019.; Common Dreams, *In 'Historic Vote,' Ohio City Residents Grant Lake Erie Legal Rights of a Person*, https://www.ecowatch.com/lake-erie-bill-of-rights-2630261411.html, last accessed on 06/05/2019.; Jackie Flynn Mogensen, *Holy Toledo! This Ohio City Is Voting to Give Legal Rights to a Lake*, available at https://www.motherjones.com/environment/2019/02/toledo-ohio-lake-erie-bill-of-rights-ballotmeasure/, last accessed on 06/05/2019.; Jesse Higgins, *Lake Erie first lake to be granted same rights as a human,* https://www.upi.com/Top_News/US/2019/02/27/Lake-Erie-first-lake-to-be-granted-same-rights-as-a-human/1661551286456/, last accessed on 06/05/2019.; Aris Folley, *Ohio city votes to give Lake Erie same legal rights as a person*, available at https://thehill.com/policy/energy-environment/431859-lake-erie-becomes-first-lake-to-be-granted-the-same-legal-rights-as, last accessed on 06/05/2019.; Simon Davis Cohen, *Toledo Residents Vote to Recognize Personhood for Lake Erie*, https://progressive.org/dispatches/toledo-residents-vote-to-recognize-personhood-for-lake-erie-davis-cohen-190227/, last accessed on 06/05/2019.; Yessenia Funes, *A U.S. City Just Granted Legal Rights to a Lake*, available at https://earther.gizmodo.com/a-u-s-city-just-granted-legal-rights-to-a-lake-1832960779, last accessed on 06/05/2019.
Also see, S. 2, Lake Erie Bill of Rights.

58 For a timeline of the Rights of Nature being provided in various jurisdictions, see, https://www.invisiblehandfilm.com/what-are-rights-of-nature/, last accessed on 02/05/2019.

59 This is a type of Wild Rice. The plant is a sacred plant to tribal nations and provides physical, cultural and spiritual sustenance. For more see, https://celdf.org/2019/02/the-rights-of-wild-rice/, last accessed on 02/05/2019.

> *"Manoomin, or wild rice, within all the Chippewa ceded territories, possesses inherent rights to exist, flourish, regenerate, and evolve, as well as inherent rights to restoration, recovery, and preservation"*[60].

It is to be noted that it is not only the rice that has been afforded protection but also the clean, fresh water resources and habitats on which it depends[61]. The rationale has been explained thus *"it has become necessary to provide a legal basis to protect wild rice and fresh water resources as part of our primary treaty foods for future generations"*[62].

This right has been reflective of the traditional laws that the Anishinaabe people follow[63]. Modelled after the Rights of Nature concept, these rights have been able to capture the very essence of the ideal right by including amongst others,

> *"The right to clean water and freshwater habitat, the right to a natural environment free from industrial pollution, the right to a healthy, stable climate free from human-caused climate change impacts, the right to be free from patenting, the right to be free from contamination by genetically engineered organisms"*[64].

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60 *Ibid.*

61 https://celdf.org/2019/02/press-release-white-earth-band-enacts-first-of-its-kind-rights-of-nature/, last accessed on 10/06/2019.

62 *Ibid.*

63 Winona LaDuke, *The White Earth Band of Ojibwe Legally Recognized the Rights of Wild Rice. Here's Why*, available at https://www.yesmagazine.org/planet/the-white-earth-band-of-ojibwe-legally-recognized-the-rights-of-wild-rice-heres-why-20190201, last accessed on 18/06/2019. Also see https://www.organicconsumers.org/news/rights-wild-rice, last accessed on 18/06/2019.

64 *Ibid.*

Tribes in the USA adopting such rights is something that is not new[65]. What is to be understood is that there has been a paradigm shift from treating *nature* as *property* to nature as something which *exists* and *flourishes* and which possesses *rights*. It is interesting to note that the law securing Rights of Manoomin provides ways to enforce it as well. Businesses or governments which violate such rights are doing it illegally and such permits/authorizations granted which would affect the rights of wild rice are said to be invalid. Tribal laws are also called in place to provide for punishments in case of violations and enforcement is to be looked into by the 1855 Treaty Authority. It is also interesting to note that law enforcement officials cannot arrest or detain those who are enforcing such rights as well. This makes it all the more clear that such rights have been provided for in a precise manner and are sought to be protected as well. For those who counter these rights that they don't have a pan-societal impact, Wesley J Smith[66] comes up with a retort quoting Mari Margil, who quipped that there was a time when an Indian and a black man were not considered to be humans[67]. It is often quoted that the importance that the entity possesses as regards the tribe is based on

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65 The Ho-Chunk Nation in Wisconsin was the first US tribe to adopt Rights of Nature in 2016, followed by the Ponca Nation in Oklahoma the next year. For more see, https://celdf.org/2016/09/press-release-ho-chunk-nation-general-council-approves-rights-nature-constitutional-amendment/, last accessed on 18/06/2019; http://therightsofnature.org/ponca-rights-of-nature/, last accessed on 18/06/2019.

66 Wesley J Smith, *A Right to Life — For Wild Rice,* available at https://evolutionnews.org/2019/01/a-right-to-life-for-wild-rice/, last accessed on 18/06/2019.

67 *Ibid.*

the culture that it possesses[68]. The idea is to ensure and codify the importance that we place on protecting the environment.

Yet another positive step that was taken was providing the Rights of the Klamath River, by the Yurok Tribal Council[69]. The Resolution[70] provided for specific rights to the river, thereby enabling it to be protected[71]. The steps that have been taken by the tribe, including having one of their own members, Amy Cordalis[72], fighting it out, as the tribe's general counsel, portrays the importance that has been attached to the subject[73]. While one can argue that the preservation of the river is directly related to the Yurok Tribe[74] as they depend on fishing, the idea behind protecting the river for its own sake does play a great role[75]. The tribe members have imbibed the very spirit of protecting nature for its own sake and see

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68 Chuck Dinerstein, *The Rights of Rice*, available at https://www.acsh.org/news/2019/03/04/rights-rice-13850, last accessed on 18/06/2019.

69 John Ahni Schertow, *The Yurok Nation Just Established The Rights of the Klamath River,* available at https://intercontinentalcry.org/the-yurok-nation-just-established-the-rights-of-the-klamath-river/, last accessed on 18/06/2019.

70 The Resolution is available at http://files.harmonywithnatureun.org/uploads/upload833.pdf, last accessed on 18/06/2019.

71 The Resolution "*establishes the Rights of the Klamath River to exist, flourish, and naturally evolve; to have a clean and healthy environment free from pollutants; to have a stable climate free from human-caused climate change impacts; and to be free from contamination by genetically engineered organisms.*"

72 Anna V Smith, *How a Yurok lawyer from Oregon led her tribe's fight over Klamath Basin's future, and past,* available at https://www.oregonlive.com/pacific-northwestnews/2018/06/how_a_yurok_tribal_lawyer_from.html, last accessed on 18/06/2019.

73 Anna V Smith, *How The Yurok Tribe is Reclaiming the Klamath River*, available at https://www.hcn.org/issues/50.10/tribal-affairs-how-the-yurok-tribe-is-reclaiming-the-klamath-river, last accessed on 18/06/2019.

74 *For more about the tribe*, see, http://www.yuroktribe.org/, last accessed on 18/06/2019.

75 Emilio Godoy, *Preservation of the Klamath River – a Life or Death Matter for the Yurok People,* available at http://www.ipsnews.net/2018/09/preservation-klamath-river-life-death-matter-yurok-people/, last accessed on 18/06/2019.

themselves as *protectors*[76]. Steps have been taken by the tribe which do ensure protection and it is to achieve these ends that they have cancelled the salmon season, which is commercial in nature, for the third straight year[77]. The reason was that the Chinook salmon population has drastically reduced to such an extent that the specie's existence is threatened[78].

These rights are the successors of similar rights that have been brought about by the Ho-Chunk Nation and the Ponca Nation in Oklahoma. These were the two tribes which brought about such rights for the very first time. It was way back in 2016 that the Ho-Chunk Nation brought about a change in their constitution and included Rights of Nature, thereby being the first Tribal Nation to advance such rights[79]- *"Ecosystems and natural communities within the Ho-Chunk territory possess an inherent, fundamental, and inalienable right to exist and thrive"*. That apart it also prohibited frac sand mining, fossil fuel extraction, and genetic engineering[80]. All these were said to be a violation of the Rights of Nature[81]. It was also mentioned that though the Ho-Chunk Nation has always protected and preserved the Earth,

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76 https://www.linktv.org/shows/tending-the-wild/willard-carlson-klamath-river-protecting-natural-resources, last accessed on 18/06/2019.

77 Jodi Peterson, *Yurok Tribe cancels salmon season on Klamath River,* available at https://www.hcn.org/issues/50.18/latest-tribe-cancels-salmon-season-on-klamath-river, last accessed on 18/06/2019.

78 Tove Danovich, *After decades, Native American tribes are regaining their fishing rights. But are there any fish left?,* available at https://newfoodeconomy.org/yurok-tribe-klamath-river-salmon-fish-wars/, last accessed on 18/06/2019.

79 *See,* https://therightsofnature.org/ho-chunk-nation-rights-of-nature-constitution/, last accessed on 18/06/2019. Also see, https://celdf.org/2018/09/press-release-ho-chunk-nation-general-council-approves-rights-of-nature-constitutional-amendment/, last accessed on 18/06/2019.

80 For a list of activites that have been taken by the Ho-Chunk Nation in furthering RoN, see https://ejatlas.org/conflict/ho-chunk-tribal, last accessed on 18/06/2019.

81 *Supra* n. 79.

they were forced to adopt a Constitution based on Roman Law and this amendment ensures that humans are just a part of nature[82].

The Ponca Nation was the second Tribal Nation, which in 2017, recognized *Rights of Nature* as statutory law[83]. The catalyst was the problem that the Nation had with fracking and the resultant water pollution[84]. Supported by the Movement Rights[85] founders, who were instrumental in ensuring that *Rights of Nature* can be put to use in bringing an end to treating nature as property, the Ponca Nation came up with the law to protect nature and ban fracking.

Steps have also been taken by yet another state in Mexico[86], after Guerrero[87], to provide Rights of Nature. The State of Colima, on June 10, 2019 amended its Constitution and provided for Rights of Nature[88]. Articles 2 and 16 of the Constitution have been changed so as to include such rights[89].

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82 https://therightsofnature.org/ho-chunk-nation-rights-of-nature-constitution/, last accessed on 18/06/2019.

83 *See,* https://therightsofnature.org/ponca-rights-of-nature/, last accessed on 18/06/2019.

84 See, https://intercontinentalcry.org/ponca-nation-oklahoma-recognize-rights-nature-stop-fracking/, last accessed on 18/06/2019.

85 For more see, https://www.movementrights.org/, last accessed on 18/06/2019.

86 *For more see,* https://www.gaiafoundation.org/wp-content/uploads/2018/12/Earth-Jurisprudence-Rights-of-Nature-Come-Alive-in-Mexico-City.pdf, last accessed on 18/06/2019. Also see, https://www.earthlawcenter.org/blog-entries/2017/11/mexico-on-the-vanguard-for-rights-of-nature, last accessed on 18/06/2019.

87 *Supra* n. 56.

88 See, https://www.earthlawcenter.org/towns-cities, last accessed on 18/06/2019.

89 https://blancalivier.wordpress.com/2019/06/10/colima-hace-historia-reconocen-los-derechos-de-la-naturaleza-en-la-constitucion/?fbclid=IwAR2izFAuK6Iax4Z5hbXuHnzB5UTPKyTi-_0HEBqy9UempoCzOoRHYJS4y74, last accessed on 18/06/2019.

Uganda also took steps, pretty recently, to bring in a paradigm shift in its environmental governance[90]. As a result of the untiring efforts by the Advocates for Natural Resources and Development (ANARDE)[91], the National Environmental Act, 2019, included within it *Right of Nature*[92]. Nature is granted rights, and her custodians are given the right to sue. This was in furtherance of the right to a clean and healthy environment[93].

Such steps taken do seem to be in the right direction in laying down that it is not just humans that need rights, but nature too. This ecocentric approach has been able to garner much needed appreciation and admiration from various quarters; more so from countries who have historically had an innate connection with protecting nature and natural resources. This type of a right, having undergone a great deal of chiseling, to attain its current form, is surely headed in the right direction.

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90 For more see, https://www.gaiafoundation.org/uganda-reweaving-the-basket-of-life/, last accessed on 18/06/2019.

91 For more see, http://anarde.org/, last accessed on 18/06/2019.

92 S. 4- Rights of Nature

1. Nature has the right to exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution.
2. A person has a right to bring an action before a competent court for any infringement of rights of nature under this Act.
3. Government shall apply precaution and restriction measures in all activities that can lead to the extinction of species, the destruction of the ecosystems or the permanent alteration of the natural cycles.
4. The Minister shall, by regulations, prescribe the conservation areas for which the rights in subsection (1) apply.

93 Art. 39, Constitution of Uganda.

A NOT SO SMOOTH FLIGHT AHEAD, BUT SOAR IT WILL

While it is heartening to note that such a lot of changes have occurred in ensuring that Rights of Nature are protected, the implementation part does raise some concerns[94]. *Nature going to court* and *nature being dragged to court* are two related, but diametrically opposite concepts; concepts which the current legal system has not yet been able to fathom in its truest sense. Suing *nature* for its actions is something that has not yet crystallised.

More than the above mentioned conundrum, the question that begs an immediate answer revolves around the fact as to how such rights can be *implemented*. While implementing the usual rights itself is a big challenge, the case for *Rights of Nature* poses a huge challenge. While much fanfare was attached to Lake Erie being provided rights[95], the aftermath underlines the fact that our society has not yet evolved to such a level so as to ensure that Rights of Nature are not only recognized but also implemented. The Ohio House of Representatives in its 2020-21 budget came out with specific provisions which prohibited implementing Rights of Nature[96]. Quite a number of critics have raised their voice against this

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94 A lot of criticisms have been raised against Rights of Nature. While it is said that providing *rights* is a good concept, the criticism that has been raised is that if such *rights* exist, then so do *duties*. This oft overlooked factor is a serious matter of concern which has not yet been answered properly.

95 See, http://communityrights.us/2019/05/09/press-release-the-first-state-in-u-s-history-has-mentioned-legal-rights-of-nature/, last accessed on 18/06/2019.

96 *See*, https://celdf.org/2019/05/media-statement-the-first-state-in-u-s-history-has-mentioned-legal-rights-of-nature/, last accessed on 18/06/2019.

high-handedness by the State[97], with some pointing out that this action does show that the advancement of such nature rights is being done in the correct direction[98]. The step[99] taken by the Ohio Attorney General Dave Yost, to overturn the Lake Erie Bill of Rights[100] is yet another testimony to the fact that such *Rights* have a long way to go before being recognized, let alone be implemented.

All said and done, it is quite safe to assume that *Rights of Nature* are here to stay. Given the steps that have been taken by numerous countries and the legal backing that such a concept has, one can surely bet that the revolution has what it takes to taste success. This idea, though in its infancy, is being implemented, gradually but steadily. With growing ecological conscience and pressure exerted by the people it is quite sure that such rights will definitely be recognized.

Respect, it is said, is to be earned. Affording and extending legal respect to such entities, it is felt, will surely go a long way in realizing *ecological boundaries*. Such boundaries are to act as *the* yardstick, thereby ensuring that Nature too has Rights. After all, a *Rights Revolution* is the need of the hour.

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97 Tish O'Dell, *The First State in U.S. History Has Mentioned Legal Rights of Nature,* available at https://columbusfreepress.com/article/first-state-us-history-has-mentioned-legal-rights-nature, last accessed on 18/06/2019.

98 Opined by Crystal Jankowski, organizer with Toledoans for Safe Water. *Also see*, *Supra* n. 96.

99 See, http://ohcommunityrights.org/news-updates/multi-prong-attack-by-state-of-ohio-against-rights-of-nature/, last accessed on 18/06/2019.

100 The Bill is available at https://beyondpesticides.org/assets/media/documents/LakeErieBillofRights.pdf, last accessed on 18/06/2019.

INLAND WATERWAYS – THEIR SUSTAINABLE DEVELOPMENT, POSSIBLE ENVIRONMENTAL IMPACTS & AN IDEAL LEGAL REGIME

Sharan Balakrishna[*]

ABSTRACT

Waterways are a comparatively environment friendly and low-emission form of transport. Its energy consumption per km/ton of transported goods is approximately 17% and 50% of that of road transport and rail transport respectively. It can also cut down vehicular congestion by taking thousands of trucks off the roads and greatly reduce CO_2 emissions compared to air and road freight. However, only 3.5% of trade is carried out through waterways in India as against 47% in China, 40% in Europe and 35% in neighbouring Bangladesh. Looking to improve on this, the National Waterways Act, 2016 declared 111 new inland waterways as National Waterways, adding to the 5 already in existence.

However, sustainably developing inland waterways to the extent that they are convenient and reliable for freight transport raises environmental issues due to the requirement of dredging on a large scale to ensure that rivers are wide and deep enough to function as waterways. The author intends to analyse the process of dredging, along with the frequency of dredging required to maintain an inland waterway and the environmental impact that it may have on the balance of aquatic ecosystems. The author also aims to examine the

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other environmental impacts that are associated with the consistent use of rivers as waterways and attempt to weigh these environmental impacts against the possible benefits of a percentage increase in waterway freight.

At present, two cases regarding environmental clearances for waterway development projects lay sub judice before the principal bench of the National Green Tribunal and their relevant legal framework remains unclear, and therefore the author seeks to scrutinize the same and compare it to the legal regimes employed by countries that employ extensive inland waterways networks.

1. INTRODUCTION - THE NEED FOR WATERWAY DEVELOPMENT

Due to increasing congestion on road and rail transport, and an attempt to reduce logistics costs in the country, the importance of waterways is on the rise as India seeks to develop its comparatively miniscule waterway network. Only 3.5% of trade is done through waterways in India as against 47% in China, 40% in Europe and 35% in neighbouring Bangladesh.[1] The government is seeking to use waterway development to drive down the cost of logistics in India to 12%, from the current rate of 18%[2]. Pursuant to this, the National

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1 *India's Integrated Inland Water Transport system plan may run into trouble*, The Hindustan Times, December 26, 2016, available at: http://www.hindustantimes.com/editorials/india-s-integrated-inland-water-transport-system-plan-may-run-into-trouble-at-a-later-date/story-qaTv3g4Wagjv4LnxzIE0XO.html

2 *India to harness 50,000 km of sea and river fronts: Nitin Gadkari*, Live Mint, March 13, 2016, available at: http://www.livemint.com/Politics/CxGajC4nkJK0YhU28SQRrO/India-to-harness-50000-km-of-sea-and-river-fronts-Nitin-Ga.html

Waterways Act, 2016 declared 111 new inland waterways as National Waterways, adding to the 5 already in existence.[3]

Inland waterways are an environment-friendly option in terms of energy consumption and noise emissions. Its energy consumption per km/ton of transported goods is approximately 17% and 50% of that of road transport and rail transport respectively.[4] It also helps clear vehicular congestion as it keeps thousands of trucks off the roads. Therefore waterway networks are used extensively in developed countries, especially for the movement of cargo.

In the United States, the inland waterway system is comprised of over 12,000 miles of navigable waterways that touch 38 states. In 2012, this system accommodated 565 million tons of freight valued at $214 billion.[5]

Inland waterways are particularly well developed in the EU. More than 37,000 kilometres of waterways connect hundreds of cities and industrial regions. Some 21 out of 28 Member States have inland waterways, 13 of which have an interconnected waterway networks.[6]

China's inland waterway transport network is the world's largest, in terms of length and freight tonnage. Its inland waterways

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3 *Development of Inland Waterways*, Press Information Bureau, Government of India – Ministry of Shipping, August 1, 2016, available at: http://pib.nic.in/newsite/PrintRelease.aspx?relid=148091

4 *Inland Waterways*, Mobility and Transport, European Commission, available at: https://ec.europa.eu/transport/modes/inland_en

5 *Inland Navigation in The United States - An Evaluation of Economic Impacts and the Potential Effects of Infrastructure Investment*, University of Kentucky & University of Tennessee, Sponsored by National Waterways Foundation (November 2014), available at: http://www.nationalwaterwaysfoundation.org/documents/INLANDNAVIGATIONINTHEUSDECEMBER2014.pdf

6 *Supra* n 3.

form the largest transportation network, accounting or 40% of all cargo traffic. The network comprises of 111,000 km of navigable waters, 5800 km of which are navigable for 1000 ton class vessels, primarily in Southern China.[7]

Having discussed the scope of inland waterways both in India and internationally, it is important to look at the impact that this form of transport can have on the environment especially the water ways.

2. POSITIVE IMPACT OF INLAND WATERWAYS

As mentioned before, waterways are the most energy and emission efficient form of freight transport. On average, a gallon of fuel allows one ton of cargo to be shipped 59 miles by truck, 202 miles by rail, and 514 miles by barge.[8] With regard to greenhouse gas (GHG) emissions, a major study[9] in the European Union (EU) estimated that CO_2 emissions per tonne-km in EU freight transport are 672 grams for airfreight, 86.3 grams for road freight (in 40 tonne-trucks), 34.4 grams for inland waterways vessels, and 29.4 grams for railways. Therefore if environmentally sustainable infrastructure exists for inland waterway transport, it should be the preferred mode of transport for freight to maximise energy efficiency and reduce emissions.

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7 *Sustainable Development of Inland Waterway Transport in China*, The World Bank & Ministry of Transport – People's Republic of China (May 2009), available at: http://siteresources.worldbank.org/EXTPRAL/Resources/china.pdf

8 *Inland Waterway Navigation – Value to the Nation*, US Army Corps of Engineers (May 2000), available at: http://www.mvp.usace.army.mil/Portals/57/docs/Navigation/InlandWaterways-Value.pdf

9 *TREMOD: Transport Emission Model - Energy Consumption and Emissions of Transport in Germany – Final Report*, Institut für Energie und Umweltforschung Heidelberg GmbH (2006).

3. DETRIMENTAL EFFECTS OF INLAND WATERWAY DEVELOPMENT

Development of waterways may have negative consequences on the environment surrounding the river that is being developed for use as a waterway. One of the primary environmental concerns relating to development of waterways is from dredging. However, before understanding the negative impact from dredging for inland waterways it is necessary to understand the types of dredging.

3.1. TYPES OF DREDGING

Dredging is of two types –

1. *Capital Dredging* – it is the use of dredging for the creation of new civil engineering works such as canals, harbours or deepening of existing waterways.
2. *Maintenance Dredging* – it is the keeping of existing harbour basins, waterways etc. at the existing hydrological or nautical depth by the removal of siltation.

3.2. ENVIRONMENTAL IMPACTS OF DREDGING

The environmental impacts of dredging, especially of estuaries and deltas of rivers, can be summarised as –

- Removal of subtidal benthic species and communities.
- Short-term increases in the level of suspended sediment can give rise to changes in water quality which can effect marine flora and fauna, both favourably and unfavourably, such as increased

turbidity and the possible release of organic matter, nutrients and or contaminants depending upon the nature of the material in the dredging area.

- Settlement of these suspended sediments can result in the smothering or blanketing of subtidal communities and/or adjacent intertidal communities, although this can also be used beneficially to raise the level of selected areas to offset sea level rise or erosion (short-term impact versus long-term gain).[10]

These primary impacts of dredging occur from a two-fold process. Firstly, from the result of the dredging process itself and secondly from the process of the disposal of the dredged material. The impact of dredged material disposal largely depends on the nature of the material (inorganic, organically enriched or contaminated) and the characteristics of the disposal area (accumulative or dispersive areas).

3.1. LONG TERM IMPACTS OF DREDGING

However, the long-term impacts of dredging, especially near estuaries or deltas, can be far more widespread and are still not conclusively understood. A study[11] on the effects of dredging on the Pearl River Estuary showed long term effects on aspects such as Flow Split Ratio, Tidal Range and Residual Currents and Salinity Distribution. Flow Split Ratio (FSR) reflects the proportion of

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[10] Reports from Central Dredging Association (CEDA) and Permanent International Association of Navigation Congresses (PIANC)

[11] Yuan, R. & Zhu, J., *The Effects of Dredging on Tidal Range and Saltwater Intrusion in the Pearl River Estuary*, Vol. 31, JOURNAL OF COASTAL RESEARCH, No. 6 (November 2015), pp. 1357-1362

freshwater transported from headwaters to each branch in a multi branch estuary. Dredging in the West River Network (WRN) and the North River Network (NRN) was analysed at the locations of Makou and Sanshui respectively. A higher degree of dredging was carried out on the NRN, and post dredging, the split ratio changed drastically towards the NRN, whereas the WRN saw a reduction in water flux.

Furthermore, the dredging also altered the Tidal Range of the various branches in the estuary, increasing in the WRN and decreasing in the NRN (inverse to FSR). Seaward currents increased in the NRN, whereas landward currents increased in the WRN. This change in the FSR and Tidal Range brought about changes in the estuary circulation and therefore a corresponding change in the salinity of the water and the deposition of sediments and materials. Though not specifically stated by the researchers themselves, such changes in fresh water distribution, salinity, sedimentation and currents in a river network can have a massive impact on the ecology of the area, especially in ecologically sensitive zones.

A similar study conducted on the **Yangtze River Estuary**[12] also concluded that dredging works carried out for the Deep Waterway Project on the North Passage of the estuary also brought about changes in the tidal flow distributions, current strengths and salinity of the water level along the different branches of the estuary.

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[12] Hu, K. & Ding, P., *The Effect of Deep Waterway Constructions on Hydrodynamics and Salinities in Yangtze Estuary, China*, Vol. II (2009), JOURNAL OF COASTAL RESEARCH, Special Issue No. 56. Proceedings of the 10th International Coastal Symposium ICS 2009, , pp. 961-965

A study on the dredging of the Bonny approach channel in the **Niger River Delta**[13] produced some alarming results showing significant detrimental effects to the environment in the region. After the dredging process, the water in the delta showed Total Dissolved Solids (TDS) to the magnitude of 33,200 mg/l, with the permissible limit for TDS being 5,000 mg/l. Similarly the water contained Total Suspended Solids (TSS) amounting to 14,000 mg/l, 28 times the permissible limit of 500 mg/l. The researchers opined that such a high value of TSS could kill nearly 80% of all aquatic life in the region.

The researchers also raised concerns over the dumping of dredged material removed from the site as it observed to be heavily contaminated with heavy materials. Though the excessively high levels of TDS and TSS can be significantly attributed to the dredging process, these values need to be looked at taking into consideration the fact that the Niger River delta was already a highly stressed environment before the process of dredging due to the high levels of industrial runoffs into the river in the region.

3.2. MINIMISING THE IMPACT OF DREDGING

Modern day dredging operations involve checks and safeguards to minimise the environmental impact of dredging to the least possible level. Especially in ecologically sensitive areas, the dredging operations are required to be of a sufficiently long duration

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[13] Agunwamba, J.C. et al., *Potential effects on the marine environment of dredging of the Bonny channel in the Niger Delta*, ENVIRONMENTAL MONITORING AND ASSESSMENT, (2012) 184:6613 –6625.

so as to be able to incorporate all necessary impact assessment, monitoring and management programmes. Environmental Risk Assessment & Management programmes are first carried out, and these stress on the identification of the following factors –

- environmental values present at a port, river and surrounding areas;
- risks that may create detrimental impacts;
- the size and duration of the proposed dredging program;
- dredging methods and mitigation measures to avoid and reduce impacts; and
- adaptive management strategies that incorporate monitoring results[14]

Environmental feedback monitoring and management plans are also employed, to ensure prior and real time inputs and measures to mitigate the environmental impact. These inputs are gauged based on several aspects such as –

- Spill budget (the maximum amount of daily spill which ensures compliance with the imposed environmental protection objectives) control which is used to form a first level control of potential impacts.
- Results from online instrumentation (at relevant areas)

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[14] *Environmental Code of Practice for Dredging and Dredged Material Management*, Ports Australia (2016), Sydney. Available at: http://www.portsaustralia.com.au/assets/Publications/Ports-Australia-Dredging-Code-of-Practice.pdf.

are used as indirect indicators of potential health of the sensitive receptors (e.g. corals) based on tolerance limits

- Predictive numerical models are used extensively to hind cast/forecast the location of the plumes from the construction operations and for providing a detailed temporal and spatial picture of potential impacts, filling the gaps between monitoring stations and allowing a segregation of the impacts arising from the dredging activities.

- The tolerance limits are updated based on monitoring data at sensitive receptor areas. This is the so-called feedback loop. This is carried out only if the project duration is long enough to allow this evaluation as receptors reaction to impacts may require time to become noticeable and if the dredging period is short it will not allow for re-assessment of these values.[15]

Other mitigation measures are also employed that continuously run parallel and complementary to the impact assessment and monitoring and management plans. Some common practices include –

- Reducing as much as practical the amount of sediment introduced into the water column as a passive plume for

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[15] Savioli, J.C. et al, *Dredging - How Can We Manage it to Minimise Impacts*, PROCEEDINGS OF THE 7TH INTERNATIONAL CONFERENCE ON ASIAN AND PACIFIC COASTS (APAC 2013), Bali, Indonesia, September 24-26, 2013, available at: https://www.dhigroup.com/upload/publications/coastsea/Savioli_2013.pdf.

a given dredge operation. This can be achieved by using green valve technology and ensuring that well maintained equipment is used avoiding unintentional leaks.

- Careful management of the dredge plume to direct it away from sensitive receptors. This is done through planning and working carefully with the current conditions to ensure that dredging with overflow in critical areas is only carried out when currents will carry the dredge plume away from sensitive receptors.[16]

4. OTHER IMPACTS OF WATERWAY DEVELOPMENT

Excluding dredging, the development of inland waterways may also result in other impacts on the ecology of rivers due to increased waterway traffic on these rivers.

The earlier mentioned study on the Niger River Delta[17] also detected very high levels of Iron content in the water, which the researchers attributed to rusty ships due to the heavy shipping traffic in the region, which is another concern related to the development of waterways that are likely to see heavy traffic, especially in ecologically sensitive areas.

Similar results were recorded by researchers from Universiti Teknologi Malaysia, studying the impact of increased waterway traffic

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16 *Id.*
17 *Id.*

in the **Melaka River**.[18] The Melaka River was extensively developed as a waterway for the purpose of tourism, in the form of a river cruise, *inter alia*. Consequently, high amounts of oil and grease were observed in parts of the river most commonly used for the river cruise, though the researchers were unable to measure the precise amounts of oil and grease discharged from the said cruise boats.

Furthermore, another great environmental risk associated to inland waterway development is that of oil spills and oily-based liquid spills and the well-known catastrophic impact that the same may have on the aquatic environment. Therefore careful attention needs to be paid towards prevention and emergency mitigation measures for such risks.

5. LEGAL POSITION OF INLAND WATERWAY DEVELOPMENT IN INDIA

Given the significance of inland waterways in India, it is important to understand the law and policy framework that regulates them. As stated earlier, the National Waterways Act, 2016 declared 111 rivers in India as waterways, adding to the 5 waterways that were already in existence. However before these rivers can be adequately developed to function as waterways, the legal position with regard to clearances and permits for such development projects is yet unclear.

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[18] Bachok, A. N. D. & Kader, A. S. A., *Environmental Impact of Navigation in Inland Waterways*, *JOURNAL OF TRANSPORT SYSTEM ENGINEERING*, 2:2 (2015) 21–28.

The EIA Notification[19] passed in 2006 by the Ministry of Environment and Forests under the Environment (Protection) Rules, 1986 mandates certain projects to obtain Environmental Clearance (EC) from the State Environmental Impact Assessment Authority (SEIAA) or Ministry of Environment, Forests & Climate Change (MoEF&CC). The notification does not specifically mention inland waterway projects as projects that require mandatory EC under its Schedule.

Two cases relating to development projects on inland waterways are currently *sub judice* in the NGT, with disputes regarding clearances required for these projects -

The first matter of *Bharat Jhunjhunwala v. Inland Waterways Authority of India & Ors.*[20] is regarding the Inland Waterways Authority of India's (IWAI) Jal Marg Vikas Project which is a project for capacity augmentation of National Waterway 1 (Ganga-Bhagirathi-Hooghly river system), focusing on the stretch between Haldia and Varanasi. IWAI have maintained in their Environmental Impact Assessment Report [21] that and EC is not required for the said project, other than ancillary aspects such as quarry sites used by contractors etc.

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19 EIA Notification, S.O. 1533 (E), 14th September, 2006, Ministry of Environment, Forests and Climate Change, Available at: http://envfor.nic.in/legis/eia/so1533.pdf.

20 Bharat Jhunjhunwala v Inland Waterways Authority of India & Ors. (National Green Tribunal), O.A. 487/2015.

21 *Capacity Augmentation Of National Waterway -1 (Jal Marg Vikas Project) Environmental Impact Assessment Reports,* EQMS India Pvt. Ltd., Available at: http://documents.worldbank.org/curated/en/419781468255890148/pdf/SFG2240-REVISED-EA-Box396336B-PUBLIC-Disclosed-12-6-2016.pdf

The Applicants have contended that Respondent No. 1 (IWAI) would require an EC as Item 7(e) ("Ports, harbours, break waters, dredging.") of the Schedule contained in the EIA notification would cover the present project as waterways are an attendant part of port & harbours. They have contended that the project would require a Category 'A' clearance under the EIA Notification as it would handle cargo exceeding 5 million TPA, but the Project has been artificially split into smaller components to evade EC under the EIA Notification.

The Respondents have contended that this application does not fall within the jurisdiction of the Tribunal as the Applicants ought to seek an amendment to the EIA Notification to include 'inland waterway'. They have also claimed that the application barred by limitation as the Applicants knew of the Project since 1st August 2014, when the first RTI was filed and that the applicants don't have *locus standi* as an 'aggrieved person' under the NGT Act.

The Respondents have also claimed that the operations being carried out by them are maintenance dredging operations and therefore exempt from obtaining an EC as per the conditions stated for Entry 7(e) in the Schedule of the EIA Notification 2006. These are –

"General Conditions shall apply

Note:

1. *Capital dredging inside and outside the ports or harbours and channels are included.*

2.Maintenance dredging is exempt provided it formed part of the original proposal for which the environment management plan (EMP) was prepared and environmental clearance obtained."

Furthermore, an EIA Notification of 2016[22] has clarified that certain activities are exempted from EC under Appendix IX of the notification. Entry 6[23] seems to exclude dredging activities from requiring an EC. However the wording of Entry 6 seems to imply that only maintenance dredging would be excluded from acquiring an environmental clearance. Therefore the position regarding such environmental clearance is rather vague and up to interpretation by the Tribunal, barring a subsequent amending notification from the MoEF & CC providing clarity to the matter.

Similar issues have been argued in the case of *Inland Waterways Authority of India v. Union of India & Ors.*[24], which is regarding IWAI's proposed project to provide water taxi services on the Yamuna River (NW-1) between Wazirbad and Fatehpur Jat. The Author is of the view that as per the current legal framework, an environmental clearance would indeed be required for these project on account of the significant potential harm to the environment that may be caused due to necessary capital dredging and other construction activities to

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22 EIA Notification no. S.O. 147 (E), 15th January, 2016, Ministry of Environment, Forests and Climate Change, Available at: http://environmentclearance.nic.in/writereaddata/EIA_notifications/2016_01_15_SO_147(E).pdf

23 'Dredging and de-silting of dams, reservoirs, weirs, barrages, river, and canals for the purpose of their maintenance, upkeep and disaster management.'

24 Inland Waterways Authority of India v. Union of India & Ors. (National Green Tribunal), OA 477/2016.

be conducted on the banks of the rivers to make them suitable for use as inland waterways.

However, the National Green Tribunal has leaned towards the principle of purposive construction, to include large projects with potential impacts on the environment, under other entries in the Schedule, so as to mandate the project to obtain an EC. Certain instances of the same are mentioned herein below.

Entry 8(a)[25] & 8(b)[26] under the Schedule to the EIA Notification were used to include a steel flyover in Bangalore under the Schedule by the use of the Principle of Purposive Construction in a case against the Bangalore Development Authority[27]. The Tribunal held that an EC was required as bridges or flyovers would be covered under entries 8(a) or (b). The project was hence scrapped for the lack of an EC.

The Principal Bench of the NGT had taken a similar view in the Delhi Signature Bridge Case.[28] In this case, the project was required to get an EC, as it was covered under Entry No. 8 in the Schedule. Here however, the Bridge was granted a Clearance after certain conditions to be fulfilled were placed on the project such as -

> "*use of anti-carbonation paint to protect from pollutants, no dumping of solid or liquid waste into the river, taking consent*

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25 Building and Construction projects (20,000 sq. mtrs ≤ Built up Area ≤ 1,50,000 sq. mtrs)

26 Townships and Area Development projects (Area ≥ 50 ha OR Built up Area ≥ 1,50,000 sq. mtrs)

27 M/s Citizen Action Forum & Ors. v. Union of India & Ors [2017] (National Green Tribunal, SZ)., O.A. 245/2016 (Judgment on 13th March, 2017).

28 Vikrant Kumar Tongad v. DTTC & Ors. [2015] (National Green Tribunal) O.A. 137/2014 (Judgment on 12th February, 2015).

> *from authorities concerned on safety from earthquake and lightning, traffic studies on the bridge and storm water drainage and noise pollution prevention*."

The NGT had ruled similarly with regard to the Metro link between Noida and Greater Noida, directing the Delhi Metro Rail Corporation (DMRC) to obtain an EC for the same. The Tribunal did not stall the project, but said that DMRC can obtain the EC when the project was ongoing. However this was later overturned by the Supreme Court[29], in light of the beneficial effects to the environment that would result from the eco-friendly nature of the Metro link, as increased use of the Metro would maximise energy efficiency and significantly decrease fuel consumption in the city.

Therefore, based on this order of the Supreme Court, an argument can be made in favour of the development of inland waterways not requiring an EC, as inland waterways too would result in a lot of the same beneficial effects to the environment that were considered by the Supreme Court when it ruled that the Noida – Greater Noida Metro link does not require an EC.

6. CONCLUDING REMARKS

While the question of clearances and permissions for inland waterway projects remain *sub judice* at the National Green Tribunal, the issues that would be considered by the Tribunal in these cases have been highlighted in this document. The Author is of the view that some sort of legal framework needs to exist to regulate

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[29] Delhi Metro Rail Corporation v. Vikrant Tongad & Ors.

projects that seek to develop inland waterways. This is because development of waterways is an issue that is subject to several environmental factors that may differ vastly in different locations. Furthermore, several rivers across India are in a miserable condition and they also flow through many ecologically sensitive areas, therefore it is imperative to have a well-regulated system to vet large waterway projects, especially in cases where dredging is involved.

However, considering the several environmental benefits of waterways as highlighted earlier in this document, the massive untapped capacity of the waterways in India, added to the severe problem of congestion on Indian roads make it increasingly important to expeditiously initiate and complete an inland waterway transport system that is environmentally sound and in competition with roadways and railways. Hence delays to environmentally beneficial projects attributable to long waiting periods for acquiring clearances would impede much needed progress on this front. Therefore it would be useful to look into an alternate regime for the regulation of the development of waterways, as opposed to the requirement of an EC.

For instance in the United States, §10 of the Rivers and Harbors Appropriation Act of 1899, states that for all dredging activities require the plan to be recommended by the Chief Engineer of the US Army Corps of Engineers (USACE) and authorised by the Secretary of War.[30] Majority of dredging activity in the US is carried

[30] Rivers and Harbors Appropriation Act of 1899, §10, Available at: https://www.epa.gov/cwa-404/section-10-rivers-and-harbors-appropriation-act-1899.

out by the USACE, and even the dredging activities of private players need the recommendation of the USACE. For the disposal of dredged material, a separate permit under §404 of the Clean Water Act, which is also granted by the Chief Engineer of the USACE.[31] Therefore the legal regime in the US is of the nature of a specialised organisation with technical expertise which is the authority for granting permits for all dredging activities.

Several countries in the EU employ a similar mechanism as India for EIA of dredging projects, by an authority set up under the respective Ministry dealing with environment affairs. However the time period for such assessment is significantly quicker, hence making it a much favourable process for developers, as opposed to in India. For example, in Lithuania, the impact assessment is conducted by the Lithuanian EPA, and the assessment is to be completed within 10 working days (20 working days, if the permit approval procedure has to be additionally agreed with the Ministry of Environment) from when the contractor has submitted all relevant information about the project which has been specified by the EPA under its guidelines.[32] Therefore if the procedure for EIA in India was so streamlined and efficient, most contractors would not seek litigation to avoid the EIA procedure, but rather seek to ensure that their projects were compliant with the guidelines specified.

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[31] Section 404 Permit Program, United States Environmental Protection Agency, Available at: https://www.epa.gov/cwa-404/section-404-permit-program.

[32] Suzdalev et al., *Existing legislative requirements for the location of dumping sites, dumping practices and monitoring approaches within BSR*, December 2014, Available at: http://corpi.ku.lt/ecodump/uploads/files/CP3_6_Existing_practice_analysis_Quantity_types_characteristics_Final.pdf.

Therefore India needs to streamline and expedite its procedure for the grant of Environmental Clearance or transfer the authority to grant such clearances to a body with the requisite technical expertise and experience similar to the procedure that is used by the United States, so as to ensure that necessary rapid development is not impeded by equally necessary environmental protection measures.

A REVIEW OF CASES DECIDED BY THE NATIONAL GREEN TRIBUNAL UNDER THE WATER ACT, 1974

Prof. Ali Mehdi[*]

ABSTRACT

The civil court has extensive powers to resolve disputes of a civil nature. There is a strong presumption in law favoring the jurisdiction of civil court over such matters unless expressly excluded. In the recent times, we are witnessing a proliferation of cases involving complex scientific problems requiring expert intervention. Ordinary judges may not have the requisite skills to understand such matters and thereby causing a delay in resolving the dispute. With the rise of various environmental problems, we require a judicial body which focuses exclusively on environment related matters. The National Green Tribunal was established to enable an expeditious settlement of complex environmental problems by involving trained experts. The Tribunal inter-alia entertains appeal against the order passed under the Water (Prevention and Control of Pollution) Act, 1974, since beginning of the present decade. The paper presents a critical review of the water related cases decided in 2017, to appraise the functioning of the Tribunal as an institution comprised of expert members with a definite object.

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INTRODUCTION

The Humans and the Environment surrounding them are closely inter-related and man is dependent on his natural surroundings for the fulfillment of a variety of needs. The Environment provides sustenance to life and provides food, shelter and other important resources without which man cannot survive. But in the recent times, due to the nature of the economic system and our way of life, man has engaged in overuse and exploitation of the natural resources causing their gradual depletion. The Earth is no longer able to sustain the present activities of man. The human activities have polluted the environment and degraded the quality of resources. The Environmental laws seek to regulate the relationship between man and the ecosystem by prescribing safe limits and providing for close monitoring of human activities by various regulatory bodies. These laws also provide strict sanctions against conduct which is not in compliance with the law. Earlier, a person could only claim compensation for the personal loss caused to him or his property by the degradation of the environment. No one could claim for the damage caused to the environment by itself. Recently El Salvador as declared its forests as living entities. The Uttarakhand HC did the same for the entire wildlife. At present, we have a range of environmental laws which recognize the damage caused to the environment and its inhabitants separate from the loss caused to the humans. We are slowly shifting from an anthropocentric attitude to acknowledging the rights of natural environment by itself.

PROTECTION OF A RIGHT TO POLLUTION FREE ENVIRONMENT UNDER THE CONSTITUTION

Man has an undisputable and inherent right to enjoy a safe, pollution free and clean environment but doesn't derive the exclusive right to extract benefits out of it without any limits. The right to be surrounded by a healthy environment has been recognized as an important aspect of a dignified life under Article 21.1 But the exercise of such a right is not absolute. It is limited by various restrictions under law and imposed by the courts. The Supreme Court has been responsive to cases involving industrial hazards and release of dangerous chemicals into the environment. The release of poisonous gases by Union Carbide Corporation in Bhopal affecting a huge number of people even till today2 and the pollution by the Shri Ram Fertilizer unit in Delhi3 led the Supreme Court to emphasize the need for a special court to resolve such cases. In the MC Mehta v. UOI4 (Oleum gas leak case) the Supreme Court recommended the constitution of a special court on environmental issues with both judicial and expert members from the scientific and environmental fields. It acknowledged the need for scientific and technical inputs to inform judicial decision making.

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1 Rural Litigation and Entitlement Kendra and ors. V State of UP, AIR 1985 SC 652 (India)

2 Stuart Diamond, *The Bhopal Disaster: How It Happened*, THE NEW YORK TIMES, January 28, 1985, https://www.nytimes.com/1985/01/28/world/the-bhopal-disaster-how-it-happened.html (last visited Jul 22, 2019).

3 MC Mehta v UOI, AIR 1987 965 (India)

4 Id.

THE NATIONAL GREEN TRIBUNAL

The Rio Declaration also recognized the right of a remedy of the victims of environmental disasters. The Declaration[5] adopted in 1992 incorporated the principle 13 and exhorted the states to introduce domestic law defining the liability and specifying compensation to the victims of pollution and other environmental damages. In this context, the Parliament passed the National Environment Protection Act, 1995[6] to provide for the establishment of the National Environment Tribunal (NET) for disposal of cases of accident in hazardous industries. The Supreme Court of India on 16th April, 1996, directed the Chief Justice of Calcutta High Court to constitute a special bench to hear environment related cases[7] once a week, and thus the idea of a "green bench" was born. The Tribunal was however never established and remained ossified in the statute book until the 2010 act replaced the old act. After the constitution of NGT, the HC declined to entertain cases related to environment and pointed out in the State of Chhattisgarh v Shri Sudarshan case[8] that "after promulgation of the NGT Act there is change in the scenario and the tribunal created under the Act has been discharging the function as a court of first instance. There is no scope to

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5 A/CONF.151/26 (Vol. I) REPORT OF THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT, , https://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm (last visited Jul 22, 2019).

6 The National Environment Tribunal act, Act No. 27, Acts of Parliament, 1995 (India).

7 Green` benches - India Environment Portal | News, reports, documents, blogs, data, analysis on environment & development | India, South Asia, http://www.indiaenvironmentportal.org.in/content/18739/green-benches/ (last visited Jul 22, 2019).

8 State of Chattisgarh v Shri Sudarshan, (2018) W.P. 22702 of 2017 (India).

approach this court directly in a matter relating to environment and pollution"

JURISDICTION OF GREEN TRIBUNAL

The constitution of the NGT allows the expeditious disposal of cases arising out of environment related issues which are a consequence of rising urbanization and industrialization. The Parliament created a special tribunal to satisfy the imminent need for the same expressed at both national and international levels. The NGT has been protecting the rights of the people to a safe environment and dignified life. The tribunal has jurisdiction over all cases involving environmental rights and issues. It has jurisdiction to hear cases under many of the existing environmental laws of the country.

Section 14(1) - The Tribunal shall have the jurisdiction over all civil cases where a substantial question relating to environment (including enforcement of any legal rights relating to environment), is involved and such question arises out of the implementation of the enactments specified in Schedule I.[9]

(2) The Tribunal shall hear the disputes arising from the question referred to in sub section (1) and settle such disputes and pass order thereon.[10]

(3) No application for adjudication of dispute under this section shall be entertained by the Tribunal unless it is made within a

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9 National Green tribunal act, Act No. 25, Acts of Parliament (India).
10 Id.

period of six months from the date on which the cause of action for such dispute first arose;

Provided that the tribunal may, if it is satisfied that he applicant was prevented by sufficient cause from filling the application within the said period, allow it to be filed within a further period not exceeding sixty days.[11]

The constitution of the NGT allows the expeditious disposal of cases arising out of environment related issues which are a consequence of rising urbanization and industrialization. The Parliament created a special tribunal to satisfy the imminent need for the same expressed at both national and international levels. The NGT has been protecting the rights of the people to a safe environment and dignified life. The tribunal has jurisdiction over all cases involving environmental rights and issues. It has jurisdiction to hear cases under many of the existing environmental laws of the country.

Section 15 (1)- The Tribunal may, by an order, provide –

a. Relief and compensation to the victims of pollution and other environmental damage arising under the enactments specified in Schedule I (including accident occurring while handling any hazardous substance)

b. For restitution of property damaged:

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[11] Id.

c. For restitution of the environment of such area or areas as the Tribunal may think fit.

(4) The Tribunal may, having regard to the damage to public health, property and environment, divide the compensation or relief payable under separate heads specified in schedule II so as to provide compensation or relief to the claimants and for restitution of the damaged property or environment, as it may think fit.[12]

Under the section 16, any person aggrieved by an order/decision made by the tribunal may appeal against that order within 30 days of communication of such order or decision.[13]

It is also empowered to give relief and compensation for damages to persons and property and for matters connected therewith or in being incidental thereto. The Tribunal since inception up to April, the current year, is credited with disposal of a significant number of cases – a whopping 27022 out of the total of 29939 cases[14] instituted. It is relevant to note that against the order of the tribunal, judicial review by the High Court under Article 226 of the Constitution is permissible.[15]

It has power to hear all cases pertaining to environment. It has the jurisdiction to hear claims for compensation for personal

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12 Id.

13 Id.

14 NGT disposed of over 19,000 cases from 2011-17, THE ECONOMIC TIMES, April 11, 2017, https://economictimes.indiatimes.com/news/politics-and-nation/ngt-disposed-of-over-19000-cases-from-2011-17/articleshow/58128891.cms.

15 Vujjini Vamshidhar, *High Court's powers under Art 226 not absolute*, DECCAN CHRONICLE (2019), https://www.deccanchronicle.com/nation/current-affairs/030119/high-courts-powers-under-art-226-not-absolute.html (last visited Jul 22, 2019).

injuries caused by environmental damages and also, claims for restitution of property. One can move to the tribunal in appeal against any order or decision of regulating authorities or civil courts. In 2017, the tribunal resolved cases related to various matters and most of them under the Water Act, 1974. A diversity of cases were filed under the Water Act related to rejuvenation of the flood plain, commissioning of Hydrological projects, pollution load in river ganga and its tributaries and the actions of the statutory authority constituted under the "Act".

These are some of the cases decided by the Tribunal under the Water Act.

GANGA POLLUTION

The pollution of the River Ganga has generated a lot of concern and effort over the years from various stakeholders like the government, civil society, Industries etc. From the Ganga Action Plan in 1985[16] till now, a lot of money has been spent on the cleaning up of the river but it has not really resulted in a satisfactory solution to the problem of pollution. Several directions have been issued by the Supreme Court in the 80s and the concerned statutory and local authorities to prevent and control the deteriorating water quality of the river but they have not contributed much to the improvement in quality. The Tribunal in MC Mehta v UOI[17] on the condition of river Ganga water emphasized the need to adopt innovative and quality based approaches to solving the problem of pollution. It called for

16 Ganga Action Plan, , http://www.mppcb.nic.in/gap.htm (last visited Jul 22, 2019).
17 MC Mehta v UOI (1987) 4 SCC 463 (India).

proper planning, efficient execution, and outcome based assessment in every solution. The Tribunal focused on separate treatment of the pollutants of each stream that flows into Ganga. This suggestion is the reflection of scientific expertise in the tribunal. The Tribunal remarked that massive pollution problem cannot be solved merely by issuing rudimentary directions. There is a need for imposition of extraordinary measures and forceful directives aimed at achieving the outcome.

ENVIRONMENTAL COMPENSATION

The establishment of Common Treatment Plants is a very important measure to curb pollution in the river. The Tribunal, in a particular case imposed a fine of Rs. 10 lakh for failure to upgrade the treatment technology.

Under the Water (prevention and Control) of Pollution Act, 1974, the Pollution Control Board is empowered to stipulate terms and conditions while granting consent to the project proponent.[18] In the Human & Animal Welfare Association v. Gujarat Pollution Control Board[19] an application was filed against the Sachin Infra Environment Ltd for violating the terms and conditions imposed by the Tribunal and polluting the soil, the forests and harming the fauna about 5 km away from the Gujarat Industrial Development Corporation. It was found on record that the industrial units which were members of the Certified Common Effluent Treatment Plant

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[18] Water act, 1974, Act no. 6 of 1974, Acts of Parliament (India).

[19] SIEL CETP environmental violation Surat NGT Order.pdf, http://www.indiaenvironmentportal.org.in/files/SIEL%20CETP%20environmental%20violation%20Surat%20NGT%20Order.pdf (last visited Jul 22, 2019).

and connected to underground pipeline systems were not causing contamination. The contamination of surface water, ground water and soil in the locality was due to other non-member industrial units operating in the area. The Tribunal observed that the State Pollution Control Board failed in discharging the statutory duties in regularly monitoring the activities of the industries in the area. The unit in the Appeal was non-compliant for last five years and kept discharging waste water containing pollutants beyond the prescribed standard.[20] The Tribunal directed the offending unit to pay environmental compensation to be deposited with the Board and ordered the amount to be spent for the restoration of the environment. In this case, the High Court could also have passed similar orders under Article 226.[21]

In Sanjay Kumar v State of UP[22] case, the Tribunal did not impose a penalty on the respondents for the allegation of discharge of untreated waste water into the pond as they showed the tribunal that they had stopped discharge of the treated and untreated effluents from the plant into the pond and it was confirmed by the Pollution Control Board. It was also noted that the Respondent was releasing the effluent through the internal pipeline from plant through a safe exit point. The Tribunal held that the Respondent had shown regards to law by complying with the direction as and when issued by the authority in this connection and had undertaken to ensure no adverse

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20 Id.

21 Indian Council for Enviro-Legal action v UOI, 1996 SCC (3) 212 (India).

22 Sanjay Kumar v. State Of U.P And 3 Others S | Allahabad High Court | Judgment | Law | CaseMine, https://www.casemine.com/judgement/in/5b6d38d14a9326470b7523ce (last visited Jul 22, 2019).

effect was caused to the environment. Although the respondent has released untreated discharge in the past, the Tribunal did not impose costs on the respondent for its past acts as it took measures to mitigate the adverse impact and also to prevent further pollution. But the Tribunal should have punished the unit for its violation of the law. Taking up of mitigation and preventive measures cannot condone the past acts of violation.[23]

The statutory and governmental bodies also indulge in acts of polluting the environment. The Tapesh Bhardwaj v. UP State Pollution Control Board[24] case is a glaring example where the Mathura Cantonment Board found river Yamuna a convenient receptacle for dumping the waste and garbage. It was alleged that the Board was destroying the river bed by using it a landfill site rendering the water very toxic with reducing oxygen level in the river. The Board caused destruction of the flood plains of the river Yamuna. It was alleged that the UPSPCB turned a deaf ear to the complaint. The Tribunal noted that the Board was responsible for disposal of the waste generated in the area, the trenching site was used as landfill and dumping site without authorization from the SPCB. It never applied for consent to operate under the Solid Waste Management Rules 2016 even. The Tribunal directed the Board to pay Rs. 10 lakh as

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23 Id.

24 Order of the National Green Tribunal regarding dumping of garbage on the river bed of River Yamuna by Mathura Cantonment Board, Uttar Pradesh, 18/07/2017 - India Environment Portal | News, reports, documents, blogs, data, analysis on environment & development | India, South Asia, http://www.indiaenvironmentportal.org.in/content/445358/order-of-the-national-green-tribunal-regarding-dumping-of-garbage-on-the-river-bed-of-river-yamuna-by-mathura-cantonment-board-uttar-pradesh-18072017/ (last visited Jul 22, 2019).

environmental compensation for continuing pollution of air, water and soil causing injury to the public health and also, for failing to seek permission under the Solid Waste Management Rules. But the Tribunal did not provide a framework for a future course of action.[25]

POLLUTION CAUSED BY RELIGIOUS ACTIVITIES

India is a secular nation but the lives of its citizen are very closely interlinked with religion both in the public and the private domain. In the scriptures of all the major religions followed in India, we find words which warn against pollution of the environment. But the ritualistic practices adopted by us in the practice of our faith often cause harm to the environment. Immersion of idols made up of Plaster Of Paris and bright synthetic colors, the runoff of compounds containing toxic heavy metals after puja festivals and celebrations of rituals in the rivers are a cause for environmental concern. In Ambar Nath Sengupta v State of West Bengal[26] Appellant sought direction from the Tribunal against Respondent in view of the latter's failure to implement the measures suggested for maintenance of cleanliness of river Hoogly after immersion of idols during puja. The West Bengal Pollution Control Board (WBPCB) had guidelines for the regulation of such activities. The Tribunal examined the guidelines framed by the Central Pollution Control Board (CPCB) and noted that if implemented, the guidelines will go a long way in reducing pollution by such activities. The Tribunal also imposed an obligation on the government, the Pollution Control Board and also, the religious

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25 Id.

26 Ambar Nath Sengupta v state of West Bengal, MANU/GT/0097/2017 (India).

leaders to reduce the pollution.[27] The Allahabad High Court in public interest litigation had banned with immediate effect immersion of idols in the Ganga on October, 2013[28], and directed the SPCB to monitor the water quality before and after the immersion. The Court further directed the State Government to ensure its implementation across the State from the next year. The court's directions in this case were much more specific and forceful.

The Art of Living Foundation recently faced much criticism over its plans to organize a huge event on the vulnerable floodplains of the river Yamuna and it was brought to the Tribunal in the case of Manoj Misra v. Delhi Development Authority[29]. The appellant contended that the foundation engaged in unauthorized dumping and construction over 25 hectares of the active floodplains for the purpose of organizing the World Cultural Festival. The Appellant prayed for injunction against the on - going construction on flood plains. The Tribunal held the Respondent liable for causing damage and environmental degradation. It also emphasized that the floodplains cannot be treated as waste lands and utilized without regulation of any sort. It rejected the respondent's argument that the plains have not really been notified as wetlands. That, the court held, cannot be a justification for polluting the floodplains. The Tribunal imposed a sum of Rs five crore against the organizers for restoration

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27 Id.

28 Allahabad High Court bans immersion of idols in Ganga, Yamuna, , NDTV.COM , https://www.ndtv.com/allahabad-news/allahabad-high-court-bans-immersion-of-idols-in-ganga-yamuna-537052 (last visited Jul 22, 2019).

29 Manoj Misra v DDA, MANU/GT/0127/2017 (India).

of flood plains based on the no fault liability principle.[30] The NGT appointed expert committee noted that the rehabilitation of the area would cost upto Rs 42 cr. The matter is, however, pending in appeal before the Supreme Court.[31]

THE DIRECTIONS /ORDERS OF THE POLLUTION CONTROL BOARD

The amendment of the pollution control laws in 1988 gave the Pollution Control Boards the power to issue directions to any person, officer or authority in exercise of their functions under the statute including the power to order closure, prohibit or regulate any industry, operation or process.

An appeal against the closure directions issued by the Chhattisgarh Environment Conservation Board under section 33 (A) of the Water Act, 1974, was filed in the case, Ruchir Mayank v. Chhattisgarh Environment Conservation Board[32]. The appellant argued that the samples collected were from the bore well situated nearby the unit not from the one within the boundaries of his unit. Interestingly the Board also admitted that samples were not taken from the appellant's unit. Consequently the Board's order was set aside. Should the Tribunal not have recommended for action against the irresponsible and shameless admission of the concerned officials of the Board? Section 21 of the Act provides for a set of detailed

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30 Id.

31 Our Bureau, *Sri Sri's World Culture Festival destroyed Yamuna floodplains: Green Tribunal's panel*, @BUSINESSLINE , https://www.thehindubusinessline.com/news/sri-sris-world-culture-festival-destroyed-yamuna-floodplains-green-tribunals-panel/article8999626.ece (last visited Jul 22, 2019).

32 Ruchir Manyak v Environment Conservation Board, MANU/GT/0127/2017 (India).

steps for the collection of samples. It also indicates the consequences of non-compliance of the due collection procedure as the report on faulty procedure is inadmissible in court of law. Whether such error was deliberate or inadvertent the tribunal almost always provides the benefit of doubt to the industrial units.[33]

In Stahl India Pvt. Ltd. vs The Hon'ble Appellate Authority[34] the appellant had established laboratories for testing the suitability of the leather finishing chemicals for various types of leathers. The consent was given by the board for testing of leather by a certain method which involved the discharge of highly polluting chemicals. The NGT also looked into the matter from possible damage to water resources in close proximity to the industrial unit and held that the proposed activity was within the prohibited distance of one Km from the water source and, therefore, consent could not be granted.[35] The decision of the tribunal is in conformity with the objective for which it was setup. Due attention was given not only to the procedural formalities acquired for the consent process but also the adverse impact that could be inflicted on the water resources in the nearby areas.

In M/S PMV Maltings Pvt. Ltd v. Uttrakhand[36] the State Pollution Control Board classified the appellant as grossly polluting Industry under the Water Act, 1974. The Appellant challenged the

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33 Id.

34 Stahl India Pvt. Ltd. vs The Hon'ble Appellate Authority, MANU/GT/0039 /2017(India).

35 Id.

36 M/S PMV Maltings Pvt. Ltd v. Uttrakhand, MANU/GT/0003/2017 (India).

classification. The appellant contended against the status of the plant as grossly polluting on the basis of value of Biochemical Oxygen Demand (BOD) of the untreated effluent. The Tribunal assessed the classification on the basis of ratio between the BOD and the quantity of discharge of effluent and held that the Unit was rightly classified as grossly polluting industry and, therefore, the relevant conditions as required and directed by the SPCB should be complied with.[37]

SAND MINING FROM THE RIVER

Sand mining in the river bed has of late caused much damage to the environment making the river bed flood prone. What is more disconcerting is the unauthorised or illegal extraction and transportation. It has become a huge organized crime. In Medha Patkar v. State of M P[38] the Tribunal had the opportunity to consider and issue directions to protect the erosion of the natural resources. The Tribunal observed that sand mining activity in the submerged area was contrary to the Sand Mining Guidelines 2016 that had prohibited mining in any stream in the first stance; further that river sand mining could be permitted only up to a depth of three meters or till water level is reached whichever is less. The Tribunal, therefore, directed that such mining could be possible only with the consent or environmental clearance. Its decision was based on the principle of sustainable development.

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37 Id.

38 Medha patkar v UOI, MANU/GT/0055/2017 (India).

WATER EXTRACTION

Extraction of water from the ground is permissible under the regulations prepared by Central Ground Water Authority (CGWA) and the Uttar Pradesh Pollution Control Board (UPPCB). Illegal extraction of ground water attracts liability for environmental damage. In Shailesh Singh vs State of Uttar Pradesh[39] the Tribunal, held that extraction of water by the industries without obtaining permission from CGWA was illegal and the respondents were held liable to pay environmental compensation. The Tribunal expressed its disappointment over the criticality of Groundwater depletion of our country. Ground water is a very important water resource as India is predominantly an agricultural country and use 63% for irrigation purposes. UNESCO World Water Development Report[40] states that India is now the world's largest ground water exploiter. The NITI Aayog also warns that over-exploitation of ground water contributes to "worst water crisis in the history". In India Ground water is a very precious resource which should be utilized only after taking all the possible precautions against overuse. The Tribunal has often imposed exemplary damages for rehabilitation of exploited ground water reserves.

CONCLUSION

Section 20 of the NGT Act, 2010, mandates the Tribunal to follow the principle of sustainable development, precautionary

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[39] Shailesh Singh vs State of Uttar Pradesh, MANU/GT/0038/2017 (India).

[40] World Water Development Report 2019, UN-WATER, https://www.unwater.org/publications/world-water-development-report-2019/ (last visited Jul 22, 2019).

principles and the polluter pays principles in deciding the disputes. These principles were evolved by the United Nations Declarations and introduced by the Supreme Court in Vellore Citizens Welfare Forum v. UOI[41] and other cases. None of these principles, however, has been defined in the Act. The Tribunal has to apply its own interpretation of these principles to the case at hand. But none of the cases really tell us much about interpretation adopted by the court. Moreover the Polluter Pays Principle (PPP) is not meant for judicial guidance but for the implementation of executive orders as condition precedent to taking measures to protect the environment from possible damage. In the event of loss to human life, damage to property or the environment the person responsible shall always be accountable on the basis of nature of the activity and his contribution to the damage. The section 17(3) of the Act explicitly provides that in case of accidents the Tribunal shall apply the principle of "no fault" liability. Should there be two different parameters in assessing the liability under the same statute? It should not be and, therefore, for judicial consideration of liability, reference to "PPP" doesn't seem appropriate. The ambit of functioning of the Tribunal appears to be further restricted as the Tribunal has no power to initiate/recommend process against the erring officials in discharge of the statutory duty. The oversight of the officials leads to undue liberty for the occupants to disregard and violate the law until caught and held accountable. It's fair but the officials responsible should not be let go unaccountable. The Tribunal cannot issue mandamus but it could recommend action against such persons.

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41 Vellore Citizens' Forum v UOI, AIR 1996 SC 2715 (India).

INDIAN SUPREME COURT AND SUSTAINABLE DEVELOPMENT: A TOOL FOR DELIVERING ENVIRONMENTAL JUSTICE

*Arup Poddar**

ABSTRACT

"*It is well settled fact that the concept of 'sustainable development' constitutes an integral part of international environmental law principle. The concept of 'future generation' found grounding in the Stockholm declaration 1972, when it was felt that environmental resources should not only be preserved for the present but also for the future. This finding had a very close proximity with the concept of sustainable development. Officially, the comprehensive definition of the term 'sustainable development' was declared, at the international platform, in the Brundtland commission report released in the year 1987. India's struggle to deliver comprehensive environmental Justice can be witnessed right from the Bhopal gas tragedy of 1984. Indian Supreme Court has witnessed many other environmental problems, such as, river water pollution, groundwater contamination, atmospheric pollution, soil erosion and land contamination, deforestation, killing of wild animals, et cetera. In spite of having several environmental legislations in India, for example, Environment (Protection) Act, 1986, Water (Prevention and Control of Pollution) Act, 1974, The wildlife (Protection) Act,*

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1972, Forest (Conservation) Act, 1980, et cetera, the Supreme Court was in search of certain international environmental tools, based on which appropriate and comprehensive environmental Justice could be delivered not only for the purpose of awarding scientifically appropriate compensation to the victims of environmental accidents, but also for the purpose of collecting money from the developer/polluter for restoration of the polluted environment. Finally, the Supreme Court in India in the year 1996 established that the concept of sustainable development will be considered as part of the law of the land. The article analyses the findings of Supreme Court in delivering environmental Justice for common good while applying the principle of sustainable development."

INTRODUCTION

The concept of 'environmental Justice'[1] can be achieved under two mechanisms. First, the authorities under the environmental statute[2] take appropriate steps and prevent environmental degradation[3] and second, when the courts issue directions to the government offices to implement the environmental

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1 *See* Omar Saleem (1994), "*Overcoming Environmental Discrimination: The Need for a Disparate Impact Test and Improved Notice Requirements in Facility Siting Decisions*", 19 Colum. J. Envtl. L. 211 at Page 213; *See also*, Tom Lininger (May, 2018) "*Green Ethics for Judges*", 86 Geo. Wash. L. Rev. 713

2 J. Michael Angstadt (Spring, 2016), *"Securing Access To Justice Through Environmental Courts And Tribunals: A Case In Diversity"*, 17 Vt. J. Envtl. L. 345 at Pp. 358, 360. *See also*, Shubhankar Dam (Summer, 2004), *"Green Laws for Better Health: The Past that was and the Future that may be -- Reflections from the Indian Experience"*, 16 Geo. Int'l Envtl. L. Rev. 593 at P 599; *See further*, Elizabeth Fata (Fall, 2015), *"Actions And Reactions: The Evolution Of Environmental Common Law And Judicial Activism In India And The United States"*, 23 U. Miami Int'l & Comp. L. Rev. 215

3 *See generally*, J. Mijin Cha (Winter, 2007), *"Environmental Justice in Rural South Asia: Applying Lessons Learned from the United States in Fighting for Indigenous Communities' Rights and Access to Common Resources"*, 19 Geo. Int'l Envtl. L. Rev. 185

legislations[4] and constitutional obligation[5] to prevent environmental harm[6]. More prominent[7] way of delivering environmental Justice stands with the second option, when a court issues direction against the executive in action[8], which was responsible for environmental pollution and degradation, to take necessary steps as per the environmental legislation and constitutional mandates[9]. Generally, the courts will look into two options, such as, if there is violation of any provisions of the environmental statute or if there is violation of the environmental right, either statutory right or constitutional right, then the courts will recognise the case as per due process of law and will provide environmental Justice[10]. On the other hand, degradation of the environmental resources may also lead to violation of human rights, for example, the river water pollution or atmospheric pollution

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4 *See*, Isabelle Martin (Summer, 1994), "*Environment Panel: The Limitations To The Implementation Of A Uniform Environmental Policy In The European Union"*, 9 Conn. J. Int'l L. 675 at Page 709.

5 *See generally*, Hon. Michael D. Wilson (August, 2015), *"The Hawai'i Environmental Court: A New Judicial Tool To Enforce Hawaii's Environmental Laws"*, 19 Hawaii B.J. 4; *See also*, Sara Cutuli (Summer, 2016), *"State Constitutional Law - Environmental Rights Amendment - Judicial Environmentalism Holds Pennsylvania Statute in Violation of the State's Constitution. Robinson Township v. Commonwealth, 83 A.3d 901 (Pa. 2012).",* 68 Rutgers L. Rev. 1573

6 *See generally*, Bradford Mank (Fall, 2010), *"Standing in Monsanto Co. v. Geertson Seed Farms: Using Economic Injury as a Basis for Standing When Environmental Harm is Difficult to Prove"*, 115 Penn St. L. Rev. 307; *See also*, Hari M. Osofsky (January, 2005), *"Learning from Environmental Justice: A New Model for International Environmental Rights"*, 24 Stan. Envtl. L.J. 71.

7 *See*, Devadatta Gandhi (Fall, 2007), *"The Limits and Promise of Environmental Ethics: Eco-Socialist Thought and Anthropocentrism's Virtue"*, 31 Environs Envtl. L. & Pol'y J. 35 at P 38.

8 *See*, ROBERT V. PERCIVAL (EDITED BY DENNIS J. HUTCHINSON, DAVID A. STRAUSS AND GEOFFREY R. STONE) (2007), *"Massachusetts v EPA: Escaping The Common Law's Growing Shadow"*, 2007 Sup. Ct. Rev. 111, at Pp. 149, 161.

9 *See generally*, J. Mijin Cha (2005), *"A Critical Examination Of The Environmental Jurisprudence Of The Courts Of India"*, 10 Alb. L. Envtl. Outlook 197

10 *See generally*, Rebecca M. Bratspies (2012), *"Human Rights And Environmental Regulation"*, 19 N.Y.U. Envtl. L.J. 225

will affect the public and their right to the standard living condition[11]. After the Bhopal gas tragedy[12] of 1984, the Indian judiciary took cognizance of the fact that environmental legislations, such as, the Wildlife (Protection) Act, 1972, the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 are not equipped with provisions that either award monetary compensation[13] to people or provisions that impose financial liability on the polluter to bear the cost for restoring the degraded environment[14].

At the same time, the provisions of the Indian Constitution, such as, Article 21 or Article 32 were not discussed by the Indian Supreme Court from 1984 till 1991. Now these provisions recognize the right to environment as a fundamental right[15]. Meanwhile, the Supreme Court of India was in search of a tool for delivering environmental Justice in the year 1986-87, while deciding the *M.C. Mehta (Shriram fertilizer)* case[16] .Later on the *M.C. Mehta (Absolute Liability)* Case[17] clearly stated that the principle of 'Absolute

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11 *See generally*, Emily R. Atwood (Winter, 2002), *"Preserving the Taj Mahal: India's Struggle to Salvage Cultural Icons in the Wake of Industrialization"*, 11 Penn St. Envtl. L. Rev. 101

12 Nehal A. Patel and Ksenia Petlakh (Spring, 2014), *"Gandhi's Nightmare: Bhopal and the Need for a Mindful Jurisprudence",* 30 Harv. J. Racial & Ethnic Just. 151

13 *See*, Dean B. Suagee (Spring, 1999), *"Environmental Justice: Mobilizing For The 21st Century: The Indian Country Environmental Justice Clinic: From Vision to Reality"*, 23 Vt. L. Rev. 567 at P 579.

14 *See*, John D. Echeverria (2001), *"Changing The Rules By Changing The Players: The Environmental Issue In State Judicial Elections"*, 9 N.Y.U. Envtl. L.J. 217 at P 221.

15 *See generally*, Deepa Badrinarayana (Spring, 2009), *"The Emerging Constitutional Challenge Of Climate Change: India In Perspective"*, 19 Fordham Envtl. Law Rev. 1

16 AIR 1987 SC 965

17 AIR 1987 SC 1086

Liability'[18] should be applicable to hazardous industries in order to ensure that compensation was awarded to the environmental victims[19]. The Supreme Court of India also mentioned that there will be no use of the principle 'Strict Liability'[20] because of its five exceptions[21]. Absolute liability, according to Indian Supreme Court, means the hazardous industries will be absolutely liable for bearing the cost of compensation to be paid to the environmental victims, irrespective of whether the hazardous industries had taken due care and diligence in their respective operation and activities. Therefore, the concept of absolute liability is not devoid of limitations, for example, this principle will be applicable to only hazardous industries and in *M.C. Mehta (Absolute Liability)* Case[22] the Supreme Court did not apply this principle[23].

Therefore, Indian Supreme Court was in search of specific tool, based on which environmental Justice could have been provided, satisfactorily[24]. When for the first time the Supreme Court

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18 *See*, Meredith Dearborn (February, 2009), *"Enterprise Liability: Reviewing and Revitalizing Liability for Corporate Groups"*, 97 Calif. L. Rev. 195 at P 229.

19 *See*, Abhi Raghunathan (January, 2012), *"The Grand Trunk Road from Salomon to Mehta: Economic Development and Enterprise Liability in India",* 100 Geo. L.J. 571.

20 *See generally*, Walter M. Rogers (1991), *"[I]t's All Right to Kill People, but Not Trees": Landowners of Environmentally Unsafe Properties Must Be Held Strictly Liable for Personal Injuries Caused by Their Contaminated Land"*, 66 Notre Dame L. Rev. 893.

21 For example, Damage caused due to natural use of land, Consent of the Plaintiff, Plaintiff's Own Default, Act of Stranger, Act of God or Vis Major, Common Benefit of Plaintiff and the Defendant, Statutory Authority.

22 *See Supra* Note 18.

23 However, the Supreme Court did mention the importance of this principle of absolute liability in Indian Council (Bichhri) case (AIR 1996 SC 1446), while declaring that the polluter pays principle is a part of the law of the land.

24 *See*, Domenico Amirante (Winter, 2012), *"Environmental Courts in Comparative Perspective: Preliminary Reflections on the National Green Tribunal of India"*, 29 Pace Envtl. L. Rev. 441 at P. 468.

of India made an observation in *Subhash Kumar v. State of Bihar*case[25] that right to life under Article 21 also included the right to get pollution free water and air, the right to environment became a part of fundamental right and Article 32 could be invoked before the Supreme Court of India for seeking environmental justice for violating this fundamental right[26]. Due to the unpopularity and limitations in its application, the concept of absolute liability did not aid the Indian Supreme Court in delivering environmental Justice[27]. Finally, while deciding two important cases in the year 1996, them being, *Indian Council (Bichhri)* case[28] and *Vellore* case[29], the Supreme Court made an historic observation and stated that international environmental law principles, such as, sustainable development along with intergenerational equity[30], polluter pays principle[31] and precautionary principles[32] form a part of Indian law [33]. Thereafter, number of environmental justice cases[34] were delivered by the Indian

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25 AIR 1991 SC 420

26 *See generally*, Sumudu Atapattu (Winter, 2002), *"The Right to a Healthy Life or the Right to Die Polluted?: The Emergence of a Human Right to a Healthy Environment Under International Law"*, 16 Tul. Envtl. L.J. 65

27 *See generally*, Sukanya Pillay (2006), *"Absence Of Justice: Lessons From The Bhopal Union Carbide Disaster For Latin America"*, 14 Mich. St. J. Int'l L. 479

28 AIR 1996 SC 1446

29 AIR 1996 SC 2715

30 For details *See*, G.F. Maggio (Spring, 1997), *"Inter/intra-generational Equity: Current Applications under International Law for Promoting the Sustainable Development of Natural Resources"*, 4 Buff. Envt'l. L.J. 161

31 For jurisprudential view *See*, Candice Stevens (Summer, 1994), *"Interpreting the Polluter Pays Principle in the Trade and Environment Context"*, 27 Cornell Int'l L.J. 577

32 For further legal discussion *See*, James E. Hickey, Jr. & Vern R. Walker (Spring, 1995), *"Refining The Precautionary Principle In International Environmental Law"*, 14 Va. Envtl. L.J. 423

33 *See generally*, Alhaji B.M. Marong (Fall, 2003), *"From Rio to Johannesburg: Reflections on the Role of International Legal Norms in Sustainable Development"*, 16 Geo. Int'l Envtl. L. Rev. 21

34 For example, Narmada case AIR2000SC3751, ND Jayal Case (2004)9SCC362, Essar oil case AIR2004SC1834, KM Chinnappa AIR 2003 SC 724, Intellectuals Forum, Tirupathi

Supreme Court by applying the principle of sustainable development. The concept of sustainable development has its own history and unique origin, which is discussed in the next part of this article.

HISTORY AND ORIGIN OF THE CONCEPT OF SUSTAINABLE DEVELOPMENT

The expression 'development' was associated as integral part of societal development from time immemorial. The development of any nation depends on exploitation of natural resources. However, when such exploitation of natural resources goes beyond the capacity of the nature to restore and replenish such resources, the concept of irreversible damage to environment falls in. This irreversible damage to environment could have been avoided by the nation, provided had that nation adopted concept of 'sustainability' in the process of development, which means that in the name of development, exploitation of natural resources should not go beyond the nature's capacity to replenish by herself. Accordingly, the concept of 'sustainable development' was accepted globally as an integral part of international environmental law principle, not only for the overall development of any nation and to preserve the ecology simultaneously, but also to gift this unique process of development in the hand of future generation as well for their development, sustainably.

While looking back to the history of the inception of internationally famous definition of sustainable development,

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AIR 2006 SC 1350, Karnataka Industrial Areas Development Board AIR 2006 SC 2038, Lafarge Umiam Mining Pvt. Ltd_2011 (7) SCALE 242, et cetera.

primarily the international document, such as, 'World Commission on Environment and Development' from the year 1987 comes into light. This international document is also popularly known as 'Our Common Future' or 'Brundtland Commission Report'.[35] The in-depth meaning of the definition of sustainable development can be understood as the ability of the future generation to meet with their own need without having to compromise the ability of the present generation to meet with their own need.[36]It would be incorrect to state that it was only from the year of 1987 that the definition of sustainable development was gave weightage. The Principle 1[37]& 2[38] along with Proclamation 6[39]& 7[40] of the Stockholm declaration 1972, had provided for the protection of the rights of the future generation by discussing the concept of sustainable development.

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35 *See* generally, Poddar Arup (March, 2017), *"Sustainable Development In India"*, International Journal of Legal Development and Allied Issues (IJLDAI), Volume-3, Issue-2, 2017, ISSN: 2454-1273, Pp: 48-56;

36 For details *See*, The Commission sees the "possibility for a new era of economic growth, one that must be based on policies that sustain and expand the environmental resource base. An we believe such growth to be absolutely essential to relieve...poverty" (p.1). Growth will come through better managing technology and social organization (p.8). Available at http://public.wsu.edu/~susdev/WCED87.html (last visited on 06.06.2019)

37 "*Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated."*

38 "*The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate."*

39 "…….*To defend and improve the human environment for present and future generations has become an imperative goal for mankind-a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of worldwide economic and social development."*

40 "*To achieve this environmental goal will demand the acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts. Individuals in all walks of life as well as organizations in many fields, by their values and the sum of their actions, will shape the world environment of the future"*

The environmental movement that was triggered by the Santa Barbara oil spill[41] case of 1969 had the impact of merging the concept of sustainability along with the concept of development. Santa Barbara oil spill contaminated the ocean with a thick layer of crude oil that had a devastating impact on marine aquatic life as well as marine birds. Therefore this incident will always be considered as the dark history of marine biodiversity degradation. Officially, the expression 'sustainability' can be traced back to the year 1713[42], when, as per German practice the older forestry term 'sustainable yield' was being used for forestry programme. In due course of time the concept of sustainable development became an essential feature for most of the international environmental law documents and the same discussed in the next part of this article.

SUSTAINABLE DEVELOPMENT AS A PART OF INTERNATIONAL ENVIRONMENTAL LAW PRINCIPLES

From the above discussion, it is clear that the Stockholm declaration of 1972 did not provide any nomenclature for 'sustainable development' rather, provided the avenues for recognising the rights of the future generation and their protection. Officially, the definition of sustainable development was accepted in the year 1987 in Brundtland commission report. The International codification of the

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41 Available at http://www2.bren.ucsb.edu/~dhardy/1969_Santa_Barbara_Oil_Spill/Home.html (Last visited on 28.02.2017)

42 *Available at* http://rethinkingprosperity.org/a-short-history-of-sustainable-development/ (Last visited on 28.02.2017)

expression 'sustainable development' and its working pattern was for the first time witnessed in Rio de Janeiro Conference of 1992.[43]

Few important principles of Rio conference 1992 deals with sustainable development. For example, human being is at the centre of sustainable development and in order to enjoy productive and healthy life it is essential for man to live in harmony with the nature and this is Principle 1[44].Development of the nation should be understood in tandem with environmental protection that can be found under Principle 4[45].Principle 5 includes elimination of poverty in developing nations as a part of sustainable development[46]. As per Principle 7, it is the responsibility of developed nations to pass on scientifically sound technology to developing nation in furtherance of the goal of sustainable development[47].There should be a proper balance between consumption of natural resources versus production of the same, therefore, nations should take appropriate steps to eliminate unsustainable production, which is mentioned under

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43 Available at http://www.sustainable-environment.org.uk/Action/Rio_Declaration.php (Last visited on 28.02.2017)

44 Principle-1-Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

45 Principle-4- In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

46 Principle-5- All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

47 Principle-7- States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit to sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

Principle 8[48].The effective exchange of knowledge on science and technology is also one of the essential characteristics of sustainable development as mentioned under Principle 9[49].In order to achieve economic growth, apart from sustainable development, nations should strive for developing a system of international economy for better structure, which is envisaged under Principle 12[50].Women shall play a vital and important role in achieving full success of sustainable development, and their role should be encouraged by nations, which is provided under Principle 20[51].At the same time the role of the youth cannot be discounted in making a better future with the help of their strength, ideas and capacity for achieving goals related to sustainable development as mentioned under Principle 21[52]. Principle 22[53]gives an indication that in order to achieve full shape of successful implementation of sustainable development, it is imperative to encourage the participation of indigenous people.

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48 Principle-8- To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

49 Principle-9- States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

50 Principle-12- States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

51 Principle-20- Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.

52 Principle-21- The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development and ensure a better future for all.

53 Principle-24- Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

Principle 24[54]suggests that war among and between nations will never achieve sustainable development, therefore, crisis management in non-war front would be helpful in achieving sustainable development. In the end, it is mentioned under Principle 27[55] that people and nation should co-operate with each other to bring international law in the field of sustainable development.

After the Rio declaration 1992, based on Principle 5, which deals with the eradication of poverty, another world summit was held in 2002 at Johannesburg[56], which further advanced the idea of sustainable development from the enlightened concept of 1992.

The United Nations, in the year 2015 organised a conference in New York, where India participated in order to make progress in achieving different goals of sustainable development by 2030, which is popularly known as Agenda 2030.[57]In this conference, 17 new sustainable development goals[58] have been identified to be

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[54] Principle-24- Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

[55] Principle-27- States and people shall cooperate in good faith and in a spirit of partnership in the fulfilment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development.

[56] Available at https://sustainabledevelopment. un.org/milesstones/wssd (Last visited on 28.02.2019)

[57]Available at http://www.in.undp.org/content/ india/en/home/post-2015/sdg-overview.html (Last visited on 28.02.2019)

[58]For example, 1.no poverty, 2.zero hunger,3. Good health and well-being,4. quality education, 5.gender equality, 6.clean water and sanitation, 7.affordable and clean energy, 8.decent work and economic growth, 9.industry, innovation and infrastructure, 10.reduced inequalities, 11.sustainable cities and communities, 12.responsible consumption and production, 13.climate action, 14.life below water, 15.life on land, 16.peace, Justice and strong institutions, and 17.partnerships for the goals. Information of these 17 goals are available in the website

implemented by the member nations. The participating nations, including India has taken the pledge to eliminate poverty everywhere and also to adopt scientific mechanisms such as developing economic policies to favour such stand.[59]

Thus, from the above discussion it is clear that unless the participating nations adopt the concept of sustainable development in their respective law and policy, implementation at the grassroots level will become a hard task. It is also clear that developing nations are facing challenges in the implementation of the mechanisms of sustainable development and in order to overcome these challenges quickly and efficiently, cooperation from developed nations regarding in the field of exchange of knowledge in the line of science and technology is of utmost importance.

SUSTAINABLE DEVELOPMENT AND ITS WORKING PATTERN

The working pattern of sustainable development is quite unique and effective as already discussed in the previous part of this article, particularly while deliberating upon various principles of Rio declaration 1992[60]. Moreover, Agenda 2030, as discussed in the previous part of this article, has also described the working pattern of sustainable development to achieve factors like no poverty[61], no

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https://www.undp.org/content/undp/en/home/sustainable-development-goals.html (Last visited on 06.06.2019)

59 Available at http://niti.gov.in/content/niti-aayogs-role (Last visited on 28.02.2019)

60 *See*, Alhaji B.M. Marong (Fall, 2003), *"From Rio to Johannesburg: Reflections on the Role of International Legal Norms in Sustainable Development",* 16 Geo. Int'l Envtl. L. Rev. 21

61 *See*, Gillian Macnaughton & Diane F. Frey (Winter, 2016), *"Decent Work, Human Rights And The Sustainable Development Goals"*, 47 Geo. J. Int'l L. 607

hunger[62], sustainable cities and communities[63], clean water and sanitation[64], et cetera.[65]

In India, the Supreme Court while deciding the *Vellore* case[66], clearly stated that the concept of sustainable development has three essential features, based on which the sustainable development works to achieve its goal. The three essential features are intergenerational equity, polluter pays principle and precautionary principle. Intergenerational equity is a concept of equity, which advocates the protection of rights of the not only the present generation, but also the rights of the future generations[67]. Sustainable development asserts that the ability of the present generation to meet with the need should not compromise the ability of the future generation to meet with their need[68]. Accordingly, intergenerational equity is an essential feature of the working pattern of sustainable development because both are connected with the protection of the rights of the present as well as the future generation. Similarly, polluter pays principle suggests that it is the absolute liability of the polluter to bear the cost of compensation to be paid to environmental victims and also to bear

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62 *See*, Emily Friedman (2017), *"Towards 2030: Shortcomings and Solutions in Food Loss and Waste Reduction Policy"*, 55 Wash. U. J.L. & Pol'y 265

63 *See*, Franklyn P. Salimbene (June, 2017), *"Seeking Peaceful Coexistence: Streetcars And Bicycles In The New Urban Environment"*, 7 Wake Forest J. L. & Pol'y 365

64 *See generally*, Sharmila L. Murthy (Winter, 2018), *"Translating Legal Norms Into Quantitative Indicators: Lessons From The Global Water, Sanitation, And Hygiene Sector"*, 42 Wm. & Mary Envtl. L. & Pol'y Rev. 385

65 *See generally*, Risa E. Kaufman (Fall, 2017), *"Localizing Human Rights In The United States Through The 2030 Sustainable Development Agenda"*, 49 Colum. Human Rights L. Rev. 99

66 AIR 1996 SC 2715

67 William Onzivu (2006), *"International Environmental Law, the Public's Health, and Domestic Environmental Governance in Developing Countries"*, 21 Am. U. Int'l L. Rev. 597 at P 672

68 Arindam Basu & Uday Shankar (April, 2015), *"Balancing of competing rights through sustainable development: role of Indian judiciary"*, 6 Jindal Global L. Rev. 61 at P 64.

the cost for restoring the degraded environment.[69] There will be no remedy to the polluter on the ground that the polluter has exercised due diligence and care after the pollution taken place. Therefore, it is the polluter's absolute liability to bear the cost of compensation.[70] The polluter pays principle is also another working pattern of sustainable development on the ground that sustainable development demands that unsustainable activities to be discontinued by the developer/polluter, so that man and nature live in harmony.[71] Another reason for discontinuation of unsustainable activities is the preservation of environmental resources for the future generation in order to meet with their own needs.[72] When this discontinuation of unsustainable activities fails, then the preventive principle, such as, polluter pays principle is applicable against the polluter to prevent unsound and unsustainable activities, hence the principle of polluter pays principle is also another working pattern of sustainable development.[73] Finally, the precautionary principle asserts that even if there is no scientific certainty for any irreversible environmental harm either happening or that could happen, the government machineries will not wait for that scientific confirmation in order to take

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69 David Dodds (2007), *"Breaking Up is Hard to Do: Environmental Effects of Shipwrecking and Possible Solutions Under India's Environmental Regime"*, 20 Pac. McGeorge Global Bus. & Dev. L.J. 207 at P 226.

70 *See generally*, David Weisbach (January, 2012), *"Negligence, Strict Liability, and Responsibility for Climate Change"*, 97 Iowa L. Rev. 521

71 Marc Pallemaerts (Spring, 1996), *"The Future Of Environmental Regulation: International Environmental Law In The Age Of Sustainable Development: A Critical Assessment Of The UNCED Process"*, 15 J.L. & Com. 623 at P 645.

72 *See*, Bradford C. Mank (2009), *"Standing and Future Generations: Does Massachusetts v. EPA Open Standing for Generations to Come?"*, 34 Colum. J. Envtl. L. 1

73 *See*, William Onzivu (2006), *"International Environmental Law, the Public's Health, and Domestic Environmental Governance in Developing Countries"*, 21 Am. U. Int'l L. Rev. 597

preventive measures.[74] It is true that medical science always states that 'prevention is better than cure'.[75] The precautionary principle, which compels the state machineries to develop a set of preventive guidelines for the benefit of developers assume that the developer will be observe these guidelines meticulously in order to preserve the environment. However, on the disregard of these guidelines which eventually leads to pollution, the principle of polluter pays is applicable to the polluter.[76] Hence, the precautionary principle is also another working pattern of sustainable development on the ground that it prevents unsustainable activities with the help of guidelines, which is the aim of sustainable development which promotes development but in a sustainable manner.[77] The Supreme Court also emphasised upon the constitutional mandate for the protection and preservation of environment.

INDIAN CONSTITUTION AND SUSTAINABLE DEVELOPMENT

The 42nd amendment made to the Indian Constitution inserted Articles 48A & Article 51A (g) which laid down environmental standards for the states and citizens of India to protect and preserve

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74 *See generally*, Scott Lafranchi (2005), *"Surveying The Precautionary Principle's Ongoing Global Development: The Evolution Of An Emergent Environmental Management Tool"*, 32 B.C. Envtl. Aff. L. Rev. 679

75 *See generally*, Danielle M. Purifoy (Summer, 2013), *"EPCRA: A Retrospective on the Environmental Right-to-Know Act"*, 13 Yale J. Health Pol'y L. & Ethics 375

76 Markus Wagner (Summer, 2012), *"Taking Interdependence Seriously: The Need For A Reassessment Of The Precautionary Principle In International Trade Law"*, 20 Cardozo J. Int'l & Comp. L. 713 at P 732.

77 *See generally*, Nasser Alreshaid (Spring, 2016), *"The 2016 Sustainable Development Goals: Lodging The Sustainable Development Goals In The International Trade Regime: From Trade Rhetoric To Trade Plethoric"*, 16 Sustainable Dev. L. & Pol'y 4

environmental resources.[78] Therefore, the concept of 'sustainability' in the developmental process was incorporated from the year 1976 in the Indian Constitution.[79]

However, Part III of Indian Constitution which deals with fundamental rights did not provide any direct declaration of 'right to environment' as a fundamental right. Article 21 of Indian Constitution is of immense importance in relation to right to environment, which was partly recognised by the Andhra Pradesh High Court in *T. Damodhar Rao* case[80] in the year 1987. The struggle was ongoing within the Supreme Court, which culminated in the *Chhetriya Pardushan Mukti Sangharsh* case, [81] where right to life under Article 21 of Indian Constitution was discussed in the line of environmental rights. Finally, the Supreme Court in *Subhash Kumar v. State of Bihar* case,[82] while rejecting the public interest litigation clearly asserted that Article 21 of the Indian Constitution also recognizes the right to get pollution free water and air. Therefore, right to pollution free environment is now part of Article 21 of Indian Constitution, which is a fundamental right and a human right as well.[83]

Accordingly, it is clear from the above discussion that unsustainable activities lead to pollution of the environment and the

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78 *See*, Vijayashri Sripati (1998), *"Toward Fifty Years of Constitutionalism and Fundamental Rights in India: Looking Back to See Ahead (1950-2000)"*, 14 Am. U. Int'l L. Rev. 413

79 Vahbiz P. Karanjia (2009), *"Why India Matters: The Confluence Of A Booming Economy, An Activist Supreme Court, And A Thirst For Energy"*, 20 Vill. Envtl. L.J. 49 at Pp 53, 62

80 AIR 1987 AP 171

81 AIR 1990 SC 2060

82 AIR 1991 SC 420

83 James R. May & Erin Daly (2009), *"The Confluence Of Human Rights And The Environment: Vindicating Fundamental Environmental Rights Worldwide",* 1 Or. Rev. Int'l L. 365 at P 401

Supreme Court in India declares this to be a violation of fundamental right. Therefore, it can be claimed that the Supreme Court's recognition of pollution and environmental problem and issuance of direction to prevent such pollution is the example of sustainable development.[84]

Moreover, in the *Vellore* case[85] the Supreme Court has categorically mentioned in its judgement that sustainable development, precautionary principle, polluter pays principle and intergenerational equity are part of the law of the land. Thus, from the year 1996 the term 'sustainable development' has been accepted as a part of the law of the land, which further means that it is a part of the Indian Constitution.[86]

It may be noted here that the implementation of sustainable development can be done satisfactorily[87] in India, when not only Indian Constitution, but also Indian environmental legislations provide such provisions on sustainable development.

INDIAN ENVIORNMENTAL LEGISLATION AND SUSTAINABLE DEVELOPMENT

In India, there are several environmental legislations, for example, the Wild life (Protection) Act, 1972, the Water (Prevention

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84 *See*, Emily R. Atwood (Winter, 2002), *"Preserving the Taj Mahal: India's Struggle to Salvage Cultural Icons in the Wake of Industrialization"*, 11 Penn St. Envtl. L. Rev. 101

85 AIR 1996 SC 2715

86 Katherine M. Davis (2014), *"I, Too, Sing America: Customary International Law For American State And Federal Courts' Post-Kiobel Jurisprudence, Guided By Australian And Indian Experiences"*, 29 Emory Int'l L. Rev. 119, at P 160

87 *See generally*, Domenico Amirante (Winter, 2012), *"Environmental Courts in Comparative Perspective: Preliminary Reflections on the National Green Tribunal of India"*, 29 Pace Envtl. L. Rev. 441

and Control of Pollution) Act, 1974, the Forest (Conservation) Act, 1980, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, et cetera.[88] Surprisingly, none of the above-mentioned environmental legislations speak of the concept or principle of sustainable development.[89]In the year 2010 a legislation in the name of National Green Tribunal Act (NGT) was passed by the Parliament to look into and decide environmental related cases exclusively.[90] Here, the tribunal is a specialised court on environmental issues and as per Section 20[91] of the said Act, the specialised tribunal can apply principle like sustainable development while delivering its ordes.

Unlike Indian environmental legislations, the environmental policy, such as, National Environment Policy of 2006[92] very clearly emphasised about the importance of sustainable development, intergenerational equity, polluter pays principle and precautionary principle.[93] Although, the policy is not enforceable by the court of law in India, the state can amend its existing law or bring a new law

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88 *Supra* note 36

89 *Id.*

90 Nicholas A. Robinson (Winter, 2012), *"Ensuring Access to Justice Through Environmental Courts"*, 29 Pace Envtl. L. Rev. 363 at P 383.

91 Sec.20. Tribunal to apply certain principles. –The Tribunal shall, while passing any order or decision or award, apply the principles of sustainable development, the precautionary principle and the polluter pays principle. Available at http://lawmin.nic.in/ld/regionallanguages/THE%20NATIONAL%20GREEN%20TRIBUNAL %20ACT,%202010.(19%20OF%202010).pdf at Page 9 (Last visited on 28.05.2019)

92 Sustainable development concerns in the sense of enhancement of human wellbeing, broadly conceived, are a recurring theme in India's development philosophy. Available at http://envfor.nic.in/sites/default/files /introduction-nep2006e.pdf at Page 7 (Last visited on 28.05.2019)

93 For further details on Policy aspect *See*, Vahbiz P. Karanjia (2009), *"Why India Matters: The Confluence Of A Booming Economy, An Activist Supreme Court, And A Thirst For Energy"*, 20 Vill. Envtl. L.J. 49

to accommodate this unique principle of sustainable development for striking a golden balance between development and preservation.[94]

It is surprising to note here that India not only participated in Stockholm declaration 1972[95], World Commission on Environment and Development, 1987[96], Rio declaration 1992[97], Johannesburg summit 2002[98], but also in Rio +20[99], Paris agreement 2015[100] in furtherance of its obligations under Agenda 2030.[101] However, there is no substantive environmental legislation in India that incorporates the provision of sustainable development. One may adopt a counter argument that schedule I[102] of the NGT Act clearly lists down the environmental legislations which can be applied by the tribunal along with the principle of sustainable development to pass orders. This

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94 *See generally*, Josh Drew (Spring, 1997), *"Calculating Potential To Emit Under the Clean Air Act: The Importance of Federal Enforceability"*, 91 Nw. U.L. Rev. 1114

95 *See*, Paolo Galizzi (May, 2006), *"From Stockholm To New York, Via Rio And Johannesburg: Has The Environment Lost Its Way On The Global Agenda?"*, 29 Fordham Int'l L.J. 952

96 See, Edith Brown Weiss (July, 1989), *"Book review: the evolving Antarctic legal regime: Environmental Protection and Sustainable Development: Legal Principles and Recommendations. Adopted by the Experts Group on Environmental Law of the World Commission on Environment and Development. R. D. Munro, Chairman, and J. G. Lammers, Rapporteur."*, 83 A.J.I.L. 685

97 *See*, David A. Wirth (Spring, 1995), *"The Rio Declaration On Environment And Development: Two Steps Forward And One Back, Or Vice Versa?"* 29 Ga. L. Rev. 599

98 *See*, S. Jacob Scherr & R. Juge Gregg (Spring, 2006), *"Johannesburg and Beyond: The 2002 World Summit on Sustainable Development and the Rise of Partnerships"*, 18 Geo. Int'l Envtl. L. Rev. 425

99 *See*, Roger Martella &Kim Smaczniak (Spring, 2012), *"Rio+20: Introduction To Rio + 20: A Reflection On Progress Since The First Earth Summit And The Opportunities That Lie Ahead"*, 12 Sustainable Dev. L. & Pol'y 4

100 *See*, Daniel Bodansky (April, 2016), *"The Paris Climate Change Agreement: Anewhope ?",* 110 A.J.I.L. 288

101 *See*, Risa E. Kaufman (Fall, 2017), *"Localizing Human Rights In The United States Through The 2030 Sustainable Development Agenda"*, 49 Colum. Human Rights L. Rev. 99

102 The National Green Tribunal can pass orders and awards under the following statutes: Schedule I [See sections 14(1), 15(1), 17(1)(a), 17(2), 19(4) (j) and 34(1)]-1.The Water (Prevention and Control of Pollution) Act, 1974; 2. The Water (Prevention and Control of Pollution) Cess Act, 1977; 3.The Forest (Conservation) Act, 1980; 4.The Air (Prevention and Control of Pollution) Act, 1981; 5.The Environment (Protection) Act, 1986; 6.The Public Liability Insurance Act, 1991; 7.The Biological Diversity Act, 2002

goes to show that even in the absence of explicit provisions on sustainable development in the environmental legislations in India, the tribunal has been invoking the principle by reading it in conjunction with the laws which have been mentioned in Schedule I of the NGT Act. However, NGT is not a writ court[103] to decide the writ petition and violation of any fundamental rights as mentioned under Indian Constitution. Therefore, the role of Supreme Court to provide environmental justice with the help of tools such as sustainable development is of utmost importance when it comes to the protection of fundamental rights.

INDIAN SUPREME COURT ON SUSTAINABLE DEVELOPMENT

As already discussed above that the Indian Supreme Court has not only successfully declared that right to pollution free environment is a fundamental right under Article 21 of Indian Constitution, but has also effectively and efficiently declared that international environmental law principles, such as, sustainable development is a part of the law of the land. It was difficult for the Supreme Court in India to find out a single environmental legislation, as discussed above, which could provide a provision for awarding compensation to the victims of the environmental degradation and also to compel the polluter to pay monetary compensation for restoring the degraded environment[104]. A similar kind of struggle was

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103 *See*, J. Mijin Cha (2005), *"A Critical Examination Of The Environmental Jurisprudence Of The Courts Of India"*, 10 Alb. L. Envtl. Outlook 197

104 *See*, Jeffrey A. Kodish (Fall, 2001), *"Restoring Inactive and Abandoned Mine Sites: A Guide to Managing Environmental Liabilities"*, 16 J. Envtl. L. & Litig. 381; *See also*, Robin Kundis Craig (2002), *"Taking the Long View of Ocean Ecosystems: Historical Science, Marine Restoration, and the Oceans Act of 2000"*, 29 Ecology L.Q. 649

witnessed by the Supreme Court when an endeavour was being made to declare right to pollution free environment as a part of fundamental right provided under the Indian Constitution. Since, no substantive environmental legislation could aid the court in determining compensation[105] and to also strike a golden balance between development and preservation, the Indian Supreme Court turned to international environmental law principles, such as, sustainable development, intergenerational equity, polluter pays principle and precautionary principle. The Supreme Court justified this by stating that since these principles formed a part of customary international law[106], they can be adopted as a part of the law of the land in order help in delivering environmental justice. The following are few important cases on environmental Justice, where the Supreme Court of India has examined the various dimensions of sustainable development.

The *Vellore citizens welfare forum* case[107] is the first ever case in India in which the Supreme Court critically examined the very scope of sustainable development and its adoptability and applicability in India. In order spread awareness about unsustainable development, the Supreme Court relied on the example of the tanneries industries in the state of Tamil Nadu. The best category of leather is exported from India and in leu of foreign exchange that is deposited in the

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105 *See generally*, Simon H. Ginsberg (Spring, 1996), *"Economic And Environmental Challenges To Natural Resource Trade"*, 10 Emory Int'l L. Rev. 297

106 *See generally*, Gary Born (December, 2017), *"Customary International Law In United States Courts"*, 92 Wash. L. Rev. 1641; *See also*, Eric George Reeves (Spring, 1993), *"United States V. Javino: Reconsidering The Relationship Of Customary International Law To Domestic Law"*, 50 Wash & Lee L. Rev. 877

107 Vellore Citizens Welfare Forum v. Union of India[AIR (19960 SC 2715 at 2720]

government exchequer. The tanneries industry is an example of nation's development, but is this development a sustainable one? In order to understand sustainable, primarily the idea of unsustainable development is to be defined. For example, tanneries industries treat the raw animal skin with the help of various chemicals, which are, definitely, harmful towards environment and human life, if they come into contact directly or indirectly with such chemicals. Animal skin is treated with harmful chemicals in order to convert them into fresh leather. The next step involves washing of the harmful chemicals with gallons of fresh water. In this process, gallons of waste water consisting of harmful chemicals, which is not treated with the help of pollution control devices or effluent treatment plant, is being released into nearby water bodies and agricultural land, thereby polluting them which affects the quality of the water in rivers, ponds, groundwater and also the fertility of the agricultural land. Hence, this kind of development is, absolutely, unsustainable in nature. Therefore, to make this kind of development sustainable in nature, the Supreme Court observed that the tanneries industries should install pollution control devices and treat the waste water from such devices to make such industrial waste pollution free and harmless before releasing them to water bodies and the agricultural land. However the environmental legislations, such as, the Water (Prevention and Control of Pollution) Act, 1974 requires the industries to mandatorily install pollution control devices. The Act also has a penalty provision for those who violate such requirements, but there is no such provision that the Supreme Court can resort to award compensation to the victims of such pollution. Thus, in order to make the

development full proof and sustainable, the Supreme Court of India had no other option, but to accept the concept of sustainable development as a tool for delivering environmental Justice, which will not only be applicable for awarding compensation to the environmental victims, but also for fixing financial liability on the polluter to bear the cost for restoring the degraded environment. The Supreme Court also asserted that precautionary principle, polluter pays principle and intergenerational equity are the essential characteristics of the concept of sustainable development.

In the *Ganesh wood* case[108]is the case the Supreme Court categorically discontinued the forest-based industries, for example, sawmills and other wooden based industries by applying the concept of intergenerational equity and keeping in mind the alarming rate at which forest coverage was shrinking in India. Forest preservation is not opposed to development, but promotes development of the nation, provided the forest resources are utilised wisely and sustainably. The apex court pointed out that intergenerational equity is not only at the centre of sustainable development, but also at the centre of forest preservation and conservation.

In the *Indian Council*[109] case the apex court analysed the concept of sustainable development and stated that there is no priority over development because of environmental preservation, similarly, there is no priority over environmental preservation because of development. In the other words, there should be an

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[108] State of Himachal Pradesh v. Ganesh Wood Products, [AIR (1996) SC 149]
[109] Indian Council for Enviro-Legal Action v. Union of India (1996) 5 SCC 281

equitable balance between environmental conservation and developmental activities of the nation. Both are considered to be two sides of a coin, hence, both are important, and one cannot avoid the other in the process of application of sustainable development.

In the *Taj trapezium*[110] case the Supreme Court clarified that the economic growth of the country depends on the development index rate, which is based on the rate of exploitation of natural resources of the country. Therefore, development rate of the country should be as such that the nature by her capacity can replenish the lost resources and make the resources readily available for future exploration. The sustainable development is the appropriate answer for this process.

In the *Narmada dam*[111] case the honourable Supreme Court critically examined the concept of sustainable development and stated that without proper development one can compromise the economy growth of the nation. The apex court also mentioned that applying the international principle of sustainable development in India would mean that the rate of development should be tolerable by the nature or by the ecology. In the other words, the nation should develop to an extent that can be sustained by the nature with or without mitigation.[112]

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110 M.C. Mehta (Taj Trapezium Matter) v. Union of India : (1997) 2 SCC 353
111 Narmada Bachao Andolan v. Union of India (2000) 10 SCC 664
112 *Supra* note 36

In *MC Mehta (mining)*[113] case the Supreme Court made a very good observation between 'banning' & 'balancing' actions. It was stated by the Supreme Court that 'balancing' involves mining industries working within the parameters of sustainable development and 'banning' takes place when the mining industries are working unsustainably and beyond the parameters of precautionary guideline and sustainable development. Both form an integral part of sustainable development, because under sustainable development the mining industries shall be promoted who are progressing sustainably and under the same principle of sustainable development there shall be banning of those mining industries which are developing unsustainably and thereby degrading the environment.

In the *Kerala rare earth*[114] case the petitioner alleged non adherence by the government of the sustainable development mandates in regulating mining industries. The Mines and Minerals (Development and Regulation) Act, 1957 governs mining in India. Section 18 of this Act gives the central government the power to provide a scheme of systematic development and conservation. Similarly, state governments also have to adhere to the principle of sustainable development, because of the fact that it is now constitutional mandate and a constitutional obligation.

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[113] M.C. Mehta v. Union of India (2009) 6 SCC 142

[114] State of Kerala v. Kerala Rare Earth and Minerals Limited [AIR (2016) SC 1817]

In the *Hanuman Laxman Aroskar* case[115] the Supreme Court has, while discussing the importance of ecologically sensitive area and environmental impact assessment of projects, recognised the value of 17 SDGs from Agenda 2030 and made an observation that there is interlinking relations between these goals and for overall human development theses 17 SDGs will play avital role.

CONCLUSION

Sustainable development' was one of the first few concepts to be defined and agreed by the nations in an international level. The definition is very clear and aims at protecting the rights and ability of the future generation to meet with their need and this can be achieved only when the environmental resources are preserved by the present generation. It is also true that the working pattern of sustainable development was to a large extent covered under different Principles of Rio declaration 1992, in which the dissemination of knowledge in the field of science and technology is one of the important working pattern of sustainable development, and is recognised very well by the participating nations. In order to achieve sustainable development by the developing nation, the primary task to eliminate property was one of the chief goals of Johannesburg summit of 2002. However, the summit did not relinquish the responsibilities of developed nations towards the developing nations for achieving full-fledged implementation of sustainable development. In the year 2015, the concept of sustainable development was given a new dimension and a new look while

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[115] Hanuman Laxman Aroskar and Ors. vs. Union of India (UOI) and Ors.

introducing 17 sustainable development goals (SDGs) and these goals are to be achieved by 2030 latest. Therefore, under Agenda 2030, the participating nations can devise, independently, their own strategies to achieve at different point of time different goals of sustainable development in order to complete the task by 2030.

Indian Constitution became vibrant in environmental matters with the help of 42nd amendment that was introduced in the year 1976 and of Article 48 A & Article 51 (g) post which both the state and the citizens are under the constitutional obligation to protect, preserve and conserve environmental resources. Therefore, development with the help of conservation policy can be witnessed from the year 1976 in India. In *Subhash Kumar v. State of Bihar* case, the Supreme Court categorically asserted that right to life as enshrined under Article 21 of the Indian Constitution also includes right to get pollution free environment thereby making it a fundamental right under. However, legal recognition of the concept of sustainable development was for the first time done by the Indian Supreme Court in the *Vellore Welfare Forum* case in the year 1996. Accordingly, almost after two decades of 42nd amendment to Indian Constitution, finally, Indian Supreme Court recognised that it is the principle of sustainable development that should be considered as an effective tool for delivering environmental justice, particularly for awarding compensation to people who are victims of environmental crisis and also to impose financial liability of restoring the degraded environment on the polluter.

The Wildlife (Protection) Act, 1972 is not covered under Schedule I of the NGT Act of 2010. However, other major and

substantive environmental legislations aimed at preventing atmospheric pollution, water pollution, protecting forest resources and conserving biological diversity have been listed under the same Schedule. The National Green Tribunal can use principles such as sustainable development while awarding any environmental orders under the environmental statutes mentioned in Schedule I. Therefore, the National Green Tribunal can apply the concept of sustainable development when there is already an environmental wrong or to prevent future ones. Therefore the principle of sustainable development os not just a corrective tool but also a preventive one. As discussed above, it is the responsibility of both the state and the citizens to protect and preserve the environmental resources not only for the present but also for the future generations.

In the end, it may be concluded that the effective application of the principle of sustainable development was possible in India right from the year 1996 and it is the Indian Supreme Court that made it a successful tool for delivering environmental justice. The role of the Indian Supreme Court is of immense value in delivering multi-dimensional environmental justice, which can be evidenced from the fact that the right to pollution free environment is a fundamental right and this was only possible because of the judgment delivered by the Supreme Court by applying tools such as sustainable development, intergenerational equity, precautionary principle and polluter pays principle for the purpose of delivering effective and wholesome environmental justice.

MINING WOES: - APPLICATION OF PUBLIC TRUST DOCTRINE TO PRESERVATION OF MINERAL RESOURCES IN INDIA

Anmol Rathore & Hansaja Pandya[*]

ABSTRACT

Mines and mineral resources are a part of the common and shared heritage of all the citizens of India and the state is the custodian thereof for the benefit of the present and future generations. It is this collective wealth, as opposed to minerals in situ on individual properties, that belongs to the nation. However the magnificent mining losses over the last ten years and a continuous unraveling of mining scams by private mine lessees suggest otherwise. What is unfortunate is that the government, the designated custodian of the mineral wealth of the nation has acted tongue in cheek with these scammers. The paper is an attempt to apply the Public Trust Doctrine to mineral resources of India to determine the duties of the government as a trustee of the mineral wealth. This paper traces the evolution of public trust doctrine and applies it specifically in case of mines and minerals. The second part of this paper deals with the regulatory framework in India regarding extraction of mines and minerals. The third part of the paper explains in detail the duties of the government as public trustee through state enactments and literature made available through case laws. The paper also briefly describes the application of the

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concept of intergenerational equity in the context of mines and minerals thorough the Hartwick's rule. The paper concludes by providing a set of recommendations on how government can better discharge its duty as a public trustee of the Earth's precious mines and minerals.

1. INTRODUCTION

Who owns the Earth and its resources? To what extent may the general public claim the pure water, clean air, rich soil, minerals and the myriad services earth provides to sustain human life? Across continents and spanning centuries, a dynamic tension continues between those who would circumscribe the Earth's bounty for private use and those who would carefully allot Earth's riches to satisfy human needs.[1] This duty to allot resources equitably in the society and maintain balance of interest between the present and future generation, lies with the government. This is the doctrine of public trust. In other words, the nature is a trust and government its trustee. And both these trust as well its trustee is created for the benefit of the people.

Now, another question. What would your reaction be if you were told that each member of your family was being continuously and unceremoniously robbed of his rightful inheritance over the past many years,- a theft of inherited wealth that was now lost, almost beyond recovery and the thieves were out there, roaming free, yet to be brought to justice? This the best way to put forth in a respectable

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1 David Takacs, *The Public Trust Doctrine, Environmental Human Rights, and the Future of Private Property*, 16 N.Y.U. Envtl. L.J. 711 (2008).

manner the incontrovertible facts about the mining scams in India, that have drained the country of the wealth of these natural resources. Over the last few years, numerous mining losses and scams have been uncovered and unsubstantiated estimates touted. Amidst all this conundrum, one thing is certain: the trend is consistently upwards. The laws have either been defectively framed or circumvented around in a way to be used as legal alibis for all sorts of scams and this is where the application of the equitable principles such as Public Trust Doctrine and Intergenerational equity come in to the aid of the advocates of environmental preservation.

The PTD has evolved over the decades to emerge as one of the core and fundamental principles for the judiciary to question the legitimacy and legality of governmental actions that interferes with the use by the general public of natural resources. After the incorporation of this doctrine into the Indian legal system there has been a stricter check upon governmental authorities who seek to divest State control over such natural resources in favour of private parties. Though the origin of the doctrine can be traced to ancient times and it is of considerable vintage in the United States, its application in the Indian legal system is a modern development.

More recently, scholars, activists, and lawyers have begun discussing the *rights* of people to access and enjoy various essential resources and services the Earth so generously yields. The spreading notion of "Environmental Human Rights" fortifies the persistent notion that sometimes, for some resources, it is immoral and illegal for private parties to misuse and abuse what the Earth provides

freely and what is necessary for human health and happiness.

2. EVOLUTION OF PUBLIC TRUST DOCTRINE

2.1. ORIGIN IN ROMAN LAW

The Public trust doctrine first emerged in the Roman Law under Emperor Justinian. It then resurfaced in medieval England and was thereafter transported across the Atlantic to the USA somewhere in the early nineteenth century. The Justinian Code of the sixth century Rome has been identified as the genesis of the Public trust doctrine. The Code had the doctrine of *res communes*, it declared natural law communal rights in certain omnipresent natural resources such as the sunlight, water, air, forests and the like, which were considered the common property of all. This declaration, likely reflecting Justinian's own idealization of a legal regime[2] was in all events mimicked practically verbatim in the Spanish thirteenth-century code, *Las Siete Partidas*, as well as in the "*Recopilacion de leyes de los Reinos de los Indies*" promoted throughout the Spanish Empire, and eventually was reflected in the customs of most nations in the Middle Ages.[3]

2.2. DEVELOPMENT IN ENGLISH COMMON LAW

In England, the public trust doctrine is a part of the Common law. Paragraph 5 of the Magna Carta made an explicit

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2 Vance, *The background of Hispanic-American law*, 98 Legal sources and Juridical literature of Spain (1943).

3 Richard J. Lazarus, *Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust*, 71 Iowa L. Rev. 631 (1986) https://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?referer=https://www.google.co.in/&httpsredir=1&article=1159&context=facpub accessed march 29, 2018.

reference to the guardianship of land extending the guardianship to houses, parks, fish ponds, tanks, mills and other things pertaining to land.[4] As early as 1865, the English House of Lords defined the concept of public trust in the case of ***Gann v. Free Fishers of Whitstable*** holding that "*the bed of all navigable rivers here the tide flows, and all estuaries or arms of the sea, is by law vested in the crown*."[5] This ownership, vested in the Crown is for the benefit of the subject, who is the beneficiary and therefore, the Crown cannot abuse its ownership in any way as to derogate from or interfere with the rights of the subject. This relationship imposed a fiduciary duty of responsibility upon the shoulders of the sovereign. The following were the characteristics of this fiduciary duty[6]:

- The fiduciary has scope for the exercise of discretion;
- The fiduciary can unilaterally exercise that power or discretion so as to affect the beneficiary's legal or practical interests; and
- The beneficiary is peculiarly vulnerable to or at the mercy of the fiduciary holding the discretion or power.

2.3. PUBLIC TRUST DOCTRINE IN INDIA

The doctrine has become a fundamental tool used by the courts to grant justice in many cases relating to environmental protection. The Rule of Law runs close to the rule of life and the

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4 *Supra* note 1.

5 Patricia Kameri Mbote, 'The Use of the Public Trust Doctrine in Environmental Law' (2007) 3/2 Lead J. 195 (Mar. 28, 2018), http://www.lead-journal.org/content/07195.pdf

6 *Id.*

Indian Constitution, in its humanist vision, has made environmental-ecological preservation a fundamental value. The higher jurisprudence of Article 21 of the Constitution (right to life) embraces the protection and preservation of nature's gift without which life ceases to be viable and human rights become a simulacrum.[7] In other words, this right to life under article 21 has been extended to include the right to a healthy environment and the right to livelihood.[8] Apart from the statutes, the doctrine was given shape in India mainly through a catena of judicial decisions discussed below. The doctrine, therefore has found wide acceptance as a legal alibi for the protection of natural resources which are owned by all the citizens of the country, and which, but for the judicial activeness in using this doctrine to promote their preservation, would have been long depleted. In the further sections, we attempt to discuss how this doctrine has been used by advocates of environmental protection and courts alike in the protection and preservation of mineral resources in India.

3. MINING REGIME IN INDIA

Before, we delve into the application of these principles to the preservation of minerals, it is pertinent to discuss the mining regime in India.

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7 Mi builders v. Radhey Shyam Sahu, (1999) 6 SCC 464 (India).

8 Olga Tellis and Ors. v. Bombay Municipal Corporation and Anr., 1985 (2) Supp SCR 51 (India).

3.1. WHO OWNS THE MINES AND MINERALS?

According to the Public Trust Doctrine, the natural resources are a part of the commons, and therefore equally owned by all and legally owned by the Sovereign or the state as a trustee of the citizens. For the present matter, therefore, keeping in mind the federal structure of India, the mines and minerals are a part of the commons and therefore owned partly by the State or the Union territory in which they are located. This principle is embodied in Article 294 of the Constitution of India under which that sub-soil minerals are owned by individual states, not the Centre, the mining leaseholder or the private landowner, as the case maybe. For instance, in Goa, Article 2 of the Portuguese Mining Code 1906 clearly stated that the minerals were owned by the government. Consequently, the state of Goa now owns sub-soil minerals. Barring some exceptions, such ownership thus vests with a representative entity such as a district council or a regional council.

However, in accordance with article 297 of the Constitution, the Central Government is the owner of the minerals underlying the ocean within the territorial waters or the Exclusive Economic Zone of India.[9]

In this connection, entry at serial No. 23 of List II (State list) to the Constitution provides that Regulation of mines and mineral development subject to the provisions of List I with respect to

[9] IND. CONST. art. 297.

regulation and development under the control of the Union[10], are within the purview of States while entry at serial No. 54 of List I states that Regulation of mines and mineral development to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest' shall be within the purview of the Central Government. The largest complication is that mining is in the Concurrent List in the Seventh Schedule of the Constitution. What this means is that no matter who is the owner, the Center is in control of these resources. It sets royalty rates, terms of auctions, etc. for major minerals. If the State is the owner of the mines, how does the mining leaseholder gain title to these mines and minerals? This happens when the following three conditions are fulfilled:[11]

(a) there is a valid mining lease and all other clearances;
(b) "winning the ore" – when the lease holder has separated the ore from the earth; and
(c) when the mining lease holder has paid for the minerals (the consideration). Now this is plainly the royalty under the mining lease.

3.2. WHO ARE THE BENEFICIAL OWNERS OF THE MINES AND MINERALS?

As discussed previously, the Public Trust Doctrine, which is an integral part of common law is derived from Article 21 (Right to

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10 IND. CONST. sch. VII, list 1.
11 *Who Owns the Minerals* (Apr. 4, 2018, 10:04 AM), http://goenchimati.org/who-owns-title-to-minerals-in-india/.

Life) of the Constitution. The doctrine essentially posits that "*natural resources including forests, water bodies, rivers, sea shores, etc. are held by the State as a trustee on behalf of the people and especially the future generations.*"[12] The Supreme Court has held that land, deep underground water, and spectrum[13] form part of the public trust. In simple terms, natural resources are a part of the commons, owned equally by all, present and future.

Minerals, both major and minor, sub-soil or offshore, are inherited assets. Indian inheritance laws would imply that the present generation is simply a custodian over the minerals for future generations.[14] The Intergenerational Equity Principle, also held to be part of the Right to Life, is the principle that future generations have access to the same resources that we do. If each generation follows this rule, it ensures that future generations have the same opportunities as we do. If we do not follow this rule, our stock of capital would decline eventually resulting the extinction of the human species.[15]

In practical terms, inherited assets must either be preserved for future generations, or if alienated, new "non-wasting" assets must be created of at least equal value. For example, when one sells inherited gold, he must purchase land of the same value so that

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[12] Fomento Resorts & Hotels & Anr. v. Minguel Martins & Ors. AIR (2009) 3 SCC 571 (India).

[13] CPIL v. UOI, (2012) 3 SCC 104 (India); Goa foundation v. UOI, (2015) 1 SCC 153 (India); Reliance Natural Resources Limited v. Reliance Industries Limited, (2010) 7 SCC 1 (India).

[14] *Supra* note 11.

[15] *Supra* note 11.

there is no economic waste. Traditionally, inheritances have been saved in precious metals, precious stones and land – assets that retain value over time. This is true of personal wealth as well as community wealth – temple trusts, waqfs. The environment and minerals are non-wasting assets.

Therefore, as minerals are a natural resource, the state is simply a trustee on behalf of the people and especially future generations. These are a part of the commons, owned equally by all. Finally, the present generation do not have an unfettered right to consume minerals. We are simply custodians for future generations. Either the future generations inherit the natural resource, or they inherit something else of at least equal value. In other words, the ultimate owners of minerals are our future generations. As the wise adage goes, *we did not inherit the planet from our ancestors, we borrowed if from our children*.

3.3. THE REGULATORY FRAMEWORK

In pursuance to Entry No. 54 of List I, Parliament has passed legislation titled The Mines & Minerals (Development and Regulation) Act, 1957 for the regulation of mines and development of minerals other than petroleum and natural gas.[16] Thus the Mines and Minerals (Development and Regulation Act, 1957, (*hereinafter* 'MMRD') and the Mines Act, 1952, together with the rules and regulations framed under them, constitute the basic laws governing

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[16] Kanhaiya Singh and Kaliappa Kalirajan, *A decade of economic reforms in India: Mining Sector in India*, CCEP CRAWFORD (March 23, 2018), https://ccep.crawford.anu.edu.au/acde/asarc/pdf/papers/conference/CONF2001_08.pdf.

the mining sector in India. The Director General of Mines Safety (DGMS) is responsible to enforce the provisions of the Mines Act.[17]

The Mineral Concession Rules, 1960 outline the procedures and conditions for obtaining a Prospecting Licence or Mining Lease. The Mineral Conservation and Development Rules, 1988 lay down guidelines for ensuring mining on a scientific basis, while at the same time, conserving the environment. The minor minerals are separately notified and come under the purview of the State Governments. The State Governments have for this purpose formulated the Minor Mineral Concession Rules. The MMRD Act also provides regulations relating to prospecting fee, royalties, and dead rent in respect of the prospecting and mining leases for minerals other than minor minerals, payable to the State Government. The holder of the prospecting licence is required to pay annually, in advance. The holder of the Mining Lease for minerals other than minor minerals is liable to pay a Dead Rent to the State Government till any mineral is removed or consumed, from which time, the holder has to pay royalty or dead rent whichever is higher. Each State also has separate laws and rules governing mining therein. All mining activities have to comply with the environmental legislation of India such as Environment Protection Forest (Conservation) Act 1980 and Environment Protection Act and Rules 1986. The Forest (Conservation) Rules, 1981 and The Environmental Impact Assessment Notification,

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17 *Id.*

1994 also apply for all the mining projects.[18]

3.4. PROCEDURE OF ALLOCATION OF MINES

The respective State governments grant mineral concessions for all the minerals located within their boundary under the Mines and Minerals (Development and Regulation Act), 2015 and Mineral Concession rules, 1960. For minerals specified in the First Schedule to the Mines and Minerals (Development and Regulation) Act, 1957, before granting the mineral concession, approval of the Central Government is necessary. Three different kinds of mineral concessions are provided in India:

i. Reconnaissance Permit(RP): granted for preliminary prospection of a mineral through regional aerial, geophysical or geochemical surveys and geological mapping.[19]

ii. Prospecting License(PL) is granted for undertaking operations for the purposes of exploration, locating or proving minerals deposits.[20]

iii. Mining Lease(ML) is granted for undertaking operations of mineral extraction.

The MMDR Amendment Act 2015 provides for two types of licenses that are granted to the bidders:

(i) Mining lease

(ii) Composite lease

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18 *Id.*

19 Mineral resource Department, (Mar. 25, 2018), http://chhattisgarhmines.gov.in/en/faqs.

20 *Id.*

These are electronically obtained after applying on the auction process under the Mines and Minerals (Development and Regulation) Amendment, Act 2015.

S. 10 of the MMDR Act deals with the applications for prospecting licenses or mining leases.[21] S. 10B(4) provides that mining lease in respect of a notified mineral shall be granted by the State government through auction by a method of competitive bidding, including e-auction, to an applicant who fulfils the eligibility conditions as specified in the MMDR Act.[22]

Further, the terms and conditions, and procedure, subject to which the auction shall be conducted, including the bidding parameters for the selection, which may include a share in the production of the mineral, or any payment linked to the royalty payable, or any other relevant parameter, or any combination or modification of them shall be prescribed by the Central government.[23]

S. 10B(7) provides that The State Government shall grant a mining lease to an applicant selected in accordance with the procedure laid down in this section in respect of such notified mineral in any notified area.

It was held in *The Goa foundation case* that it is for the State Government to decide as a matter of policy in what manner mining

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21 Mines and Minerals (Development and Regulation) Act, § 10B (5) (1957).
22 Mines and Minerals (Development and Regulation) Act, § 10B (5) (1957).
23 Mines and Minerals (Development and Regulation) Act, § 10B (5) (1957).

leases are to be granted in future.[24] However, the Central government specifies certain minerals as minor minerals for which the absolute power and authority for deciding the procedures of application and grant of mineral concessions lies with the State governments.

An application for grant of mining lease should be made to the State government. The procedure for grant of mineral concessions is that all such applications are received and processed in the Directorate of mines. The application which is received is required to be acknowledged in the prescribed form. The application is thereafter sent to the draughtsman and surveying section to ascertain the availability of the area. After doing the needful, the case is further processed by the dealing hand. If any deficiencies are noticed in the matter of submission of documents as required under the law or as decided by the competent authority, the same are brought to the notice of the applicant for rectification. References are also made to Revenue and Forest Department to ascertain their views on the suitability of the site from the point of public nuisance or forestry angle. The area is also inspected by a geologist of this Directorate to ascertain the suitability of the area from mineral potential point of view including the possible adverse effects arising from prospecting or mining activity. If the area involved is a forest land the case is processed for clearance under section 2 of Forest Conservation Act if the state government agrees in principle to grant the prospecting license/mining lease. A

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[24] Goa foundation v. UOI, (2015) 1 SCC 153 (India).

Clearance under section 2 of Forest Conservation Act 1980 provides for a detailed proposal from the applicant in consonance with the Forest Conservation Rules and the guidelines prescribed by Ministry of Environment.

The application is also processed for obtaining a prior approval of the Ministry of Mines, Government of India, if the mineral involved is listed in Schedule I to the Act 1957. After obtaining the prior approval of the Ministry of Mines, Government of India as well Ministry Of Environmental Forest, Government of India (where forest land is involved) and the environmental clearance, the case is put up for approval of the State Government.[25] It is only after the issue of the order of grant by the State Government; the area applied for grant of mineral concession is surveyed and demarcated on the ground. A plan is prepared by the surveyor which is signed by the surveyor, the Senior Geologist and the Director and kept in the file as the original document. A true copy of the plan is prepared by the draughtsman, which forms a part of the lease deed document. The applicant is thereafter called upon to effect the payment towards security deposit as well as expenses involving survey, issue of certified copy of plan. A lease deed is thereafter executed at Government level and mines are successfully leased to the lessee.

4. DUTIES OF THE GOVERNMENT AS A PUBLIC TRUSTEE

Though there is no legal statute expressly outlining the

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25 *Supra* note 20.

duties of the public trustee, this paper attempts to cull out the list of duties, liabilities and obligations of the government as a trustee of the mines and minerals of the country. An attempt is also made to point out through case laws, various instances where the government has failed to abide by its duties and obligations, or not exercised its rights when the circumstances called for it.

The general guidelines regarding the duties of the trustee as found in Indian trust act, 1882 can also be applied to the public trustee.

Bombay Public Trust Act, 1950 a statute applicable to the states of Gujarat and Maharashtra, lists the following duties of a public trustee,

"(1) A trustee of every public trust shall administer the affairs of the trust and apply the funds and properties thereof for the purpose and objects of the trust in accordance with the terms of the trust, usage of the institution and lawful directions which the Charity Commissioner or Court may issue in respect thereof, and exercise the same care as a man of ordinary prudence does when dealing with such affairs, funds or property, if they were his own.

(2) The trustee shall, subject to the provisions of this Act and the instrument of trust, be entitled to exercise all the powers incidental to the prudent and beneficial management of the trust, and to do all things necessary for the due performance of the duties imposed on him.

(3) No trustee shall borrow moneys (whether by way of mortgage or otherwise) for the purpose of or on behalf of the trust of which he is a trustee, except with the previous sanction of the Charity Commissioner, and subject to

such conditions and limitations as may be imposed by him in the interest or protection of the trust.

(4) No trustee shall borrow money for his own use from any property of the public trust of which he is a trustee.

Provided that, in the case of trustee who makes a gift of debentures or any deposit in his business or industry the trustee shall not be deemed to have borrowed from the trust for his own use." [26]

Apart from the statutes, the doctrine was given shape in India mainly through a catena of judicial decisions. The doctrine of public trust has now become a part and parcel of Indian jurisprudence and is also considered as an essential component of ensuring life and liberty to all the people under article 21 of the Indian constitution.[27]

The public trust doctrine is asserted to buttress the government's ineluctable responsibility to protect the right to life and ancillary rights that serve the fundamental rights. Accepting public trust doctrine as a part of common law, the Indian courts have applied this explicitly in various case laws, defining the doctrine in the indigenous Indian context.[28] Articles 48A and 51A of the Constitution also furnish the principles of jurisprudence, which are fundamental to our governance under the Rule of Law.

Supreme court stopped unauthorized mining causing environmental damage, holding that the, "*is a price that has to be paid*

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[26] §36A Bombay public trust act 1950, No. 29 of 1950 (India).
[27] Majra Singh And Ors. v. Indian Oil Corporation and Ors., AIR 1999 JK 81 (India).
[28] State (NCT of Delhi) v. Sanjay, (2014) 9 SCC 772 (India).

for protecting and safeguarding the rights of the people to live in a healthy environment with minimal disturbance of ecological balance."[29]

The landmark case of ***M.C Mehta v. Kamal Nath***[30], lays down the duties of the government as a public trustee as follows,

"The State as a trustee is under a legal duty to protect the natural resources. These resources meant for public use cannot be converted into private ownership."[31]

Furthermore, the court in this case has laid down categorically that the people shall be the beneficiaries of the natural resources, which are by nature meant for their use enjoyment.

Right from 1985, the court while reaffirming the doctrine and holding the government responsible as a public trustee of the nature's resources, observed that it is the precautionary principle under which the State should always anticipate environmental harm and take measures to avoid and prevent illegal mining, storage and transportation of sand in the State.[32] The State being a welfare state is under a constitutional obligation to regulate such things.[33]

Narrowing the concept down to the duties of the government in respect of mines and minerals, the Supreme Court opined that,

"…The State has to tread cautiously promoting a sustainable

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29 Rural litigation & entitlement Kendra v. State of Uttar Pradesh, AIR 1988 SC 2426 (India).
30 M.C.Mehta v. Kamalnath and others, (1997) 1 SCC 388 (India).
31 *Id.*
32 Unknown v. The State of Tamil Nadu, 1985 (2) Supp. SCR 51 (India).
33 *Id.*

extraction regime to facilitate systematic, scientific and planned utilization of mineral resources and to streamline mineral based development of the State, keeping in view, protection of environment, health and safety of the people in and around the mining areas rather than race to bottom."[34]

The court in the ***Goa Foundation***[35] has acknowledged that the, states have witnessed the peak of chaotic and unregulated mining without any concern for fragile ecology and environment of the State concerned. It has resulted in massive export of unaccounted ore from unidentified sources like dumps and tailings. The reckless exploitation without any concern for sustainability that the State has witnessed in last five years has serious implications. Minerals are a finite and non-renewable natural resource and must be exploited wisely in the larger interest of the State.

The court in the first case of ***Goa Foundation v. Union of India***[36], noted that, the State Government may grant mining leases of iron ore and other ores in accordance with its policy decision and in accordance with the MMDR Act and the Rules made thereunder in consonance with the constitutional provisions. In light of this, the Mines and Mineral (development and Regulation) Act, 1957 in section 18, codifies the duties of the government as a trustee of nature's wealth, as follows,

"18. Mineral development-*It shall be the duty of the Central Government to take all such steps as may be necessary or the conservation and*

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[34] The Goa Foundation v. M/s Sesa Sterlite Ltd., 2018 SCC Online SC 98 (India).
[35] *Id.*
[36] Goa foundation v. Union Of India, (2015) 1 SCC 153 (India).

systematic development of minerals in India and for the protection of environment by preventing or controlling any pollution which may be caused by prospecting or mining operations] and [for such purposes] the Central Government may, by notification in the Official Gazette, make such rules as it thinks fit."

The government is empowered by this section 18 of the act, to make rules and regulations for "*prudent and beneficial management of the trust property"* in the form of mines and mineral. Clause (c) of section 18 is of utmost importance as in reasonably explicit terms the clause empowers the government as a trustee to impose on the mine owners an obligation to use the ores in interest of the beneficiaries. 18(c) provides that the government may make rules regarding:

"(c) The measures to be taken by owners of mines for the purpose of beneficiation of ores, including the provision of suitable contrivances for such purpose;..."

Therefore the Mines and Mineral (Development and Regulation) Act, 1957 makes not only the government but also the owners to whom the mines have been leased out as the co-trustees of the said natural resources. The government shall be liable and answerable to the beneficiaries where it has delivered the property to his co-trustee without seeing to his proper application.[37] Thus the doctrine of public trust is not limited to the scope set out by the principle of Parents Patria, but extends to include the privates players of the mine industry. In its widest scope the doctrine of

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[37] §26(a), Indian trust (Amendment) Act 1882, No. 34, Acts of Parliament, 2016 (India)..

public trust, imposes similar duties on all the members of present generation, to use recourses in a sustainable fashion for the benefit of the future generation as well. Therefore in such a scenario the ultimate beneficiaries are the members of every coming generation.

Moreover the government is also enjoined to ensure that,

> *"No part of the natural resource can be dissipated as a matter of largesse, charity, donation or endowment, for private exploitation. Each bit of natural resource expended must bring back a reciprocal consideration. The consideration may be in the nature of earning revenue or may be to "best sub serve the common good". It may well be the amalgam of the two. There cannot be a dissipation of material resources free of cost or at a consideration lower than their actual worth. One set of citizens cannot prosper at the cost of another set of citizens, for that would not be fair or reasonable."* [38]

The inference that can be drawn from this observation of the court is that, the doctrine of public trust has different implication when it comes to 'allocation of natural resources to the present generation' as differentiated from 'protection and preservation of natural resources for future generations.' Where a public authority implements a policy, which is backed by a constitutionally recognized social purpose intended to achieve the welfare of the community, the considerations which would govern would be different from those

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[38] CPIL v. Union of India, (2012) 3 SCC 104 (India); Goa foundation v. Union Of India, (2015) 1 SCC 153 (India); Reliance Natural Resources Limited v. Reliance Industries Limited, (2010) 7 SCC 1 (India).

when it alienates natural resources for commercial exploitation. The resources like the minerals, sand ores, etc. can be leased out to private players in the market not only for the purpose of public good but also with a consideration of earning revenue. The royalty paid by the mine leases is the capital receipt of the government.[39]

Such a consideration may have an ultimate goal to benefit the society at large through increased government revenue resulting in egalitarian distribution of quality good and services to the society. But this is a far-fetched assumption, as most of the increase in revenue is utilized for paying of government debt, so as to reduce the pressure of debts on future generations. In certain cases, the dominant consideration is not to maximize revenues but to achieve social good such as when the alienation is to provide affordable housing to members of the Scheduled Castes or Tribes or to implement housing schemes for Below the Poverty Line (BPL) families. In other cases where natural resources are alienated for commercial exploitation, a public authority cannot allow them to be dissipated at its unbridled discretion at the cost of public interest. The window is now more than ajar[40].

But the recent decisions of Supreme Court, has partially modified this theory and kept open the window to judicially review such a policy if it does not serve the common good as understood in Article 39(b) of the Constitution, or if it violates Article 14 of the

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39 *Who Owns the Minerals* (Apr. 4, 2018, 10:04 AM), htttp://goenchimati.org.

40 M/s. Ajar Enterprises Private Limited v. Satyanarayan Somani, 2017 (10) SCALE 3 (India).

Constitution and alienates natural resources for maximizing profits of private entrepreneurs while sidelining Article 39(b) of the Constitution. *"The legislature and the executive are answerable to the Constitution and it is there where the judiciary, the guardian of the Constitution, must find the contours to the powers of disposal of natural resources, especially Article 14 and Article 39(b) of the Constitution."*[41]

In light of this case, export of natural resources shall be seen in violation of public trust doctrine, unless the revenue and foreign exchange received thereby leads to exponential growth of national economy and along with it improvement in quality and economy of life of the citizens of India.

In ***Goa foundation v. Sesa Sterlite Ltd & ors***[42], the question before the Supreme Court was whether, could it be reasonably said that export of iron ore is in the interest of mineral development. The court reasoned out that the beneficiaries of the rapaciousness were not the common people or the domestic market. There was no value addition to the Indian industry and the iron ore was mined only for export. The primary beneficiary were the mining lease holder, a private entity, and some collateral beneficiaries like the commercially driven barge owners and truck owners. The average citizen who had to suffer a polluted environment and witness the damage to the State's ecology paid the price. In other words, the State sacrificed maximizing revenue for no apparent positive reason,

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[41] Reliance Natural Resources Limited v. Reliance Industries Limited, (2010) 7 SCC 1 (India).

[42] *Supra* note 34.

virtually surrendering itself to the commercial and profit making motives of private entrepreneurs and ignoring the interests of the society in general. "*Export benefits cannot be weighed against health or the environment. There was no social or public purpose attached to the mining operations. There was one and only one objective behind the mining activity and that was profit maximization*"[43] and therefore in absence of any value addition to domestic industry and damage to environment it cannot be said that it was in the interest of mineral development.

The government also acted in violation of section 18 of the trust act 1882, which enjoins upon the trustee the duty to prevent waste. The section applies in following situations:

(i) *Where the trust is created for the benefit of several persons in succession, and one of them is in possession of the trust property.*

The present generation is in possession of the trust property, which is meant for the benefit of the future generation as well. The government holds the natural resources as a trustee for benefit of all generations in succession.

(ii) *If the one in possession commits or threatens to commit any act which is destructive of permanently injurious.*

The private miners to who the mines were leased out damaged the environment to a great extent and minerals being non-renewable resources have disproportionately and permanently been lost.

(iii) *The trustee who is bound under this section to prevent such act, as shamelessly failed in doing so.*

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[43] *Id.*

What can be inferred out of this is that, when the affirmative duties are set out from a negative angle, the public trust doctrine does not exactly prohibit the alienation of property held as a public trust, but mandated a high degree of judicial scrutiny. The government can surrender the rights only in those rare cases when the abandonment of a right is consistent with the purpose of the trust.[44] In other words the aesthetic use and pristine glory cannot be permitted to be eroded for private, commercial or any other use unless the courts find it necessary, in good faith, for the public good and in public interest to encroach upon the said resources.[45]

In Conclusion, projects of public utility cannot be abandoned and it is necessary to adjust the interest of the people as well as the necessity to maintain the environment.

5. INTERGENERATIONAL EQUITY

The concept of public trust doctrine is inextricably linked to the concept of intergenerational doctrine. As the Stockholm Declaration of United Nations on Human Environment evidences that "The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural system, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate…."[46] Hence, public trust doctrine is widely accepted doctrine in international scenario. Intergenerational equity is the

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44 In Re, Special reference no. 1 of 2012, (2012) 10 SCC 1. (India).

45 T.N Godavaraman Thirumulpad v. Union of India, (2002) 10 SCC 606. (India).

46 Lucas Bento, *Searching for Intergenerational Green Solutions: The Relevance of the Public Trust Doctrine to Environmental Preservation,* COMMON L. REV. 7-13 (2009).

principle, which says that future generations need to have equal access to resources as the present generation. The Supreme Court has also ruled in a catena of judgements that intergenerational equity is a part of our fundamental rights. It is also reflected in the customary concept of an *uttaradhikari* (heir), and the cautionary mythology of Bhoodevi.

The concept of intergenerational equity in the context of mines and minerals can be explained with the help of Hartwick's rule. Hartwick's rule says that as mineral resources are extracted from the ground, investments in productive assets need to be made to leave future generations with as much assets as the present generation has access to. In the Indian context, under the Constitution, subsoil minerals are the property of states governments. Therefore, the states are responsible for satisfying Hartwick's rule. This rule is similar to the requirement of Section 12 read with Section 20 of the Indian trust Act, which requires the trustee to invest the trust money in order to generate periodical income for the benefit of the beneficiary. However the mode and the manner of investment changes.

The Hartwick rule holds that consumption of non-renewable natural resources like mines and minerals can be maintained if the rents from non-renewable resources are continuously invested rather than used for consumption. This rule is quite intuitive – to keep our total capital constant, if we extract a mineral (a non-renewable resource), thereby reducing our mineral wealth, we need to create or invest the proceeds earned in another asset, at least equal to the value of the mineral that has been extracted and not less. In the case of

mineral resources, "rent" or "economic rent" or "mineral depletion" is the expected value of the mineral resources before they are extracted.[47] Technically, rent is the difference between the prices paid in the market for something versus the total cost of producing it (including a proper return on capital). Therefore, rent from extracted mineral resources must be continuously invested.[48]

Indian government has failed on 2 main fronts to meet Hardwick's Rule:

(i) *Most of the value of the iron ore extracted is cornered by mining leaseholders, resulting in a significant redistribution of wealth from the poor to the rich.*

(ii) *Governments in reality are able to capture only a very small fraction of the ores extracted.*

A common problem faced by mineral rich states is that, they do not have sound investment opportunities. A common solution to this is the establishment of permanent fund, on lines of endowment or pension fund.[49] Norway's sovereign wealth fund is a famous example. It has built up an enormous corpus of $ 800-plus billon from North Sea oil revenues for a population of only 5 million. Such a step was also recommended by the Supreme Court in Goa Foundation case in 2014.

Therefore, the adoption of intergenerational equity as a

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47 Basu, Rahul, *Implementing Intergenerational Equity in Goa,* 49 ECO. & POL. WEEKLY 33 (2014).
48 *Id.*
49 *Id.*

governing norm leads to sustainable development if the common sensical idea behind Hartwick's rule is met, that is when one asset is sold off, or exported to other countries the state must invest in an equally productive asset to keep the wealth of the nation constant and ensure fair and equitable distribution of natural resources to future generations. Here, in case of non-renewable natural resources, the state may invest in technology that reduce wastage of the resources and use minimum energy in their extraction.

6. RECOMMENDATIONS

The Government needs to recognise that it merely holds the mines and minerals as trustee for the present and the future generations. Therefore, there needs to be a recognition of the following cardinal principles on which the mining policy of the government should be based:

i. *The citizens of India, own the mineral resources in common. The Central and the State governments are merely trustees for the benefit of the people, especially future generations.*

ii. *The present generation itself is a mere custodian of these mineral resources, which it must pass on to the future generations. This principle embodies the Intergenerational equity principle.*

iii. *The State, when it leases the mineral resources or sells them off to private parties, it must ensure zero loss which implies that it should capture full economic rent. Economic rent means the sale price minus the cost of extraction, cost including reasonable profit for the miner. The State must keep in mind that any loss that it sustains on these mineral resources, is a loss to the us and the future generations.*

iv. *A significant recommendation that the government can implement is the creation of Permanent State funds in all states, learning from the best practise around the world. The Permanent fund should be a part of the commons. The state governments should aim that the Permanent funds score high in accordance with the Santiago principles. The government can take from the Supreme Court direction to Goa to create a Permanent Fund for Goan Iron ore. The State has already deposited Rs. 94 crores in the same.*

v. *Provisions should be made for Citizen's dividends by all states. Any real income (after-inflation) that accrues from the mining and is deposited in the Permanent funds of the States should be distributed to all citizens as a right of ownership, maybe by way of Direct Benefit Transfer.*

For the implementation of these principles, the following concrete steps need to be taken by the government:

i. *All the illegal mining leases should be cancelled and all the amount due form illegal mining should be recovered and deposited into the State Permanent Funds.*

ii. *All the mining policies of the States should be based on the principle of Zero Loss Mining and Zero Waste Mining.*

iii. *Since, the Supreme Court has held in the case of Goa foundation that it is for the States to decide the manner of lease of mines, the process of granting mining leases should be made as transparent as possible. The States can directly auction the leases, in this way securing the best returns by way of competitive bidding process.*

iv. *A legislation protecting and rewarding whistle blowers in the trade should be introduced. Also, all of the mining documents should be scanned and made accessible to the public.*

7. CONCLUSION

To conclude the duties of government as a public trustee can be summarised as follows:

- The state is to use the resources only for public purposes.
- These resources apart from being used by the government itself are also leased to the private undertakings for exploiting it for the public interest. These leases come with the limitations and restrictions imposed by the state government. In pursuance of this the state governments grant mineral concessions in the form of licenses that regulate the time period, the area for mining and for undertaking the operations of winning the mineral.
- After granting these licenses it is the duty of the state to keep a check on their utilization in the proper, legal and judicious manner and ensure that they are exploited only for public purposes and within the realm delegated to them.
- It shall also be the duty of the corporate houses vis-à-vis the government to conform to the guidelines of the mining business laid down by the government and pay royalty for carrying on the business.
- The state being the public trustees of these resources is bound by the law to ensure their proper and judicious utilization which otherwise leads to such dangerous consequences which the country is already witnessing in the

present times.

- The State is duty bound as a public trustee to act under the burden of the precautionary principle and take measure to ward off environmental harm.

- ***Unless the alienation or disposal of a natural resource is for the common good or a social or welfare purpose, it cannot be dissipated in favour of a private entrepreneur virtually free of cost or for a consideration not commensurate with its worth without attracting Article 14 and Article 39(b) of the Constitution.***

Further if the government fails to control the mining operations in the state by the private sectors it is obvious for the corporate houses that carry on business for gain to work their ways out to increase profits. Even otherwise the undertakings of the government that conducts mining operations if do not work within the prescribed limits and in an arbitrary manner is liable to not only deplete the natural resources faster but also cost the country huge amounts of losses counting in millions. That being the scenario the states of Karnataka, Orissa and Goa have been plundered in their mineral wealth leading to the degradation of the mineral resources they are rich in and defeating the very concept of sustainable development that stands as one of the basic goals of the country. These mining scams reflect is either a breach by the states of the public doctrine of mineral resources or their failure as the public trustees to hold and administer them effectively for the people at

large.[50] The protection and conservation of mineral resources is of the utmost importance today, in the wake of mining scams which result in the unfortunate case that the wealth is amassed by the few which control these resources rather than being inherited by those who are the rightful owners of the same. This paper acknowledges that by application of the principles of PTD and intergenerational equity, the State as the custodian of these resources needs to remediate the losses. The constitutional obligation on the citizens and the government alike, forces them to uphold the sanctity of these resources. We must assume a shared responsibility for the conservation of natural resources, including pollution prevention and ultimately remediation to cover the costs of the legacies of past mining scams and losses.

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[50] Baxipatra Divyashree, *Failure of the States as Public Trustees of Mineral Resources on the Face of Mining Scams*, SSRN (Apr. 6, 2018, 6:37 PM), http://dx.doi.org/10.2139/ssrn.2225021.

EFFECTIVENESS OF CARBON MARKETS: FROM KYOTO TO PARIS AND BEYOND

Aastha Kaushal & Lianne D'Souza

ABSTRACT

In a day and age where climate change bears the status of being a diabolical policy problem, sustainable development poses a clarion call to undertake mitigation actions on a global level and when doing so, it becomes imperative that such action plans ensure the maintenance and importance of two fundamental goals: environmental quality and economic development. With Greenhouse Gases induced from human activities being the most significant driver of observed climate change, the need for decarbonisation measures is of paramount importance. The existing mechanisms that regulate carbon emissions encompass the traditional direct regulation as well as price-based market approaches, which include carbon taxation and carbon trading. Similarly, the system of trading in carbon credits through the carbon markets was proposed to be the most effective in terms of both economic efficiency and environmental sustainability. However, the attempt to structure and manner the same under national and international regimes shows that it is not bereft of significant flaws. The Kyoto Protocol through its top-bottom approach failed in accounting for the larger aim and mission through excluding developing countries from undertaking mandatory emission reduction obligations. The subsequent Paris

Agreement provided for a more robust and inclusive framework and aptly overcame the limitations of the previous regime and incorporated the idea of 'common but differentiated commitments'. Nevertheless, the market mechanism of carbon trading is still wrought and possesses various drawbacks.

This paper employs a doctrinal method of research to analyse the transitory carbon trading mechanisms under the Kyoto Protocol and the Paris Agreement and subsequently throws light on their existing lacunae. It considers the need for collective action such that a stability in carbon markets is secured and aims at proposing an inclusive global carbon trading framework with a focal point on carbon pricing such that the overall goal of environmental sustainability is given the utmost importance.

INTRODUCTION

"The principle of common but differentiated responsibilities is the bedrock of our enterprise for a sustainable world"

- Prime Minister of India, Narendra Modi.

In the preceding few decades, a concept which has stood at the heart of the debate on economic progress is the concept of 'sustainable development'. The Brundtland Commission firmly defined the term 'sustainable development' to mean the path of economic development which meets the needs of the present generation without compromising the needs of future generations[1].

[1] Report on Sustainable Development, World Commission on Environment and Development, 1987.

This concept thereby addresses multidimensional issues though an amalgam of efficiency and intergenerational equity. The philosophy of sustainable development is concerned with the ways in which economies and their natural environments interact[2]. It deviates from the earlier notion which presupposed that one could either have economic progress or environmental quality and any combination of the two would involve a trade-off. However, this modern concept contemplates that economic development and environmental quality are intertwined and complementary to one another. The simple logic presupposing this notion is that the way in which economies are managed invariably impacts the environment while on the contrary environmental quality impacts economic performance[3]. Bearing this in mind, it is therefore imperative that the pursuit of economic growth does not jeopardize the environment and the quest for sound environmental policies does not in turn slow down economic progress[4].

Global warming and climate change continue to be controversial issues and are comparatively complicated issues to tackle because the challenges facing them in particular span across disciplines[5]. In devising policies that tackle the imminent threat of global warming, regulating anthropogenic activities, the prime cause

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2 DAVID PEARCE, ANIL MARKANDYA & EDWARD BABIER, BLUEPRINT FOR A GREEN ECONOMY 4 (ed.,1 Earthscans Publication Ltd, 2006).

3 Adam Rose & Teitenberg, *An International system of Tradable CO2 Entitlements: Implications for Economic Development*, JOURNAL OF ENVIRONMENT & DEVELOPMENT, 4 (1993).

4 Id.

5 WILLIAM NORDHAUS, THE CHALLENGE OF GLOBAL WARMING: ECONOMIC MODELS AND ENVIRONMENTAL POLICY 4 (ed., 1 Yale University press, 2007).

for the ever-increasing greenhouse gas concentration, is the ideal approach. Regulation through the lens of an economist can play a vital role, for nations whose economic interests take priority over those of a social character, a rational self-interested behaviour is the guiding motive. This individual self-interest is what precludes participation in collective, environment- centric action plans. Thus, a viable solution that not only guarantees co-ordinated action but also satiates economic interests will be one conceived through a market-based approach. In this regard, an analysis of carbon markets as an effective tool in mitigating global warming and subsequently climate change is significant.

THE NEED FOR COORDINATION AND GLOBAL AGREEMENT

Climate change is perhaps the most widespread tragedy of common universal effect that has attracted an enormous amount of attention across the globe[6]. However, many countries have been hesitant to address the same because such environmental problems are viewed sceptically as a deviation from effective economic functioning. But a crucial feature of the environment often disregarded is its pervasiveness. As the name suggests, 'Global warming' is a global phenomenon which arises from the erosion of global commons[7]. The very fact that it is a global externality implies that the goal is not restricted to mere individual actions of reducing carbon concentration in the atmosphere but also to securing the co-

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6 ERIC. A. POSNER & DAVID WEISBACH, CLIMATE CHANGE JUSTICE, 43 (ed., 1 Princeton University Press, 2010).

7 id. at 2.

operation of every nation in an equitable manner[8]. Furthermore, on a jurisprudential front, collective action is also warranted by the theory of Utilitarianism. This theory as propounded by Bentham envisages that policies must promote the greatest good of the greatest number.[9] An application of utilitarianism therefore contemplates that every nation's participation as the 'greatest number' cannot be restricted to the population of only some nation states or a single generation. Similarly, economic instruments would necessitate an immediate collective action as pollution abatement in the present is a more cost-effective matter to address than by postponing it to a future date. In instances particularly where the damage caused by the delay is irreversible, the rising costs of abatement necessitates inclusive action plans. The Stern review[10] contemplates that countries which are precluded from partaking in a global action plan to mitigate climate change must look beyond their individual, self-interested economic goals. It estimated that the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year[11]. Hence the result will be such that increasing environmental degradation will inhibit economic growth to a point when neither development nor environmental sustainability can be achieved.

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8 id. at 3.

9 BENTHAM JEREMY, AN INTRODUCTION INTO THE PRINCIPLES OF MORALS AND LEGISLATION], 282-283 (Burns. J. H & HLA Hart ,1972).

10 Nicholas Stern, *Stern Review On Economics Of Climate Change*, HM Treasury, 449 (2006).

11 id.

POLICY INSTRUMENTS THAT REGULATE CARBON EMISSIONS

There are two broad categories of policy instruments through which carbon emissions are sought to be controlled and subsequently reduced. These approaches vary with respect to their effectiveness in terms of reducing pollution as well as their efficiency *i.e.* abating pollution at the least cost[12]. Therefore, a choice of emission policies must be guided by the underlying target of reducing and eliminating emissions at the least possible cost.

The *first* and relatively more traditional approach towards environmental problems is that of direct regulation, which is commonly referred to as the method of *'Command and control'*. This method simply orders polluters to pollute less either by setting uniform standards for industries or by imposing legislative bans[13]. It is carried out either through 'input control' which mandates the use of a specific technology or through 'output control' which limits the total amount of an activity that forms a source of pollution[14]. The inherent setback in the case of 'input control' is that the technology so specified may not always be the most efficient method as a consequence of the information asymmetry despite the said method often turning out to be the cheapest method. Correspondingly, in the latter scenario the cost of compliance with the established standard is

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12 Simon Caney & Cameron Hepburn, *Carbon Trading: Unethical, Unjust and Ineffective*, 3, (2011).

13 Rebecca Pearse, *Carbon Trading for Climate Justice*, 17 Asia Pac. J. Envtl. L. 111 (2014).

14 RICHARD POSNER, REGULATION OF POLLUTION, ECONOMIC ANALYSIS OF LAW, 505 (9thed., 1972).

either extremely prohibitive or too disproportionate to the benefits of pollution abatement that its fails to deliver any efficacy[15].

An overview of this first approach portrays that the command and control method imposes ultimate punitive sanctions and instils the threat of litigation in cases of deviance. However, it falls short in providing any intrinsic motive to comply apart from a desire to avoid liability[16]. Furthermore, it does not really tackle the dilemma of increasing emission levels nor is there any guarantee of an optimal level of efficiency in abating carbon emissions. The *second* approach pertains to a range of economic systems which rely on individuals and market based incentives to determine the best technologies to reduce emissions at the least cost. Market based financial systems such as taxes and emission trading provide positive gains over traditional methods as they coordinate social behaviour and attitudes towards implementing environmentally sound practices[17]. They hold the promise of controlling carbon emissions by creating markets in what were deemed as 'free services' and allotting such resources a positive price[18]. Such positive prices regulate behaviour of individuals and firms in a manner that create and promote incentives to innovate and develop alternate green technologies and avoid the exploitation of environmental resources. The simplest conceptual form of a market based incentive is that of a

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15 id. at 6.

16 Braden Smith, *Transnational Carbon-Trading Standards: Improving the Transparency and Coordination of Post-Kyoto Carbon Trading Markets*, 30 Pace Envtl. L. Rev. (2012).

17 Paul Street, *Trading in Pollution: Creating Markets for Carbon and Waste*, 9 Envtl. L. Rev. 260 (2007).

18 *See* Pearce, Markhandya & Babier, *supra* note 2, at 154.

'carbon tax' which is levied in proportion to the quantum of carbon emissions. Based on the '*polluter pays principle*' it represents a penalty to be paid for generating carbon emissions. In contrast to the traditional mechanism, a tax approach ensures that economic costs and pollution reduction benefits are easily and flexibly integrated[19] and enables a polluter to choose how they will adjust to environmental quality standards. However, the apparent disadvantage about carbon tax is that there is no guarantee that the environmental quality standard will be maintained essentially as those who have sufficient finances can simply buy their way out through taxes. Thus, carbon taxes fail to steer the global economy towards climate targets as there is no explicit limit on the increase in greenhouse gas emissions in the atmosphere. Finally and more importantly, carbon taxes do not initiate any action to reduce the existing carbon emission levels.

A rather realistic approach which encompasses the price mechanism is that of *'Cap and Trade'*. It stems from the Coase Theorem which contemplates that externalities (pollution) can be effectively eliminated through market transactions if property rights are assigned to them[20]. Emission trading systems best serve at internalising environmental costs as it encourages positive behaviour through market signals by establishing a pre-ordained environmental standard and then issuing 'permits' representing the total amount of pollution that can be tolerated[21]. Once the overall cap is set, these allowances are then distributed among emitting parties through

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19 Nordhause, *supra* note 5, at 30.
20 Ronald Coase, *The Problem Of Social Cost*, 3 Journal of law and economics 1-44 (1960).
21 *See* Street, *supra* note 17, at 262.

auctions or purchases[22]. Given a pre-determined quantitative limit, the participants in the market have the flexibility to administer this limit in their own fashion, through technologies that cost the least. Since the 'cap' reflects an absolute limit on the level of emissions, it is the most favoured method by environmentalists as the only system that incorporates a level of certainty. The 'trade' aspect reduces the overall cost of the program, allowing market forces to manage the pollution rather than allowing government bureaucracy to control a rigid standard. Furthermore, on a global platform, carbon trading demonstrates moral values of environmental integrity, reduction of wastage and liberty to adopt individually feasible methods of pollution abatement. Thus, well-designed *cap-and-trade* systems have proven to be environmentally effective and cost-efficient as they not only ensure that the overall environmental standard is not threatened but also warrant for economically optimal outcomes[23].

INTERNATIONAL FRAMEWORK

Kyoto Protocol

The concern about climate change as a global phenomenon was raised by representatives from all around the world for the first time at the Earth Summit, held in 1992. This later culminated to become the Kyoto Protocol which came about as an instrument to reduce net emission levels such that the concentration of greenhouse gases in the atmosphere could be stabilized and anthropogenic

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22 Rachel Feinberg Harrison, *Carbon Allowances: A New Way of Seeing an Invisible Asset*, 62 S.M.U. L. Rev. 1915 (2009).

23 *See* Caney and Hepburn, *supra* note 12, at 2.

interference with the climate system could be prevented[24]. Market based approaches, which were not considered before, were integrated for the first time to the design of the protocol. The agreement cast a heavier burden on developed nations to reduce emission levels since the primary source for the rise in greenhouse gas emissions in the atmosphere was the rapid pace of industrialization in these nations. The instrument of flexible mechanisms which were central to the accord intended to expedite the promotion of newer and greener technologies that curtail pollution levels. The *first* among such mechanisms was that of Joint Implementation (JI) wherein developed countries with a relatively high cost of domestic emission reduction could fund carbon projects in other developed countries. *Secondly,* the instrument of Clean Development Mechanism (CDM) enabled developed countries to meet their emission standards by implementing environment sustainable strategies in developing nations offsetting the pollution in the developed countries[25]. *Lastly* and more environmentally tenable, is the international emission trading system which facilitates the trading of carbon credits within the carbon market to cover the shortfall in allowances.

The policy framework under the Kyoto Protocol is proof that the operation of the carbon markets is more nuanced in practice than the theoretical economic concept. However, the 1997 protocol was seen as a poorly effective mechanism, as in reality, it failed to have

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[24] Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 2, 1998.

[25] Kyoto Protocol to the United Nations Framework Convention on Climate Change, art.12, 1998.

any legitimate reduction in carbon emission levels. Instead, it promoted an overall net zero effect on the increase in the level greenhouse gas emissions as it did not include a majority of the countries, which are major stakeholders in contributing to climate change. The incentives provided by the Protocol proved to be perverse from the point of view of the developed nations that were well financed to continue polluting. Furthermore, the top-down approach under Kyoto Protocol rendered it a problematic approach. This failure stemmed from the exclusion of major developing countries to abide by established commitments, the lack of any consensus to include new countries, and an agreement that was limited to a single period too short to exhibit any fruitful results.

Paris Agreement

The groundbreaking climate policy through the Paris Agreement endeavored to mitigate overall global emissions along with long term objectives which are to be achieved by the year 2020. The Treaty aims to strengthen the global response to the threat of climate change in the context of sustainable development. While the Kyoto Protocol only included industrialized countries under its emission caps, the Paris agreement transcended into a broader agenda and accounted for universal application, hence resolving the contrasting dilemma between the developed and developing countries as seen in the previous regime[26]. The intention of implementing UNFCC's principle of *equity* and *common but differentiated*

[26] William R Moomaw & Patrick Verkooijen, *The Future of the Paris Climate Agreement: Carbon Pricing as a Pathway to Climate Sustainability*, 41 Fletcher F. World Aff. 69 (2017).

responsibilities has been the driving force of this accord. This is reflected through differentiation in terms of flexibility and adaptability. It recognized that a binary split between developed and developing countries isn't the most credible way to resolve a problem commonly faced by the world. Therefore, there was a construction of various streamlined policy measures by accounting for diverse national circumstances, vulnerabilities and capabilities in accentuating mitigation goals at a domestic level. The agreement aims at pursuing efforts to limit global temperature rise to 1.5□ C by way of long term deep de-carbonization methods and thereby mitigating climate change through collaborative action and endorsing climate integrity[27]. It lays down a combined approach of both market mechanisms and non-market mechanisms through the Sustainable Development Mechanism (SDM) which provides for the integration of CDM and JI mechanisms as under the erstwhile Kyoto protocol to address climate change by assuring intergenerational equity. The aspect of accountability and the need for collective action has been addressed by providing for the "Intended Nationally Determined Contributions" (INDCs) by each nation under Article 4 of the Agreement[28]. Intended Nationally Determined Contributions (INDCs) are the voluntary plans that each country would undertake at a domestic level to meet the predetermined global targets. The paradigm shift from the Kyoto Protocol is witnessed by employing a

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[27] Carbon Market Watch submission to SBSTA on the Sustainable Development Mechanism, (6th Oct., 2016). *https://carbonmarketwatch.org/publications/carbon-market-watch-submission-to-sbsta-on-the-sustainable-development-mechanism/*

[28] Paris Agreement to the United Nations Convention on Climate Change, art. 4 (2015).

bottom-up approach wherein countries are encouraged to voluntarily adopt transfer of mitigation outcomes to realize their respective INDCs, as laid out under Article 6. The INDCs across borders demonstrate varied, comprehensive steps taken by each nation towards climate change in their respective countries, as per their circumstances and capabilities, through both market and non-market based mechanisms.[29] The concept of Internationally Transferred Mitigation Outcomes (ITMOs[30]) are to purport the flexible and inclusive nature of this international accord as well as to facilitate the exchange of carbon credits among nations. In essence, this approach gives way for the creation of international markets by recognizing that countries will voluntarily co-operate to mitigate climate change at the least possible cost and with little or no impediment to their economic growth. The bottom- up approach is easier to catalyze owing to its highly flexible design giving way to a great scope of individuality. The actions of member states in implementing their NDCs is proof enough of the first steps of global cooperation. However, the shortcoming lies in the heterogeneity of each market which poses significant challenges to global cooperation and co-ordination[31]. Over and above that, the advocacy of carbon trading

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29 ANDREI MARCU, GOVERNANCE OF CARBON MARKETS UNDER ARTICLE 6 OF THE PARIS AGREEMENT, THE PARIS AGREEMENT AND BEYOND: INTERNATIONAL CLIMATE CHANGE POLICY POST-2020, 53 (Harvard Solutions on Climate Change 2016).

30 Paris Agreement to the United Nations Convention on Climate Change, art. 6.2 (2015).

31 WILLIAM A. PIZER, GOVERNMENT-TO-GOVERNMENT CARBON TRADING, THE PARIS AGREEMENT AND BEYOND: INTERNATIONAL CLIMATE CHANGE POLICY POST-2020, 63 (Harvard Solutions on Climate Change 2016).

inevitably gives rise to the fundamental problem of offsetting and raises questions with regard to the pricing policies of carbon credits.

The Paris Agreement which contemplates a realist strategy has been applauded for its effort in attempting to rectify the drawbacks of previous regimes. Yet, it still attracts criticisms asthe assurance that the mechanism provided thereunder being infallible is uncertain. This uncertainty stems from the possibility of political discords in terms of the contributions from different nations. Furthermore, since the INDCs remain to be voluntary, it becomes difficult to assess how a state would be answerable in the event that they fail to keep up to their promises. Though the treaty specifies that the ultimate goal is that of maintaining intergenerational equity through the mechanisms provided, the manner of implementation continues to remain unclear. The absence of explicit numerical targets for individual countries displays no meaningful mechanism for ensuring accountability. There is adequate ambiguity in the pledges made by the nations to reduce emission levels.[32] Furthermore, the agreement aims to achieve environmental integrity and transparency while allowing for emission trading which becomes difficult to account for. For instance, while adhering to the compliance standards of sustainable development goals, it fails to outline the manner and method by which the NDCs will be uniformly adopted by each country. The agreement thus aims to achieve several idealistic standards which lie on the probability of success of implementation while it failing to give an assurance to curbing the carbon emission

[32] Paris Agreement to the United Nations Convention on Climate Change, art. 14 (2015).

levels and at the same time does not incentivize all nations to join in the collective act of mitigating climate change.

Beyond Paris

The existing carbon markets that facilitate trade in carbon credits are broadly based on the template provided under the Kyoto Protocol. Evidence from the regulatory systems as seen in the European Union's ETS, United Kingdom's ETS, the RGGI mechanism in United States and the very recent ETS in China reflect that well designed emission trading systems that are in practice the most cost-effective.[33] The structural frameworks in terms of monitoring, verification and auditing vary across these systems but have displayed positive results. As the existing markets mature and new markets emerge, despite being in their nascent stages, there is a strong push for convergence of existing carbon markets into a global market.[34] One reason for this is that despite the recent adoption of the Paris climate agreement, countries taking climate change action are still faced with a potential risk of carbon leakage.[35] Autonomous carbon markets, be it on the national or sub-national levels, have limited choices of abatement. Such markets are susceptible to high price volatility and greater transaction cost. Through linkages the cost of pollution abatement would drastically diminish thereby improving the functioning of national markets. Linking systems with different

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33 Bruno Zeller, *Systems of Carbon Trading*, 25 Touro L. Rev. 909 (2009).

34 Jillian Button, *Carbon: Commodity or Currency? The Case for an International Carbon Market Based on the Currency Model*, 32 Harv. Envtl. L. Rev. 571 (2008).

35 Melita Carevic, *Carbon Leakage in the EU in the Light of the Paris Climate Agreement*, 11 Croatian Y.B. Eur. L. & Pol'y 47 (2015).

designs also stands as a positive arrangement from the perspective of economic efficiency. Another reason to promote linking of markets is to do away with the idea offsetting. An overview of the prevailing emission trading systems portrays that 'offsetting' of pollution becomes counter-intuitive in reducing in global emission levels. It is undisputed that offsetting permits a country to pollute beyond established limits by purchasing additional permits because the environmental gain does take place, only in another country[36]. But since countries' trading might not necessarily have a degree of geographical nexus, this might lead to the possibility of carbon hotspots where emission levels are extremely high in one nation and low in another. Thus, the best instrument through which the heterogeneity in markets can be overcome and the behaviour of major emitters can be regulated is through a uniform pricing system.

The Paris Agreement and regimes preceding it, contemplated the resort to carbon market mechanisms and technologies never before developed. This being said, the fact that markets are driven by economic logic and not socio-environmental concerns requires attention because incidents from existing systems have shown that market failures are inevitable. Such failures can only be resolved through non-market approaches. If such non-market approaches are made mandatory, then the failure of carbon markets would be rectified by the benefits derived from non-market approaches. For instance, in the situation where the carbon market results in offsetting pollution by creating carbon hotspots elsewhere, the

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36 *See* Street, *supra* note 17, at 262.

regulatory hands of non-market measures plays a vital role. Therefore, a rather viable solution which may be considered as a complementary factor in making carbon markets more effective and feasible is to employ regulatory, non- market approaches.

PRICING POLICIES TO EFFECTUATE CARBON TRADING

It is an established fact that heterogeneity in markets is a pervasive and unavoidable factor. Taking due regard of this inherent problem, the best method of narrowing down heterogenous standards is through pricing policies. The 'Carbon Price' has emerged to be one of the key concepts of the economics of climate change[37]. It provides a natural way to understand the stringency of mitigation programmes across jurisdictions[38]. A price is attached to every emission of carbon dioxide that is equivalent to the social cost of such emission. This measures the present value of additional social and economic damage that is preempted to occur in the future. Attaching such a positive price to a public good prevents free riding. However, the need for uniformity or harmonized prices arises because the prices set across different markets may be too low to achieve the overall target or too high to incentivize participation. On the contrary, administering a blanket carbon price would also render the free market mechanism to be redundant. Hence, the best possible method of ensuring this price uniformity is by creating benchmarks through price ceilings and price floors.

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37 *See* Nordhause, *supra* note 5, at 19.

38 ROBERT N. STAVINS & ROBERT C. STOWE, MARKET MECHANISMS AND THE PARIS AGREEMENT, 31 (Harvard Solutions on Climate Change 2017).

A price floor would reflect the minimum carbon price, below which no trade shall be permitted. Considering the fact that the aim at present – as laid down by the Paris Agreement – is to maintain the global temperature level to 2 degree Celsius, the minimum price shall be determined accordingly. The carbon price shall be based on two criteria: *first*, it shall reflect the total social cost of every incremental ton of carbon emission and *secondly*, the global cost-effective attainment of the 2 degree Celsius limit. Such a price floor would prevent countries from manipulating the market devices of demand and supply to set the carbon price so low that the effect of the price on reducing pollution would be negligible or even futile. The implementation of the price floor will be vested with a central authority – in case of the Paris Agreement, the Central Monitoring Authority. When prices are driven below the minimum limit, the central authority will buy back or retire the allowances, thus bringing a stability in price. Similarly, setting a 'price ceiling' sets the maximum price at which allowances will be sold[39]. This acts as a safety valve in limiting the potential for prices to escalate in times of intense power need or growth. Such a ceiling would come into play when the prices rise beyond a particular threshold making it necessary for a central authority to issue incremental allowances. This gives leeway in exceptional circumstances when the cap set by a particular market is a 'hard cap'[40]. Thus, by setting a minimum and maximum threshold, the flexibility of market mechanisms guarantees that economic development through healthy trade is not hampered. At the same

[39] *See* Feinberg, *supra* note 22, at 64.
[40] *See* Stavins & Stowe, *supra* note 39, at 28.

time, it ensures that no particular country manipulates the flexibility of these market tools to distort a collective goal of environmental sustainability.

Another suggestion that has heightened the discourse on the efficiency of 'cap and trade' is a hybrid approach between emission trading and carbon taxation. The hybrid approach contemplates an amalgamation of the strengths of carbon taxation and carbon trading. It prescribes for supplementing the quantitative approach under trading schemes with a non-linear tax that is a function of environmental and economic variables.[41] In effect, it will compel countries operating under an unfair trade advantage by not undertaking mitigation plans and avoiding cost of pollution to reduce their emission levels. For instance, in a global political scenario, the United States of America– who have backed out of the Paris Agreement – can be compelled to indirectly turn to greener sources by subjecting its imports to tariffs which is inclusive of carbon-pollution tax. This policy stands effective by reducing price volatility and mitigating incentives for corruption. However, the scope of its implementation has not been reflected in any international convention till date and remains only a technique, that stands good in practice. Thus, an overview of these proposals throws light on the fact that a controlled regulatory framework is essential in delivering the effectiveness of market based systems to tackle the global dilemma of climate change mitigation.

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41 *See* Stavins & Stowe, *supra* note 39, at 135.

CONCLUSION

Human induced climate change is a negative externality which cannot be resolved through individual action alone. Climate, as a public good with trans-boundary characteristics, efficient outcomes with respect to its regulation can only be achieved through regimes which facilitate collective action. The climate change regime in the present scenario is functionally sound in terms of defining participants and assigning roles[42]. Additionally, the framework established under the Paris Agreement has unquestionably generated momentum to advance the issue by engaging an including even reluctant parties in negotiations. Nevertheless, it is not without controversy and significant weaknesses. The Paris Agreement attempted to fill the lacunae in the Kyoto Protocol in terms of linking systems. Under the Kyoto Protocol's template that provided for a separation of international commitments and domestic actions, parties were not obliged to link their reduction goals as the reduction targets by themselves were different. But the tryst for global action has motivated the world community to formulate a more transparent, efficient and cost-effective skeleton, the implementation of which still remains debatable.

On one hand, the institutional apparatus for addressing issues of pollution between nations is meagre[43]. International law being soft law lacks compelling force mandating the complete participation of

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42 DIETER HELM AND CAMERON HEPBURN. THE ECONOMICS AND POLICTICS OF CLIMATE CHANGE, 434 (Oxford University press 2011).

43 id. at 278.

each and every nation. Countries such as the United States of America opt out of positive actions simply because climate change is believed to be a hoax and to subject domestic economies to international environmental standards would render them 'rule takers' a cost they do not desire. In the midst of such reluctance, where the hands of law are tied, it only becomes imperative to employ the free hand of economic markets which will invariably drive such nations to undertake climate change mitigation strategies. While on the other hand, the drastic common goals set out in the 2015 accord take into account the individual capacities of each country, despite the risk of uncertainty of the voluntary mitigation actions that are undertaken. The erstwhile regimes applied the polluter pay principle that obligated the nations with highest emission levels to engage in affirmative action. A similar approach would be required to address the problem of accountability.

Carbon markets and emission trading systems in particular have proven to be environmentally the most cost-effective, yet their success rate has been impaired as a consequence of high carbon price volatility. The best way to overcome this minor glitch in the system is by employing standardisation in price through accurately calculated price ceilings and floor prices along with harmonized carbon taxes. The alternative model suggested in this paper is that of a hybrid approach, which is inclusive of the existing carbon taxes and the cap-and-trade mechanisms. In effect, the emerging outcome will enable unperturbed trade without jeopardizing the environment. A pre-determined ambit of price for all nations promises long term

certainty to actors allowing them to invest and adjust their behaviour without the fear of being disadvantaged. Furthermore the gap between emission levels of various nations will diminish thereby doing away with the possibility of creating pollution hotspots through offsets which is a significant drawback in existing trading systems.

Finally, going on the assumption that climate change does in fact exist and is indeed a serious threat, the opinions of critics who view that securing a mere 2 degree Celsius temperature limit if futile, gives way for deliberations. The goal of mitigating climate change will only manifest if the focus of actions is not the reduction in the *emission* of greenhouse gases but reduction in the *concentration* of greenhouse gases in the atmosphere. Thus, in addition to the goals set out in the Paris Agreement, what nations can gradually strive to achieve on national levels are positive measures that improve the quality of air. The Paris Agreement alone is not sufficient to tackle climate change which poses as a matter of international urgency. Affirmative actions like improving afforestation projects through climate sequestration projects and directing focus to R&D on technology that not only reduce carbon emissions but improve quality control. Additional action at both the domestic and international level is imperative to ensure that the objectives of achieving long term decarbonisation may be met with.

Thus, it can be concluded that carbon markets have proven to be a guiding mechanism to successfully address environmental problems but can be at their most efficient through the regulation of said markets with carbon prices at the focal point.

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