

CONTEMPORARY ENVIRONMENTAL CONCERNS

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MULTI- DISCIPLINARY ASPECTS OF ENVIRONMENTAL LAW



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RAJIV GANDHI NATIONAL UNIVERSITY OF LAW, PUNJAB

CONTEMPORARY ENVIRONMENTAL CONCERNS

**MULTI-DISCIPLINARY ASPECTS OF
ENVIRONMENTAL LAW**

VOLUME - I

2020

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FOREWORD

The idea to embark on this journey arose out of a discussion with the student-editors about the relative lack of academic writings and discourse upon the legal aspects of environment protection, and the urgent need to address the shortfall. Thus, we resolved to contribute to remedy the situation and, in furtherance, invited research articles on select topics of contemporary significance from academicians, professionals and students from across the country. We were, frankly, overwhelmed by the encouraging response received from across the spectrum. Notably, the articles which came in were by a diverse group of people, each article encapsulating the varied opinions of their author(s), textured by their unique personal and professional experiences.

Thus, began the rigorous three-tiered editorial process, beginning with the summary review of form and moving toward the review of content. Shortlisted articles were screened through a blind peer-review process by eminent academicians with expertise in environmental law and policy. The selected articles were made to undergo suggested modifications and were edited to make them coherent, cogent and concise, so as to ensure that the volume is easily comprehensible to a wide range of readers, irrespective of their pre-existing knowledge of law and the legal field.

It is pertinent here to extend my gratitude to Prof. (Dr.) Paramjit S. Jaswal, worthy Vice-Chancellor of RGNUL, Punjab and Prof. (Dr.) Naresh Kumar Vats, honourable Registrar of RGNUL, Punjab, whose guidance and whole-hearted support has made the publication of this edited-volume possible. We are also deeply indebted to the members of the Peer Review Board, whose selfless effort and contribution to this endeavour is heart-warming and is testament to their dedication toward environment protection and the progress of jurisprudence in the field.

Last but not the least, I would like to commend the dedicated effort put in by the Student-Editors, who took time out of their myriad curricular and extra-curricular engagements, so as to assist in the long and tedious process of compiling, editing and publishing this volume.

It is my pleasure to present to you, 'Multi- Disciplinary Aspects of Environmental Law', an edited-volume which touches upon several crucial enviro-legal issues of contemporary importance, ranging from the role of technology and intellectual

property laws in environmental conservation to that of corporates, and extending to complex social issues involved in the implementation of environmental law and policy. I am certain that this volume will be well-received by the readers and will play an important role in encouraging discourse and developing jurisprudence to meet the larger environmental challenges faced collectively by humanity.

Dr. Renuka Soni
Faculty Editor
Centre for Environmental Legal Studies,
RGNUL, Punjab

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TECHNOLOGY TRANSFER AND CLIMATE CHANGE – MAPPING THE PATH FORWARD

Anubhab Sarkar and Pallavi Khanna***

Over the years, climate change has become one of the foremost issues facing humankind, which has demanded urgent attention. However, climate change is not a phenomenon which can be understood or dealt with in isolation, and a multi-dimensional approach is required to understand its causes, its implications and to develop means and measures which may help humanity to effectively prevent adverse, often irreversible, changes to the environment. This article, after forwarding a brief background to the issue of climate change, proceeds to analyze the 'North-South Divide', i.e. the difference in approach toward climate change between the developed countries vis-à-vis the lesser developed or developing countries. The authors put specific stress on the role which technology transfer has played in tackling environmental issues, while also highlighting its untapped potential. The article proceeds to forward a nuanced understanding of the concerns of different groups with regard to technology transfer, while also highlighting the various impediments to free flow of technology, including intellectual property rights and financial or investment barriers to technology transfer. The authors conclude with remarks and recommendations aimed at promoting technology transfer and ensuring that its potential as a measure to tackle climate change and its adverse effects is efficiently utilized.

1. Introduction

Climate change is no stranger to us and has been a rising factor of worry, especially over the last few decades. The term “climate change” was initially proposed by the World Meteorological Organisation (‘WMO’) in 1966 and it was then decided that the scope of the term would be inclusive of all forms of climatic variability. A few years later, the term adopted the meaning as we know it now, including the effects of anthropogenic causes in altering the climate. In simpler words, it had become clear that human activities had the potential to drastically alter the climate. This led to the term being incorporated into the titles of the Intergovernmental Panel on Climate Change (‘IPCC’) as well as the United Nations Framework Convention on Climate Change (‘UNFCCC’); the foremost global authorities on the subject.

* Anubhab Sarkar, Partner, Triumvir Law, Bangalore.

** Pallavi Khanna, Law Researcher, Delhi High Court.

The impact of climate change is an encompassing factor, as it touches our life in all sectors of living. These impacts pose a larger threat than perceived by many, raising concerns to the levels of securitisation and affecting mankind and society as a whole. Thus, there has been a growing need to take efforts in tackling this global crisis, despite there being some parties unwilling to acknowledge this as a threat.

“Technology transfer”, another term generating from theories of economic development devised in the late 1960s, has been at the forefront over the past few decades as the most effective solution in battling climate change. The UNFCCC had adopted IPCC’s definition of the term, i.e. “a broad set of processes covering the flows of know-how, experience, and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector enterprises, financial institutions, NGOs (non-governmental organisations) and research/education institutions”.¹ Thus, technology transfer essentially refers to the spread of technologies as well as technology cooperation across countries. This concept also foresees the capacity of countries to adopt this technology, adapt it as per their local needs and also integrate it with their own indigenous methodologies.²

The concept of technology transfer in relation to climate change has its foundations in Article 4.5 of the 1992 UNFCCC Framework, through which the developed countries gave a commitment to take steps for promoting the transfer and access of climate friendly technologies to the developing countries and for assisting them in improving their endogenous capacities. The transfer doesn’t merely imply sale or lease but also includes the transfer of knowledge as well as the right to use and develop these technologies.³

Under the UNFCCC, the 15th Conference of Parties (‘COP 15’) in 2010 established a *Technology Mechanism* (‘TEM’) that would consist of a Technology Executive Committee (‘TEC’) and a Climate Technology Centre (‘CTCN’) in order to promote development and transfer of climate technology. Subsequently, the CTCN was instituted as an implementation

¹ Brianna Craft, Karma Tshering, Fred Machulu Onduri and Stella Funsani Gama, *Considerations for the post-2020 international response to climate change*, LEAST DEVELOPED COUNTRIES, November, 2015, ldclimate.files.wordpress.com/2012/05/tech-development-and-transfer-and-the-future-climate-regime.pdf.

² Mark Radka, *Technology Transfer and the UN Framework Convention on Climate Change*, UNEP, www2.uef.fi/documents/1508025/1508030/28_Radka.pdf/179bfb6-c25b-4f55-a8cb-803ed492e553.

³ *Climate Change & Technology transfer: addressing intellectual property issues*, THIRD WORLD NETWORK, www.twn.my/title2/climate/pdf/TWN_submission_to_TECfinal.pdf.

arm with the hope that through cooperation between the regional units, the private and public enterprises and the research institutions, environmentally efficient technologies could be developed.⁴ The objective of CTCN is to give technical assistance to developing countries, enhance access to climate technology and promote dialogue between the technology stakeholders. On the other hand, the TEC is the TEM's policy wing which analyses policy concerns and gives recommendations for strengthening the climate technology efforts.⁵

The TEM seeks to ensure that the efforts for mitigation are put in action, that technology requirements are assessed on the basis of national conditions and priorities, and that all these steps are in line with the international obligations. The TEM, though a bold measure to tackle climate issues, can further be strengthened by cooperation in research and development ('R&D'), instituting an expert body for overseeing a global network on climate technology and providing a linkage between finance and technology.⁶ To that end, even the Paris Agreement discusses the goal of realising technology transfer for furthering the resilience to environment change and reduction of Greenhouse Gas ('GHG') emissions. Under Article 10 of the Paris Agreement, reference has been made to the Technology Framework set up under the UNFCCC that seeks to provide guidance to TEM in promoting technology development.⁷

Now that the subject in general, including its biggest concern and its most plausible combatant have been elaborated, a fair idea of what this chapter deals with can be inferred. In order to make the subject under consideration more comprehensible to the reader, the authors have attempted to break down the chapter into segments covering the different issues involved. After giving a brief background into the issue of climate change, as discussed above, the

⁴ *What we do*, CLIMATE TECHNOLOGY CENTRE & NETWORK, June 1, 2015, www.ctcn.org/about-ctcn/what-we-do.

⁵ *What is technology development and transfer?*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, unfccc.int/index.php/topics/climate-technology/the-big-picture/what-is-technology-development-and-transfer.

⁶ *How to harness the power of technology in the Paris climate deal and beyond?*, INTERNATIONAL CENTRE FOR TRADE AND SUSTAINABLE DEVELOPMENT, December 1, 2015, www.ictsd.org/bridges-news/biores/news/how-to-harness-the-power-of-technology-in-the-paris-climate-deal-and-beyond.

⁷ *Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, January 29, 2016, www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/FCCC_CP_2015_10_Add.1.pdf.

authors touch upon the primary source of disagreement, i.e. the divide between the North (Developed Nations) and South (Developing and Lesser Developed Countries) that is prevalent in all discussions in the international forum, especially climate change. This section sets the tone for a more nuanced understanding of the concerns by different groups relating to technology transfer. This is followed by a detailed analysis of the different barriers that restrict the development and transfer of technology, with a particular focus on the Intellectual Property Rights ('IPRs') and the Finance/Investment related barriers. While discussing the problems at hand, the authors have also highlighted the effective ways to deal with them. Subsequently, the debate is concisely concluded with some suggestions and recommendations that could be explored to help tackling these issues.

2. The Divide in Development

When the UNFCCC was established in 1992, it had already included provisions for achieving action on climate change. Under the UNFCCC, the parties are required to collaborate in the transfer and development of technology for reducing GHGs and facilitate the transfer of the clean technologies from the developed to the developing countries.⁸ The Bali Discussion in 2007 set forth a map to make technology development and transfer another pillar in the effort dealing with the issue of climate change.⁹ The provision of transfer in a measurable, reportable and verifiable manner implied that the developing countries will not give any commitment for reducing GHG emissions in the absence of reciprocity by the developed countries in providing the technological assistance required for reducing these emissions and to promote economic growth in a climate friendly manner.¹⁰

It is important to understand that the UNFCCC technology framework primarily outlines 5 key aspects for technology transfer to the developing countries - technology needs assessment, information, capacity building, facilitation of support to technology cooperation and transfer. Therefore, the effectiveness of technology transfer thus depends on knowledge sharing, technology adaptation as per local needs, domestic capacities, investment in

⁸ *Supra* note 6.

⁹ John. H. Barton, *Mitigating Climate Change Through Technology Transfer: Addressing the needs of Developing Countries*, October, 2008, www.chathamhouse.org/sites/default/files/public/Research/Energy,%20Environment%20and%20Development/1008barton.pdf.

¹⁰ United Nations Framework Convention on Climate Change, Article 4.7.

technology and institutional development, and even through technology partnerships that foster innovation and market access.¹¹

However, the primary disagreement in the debate of technology transfer is between the sharers and those at the receiving end, i.e. the developed and the developing countries. Research shows that for taking up technology effectively, a number of local capabilities are needed. Hence, though it is a major concern for the developing nations, it does not garner that much focus in the developed countries. This causes a rift in the debate between the north and the south in the climate talks and creates hurdles in devising a feasible way forward.¹²

The blame game between the developed and the developing countries does not stop when it comes to emissions either. Though, historically, the developed nations were asked to bear the liability for emissions, some have suggested that the future of emissions is in fact in the hand of the developing countries and that the mitigation techniques will be more impactful in the context of the developing economies.¹³ Pursuant to these concerns, the developing countries have started developing technology action plans in furtherance of the technology needs assessments so that their technology needs can be addressed priority-wise.¹⁴

The recent trends reflect that the popularity of adaptation technologies is increasing, which are location and activity specific and have a potential of generating economic development vide exports from the developing countries.¹⁵ Research shows that in the developing economies, a climate change policy will be more accepted if it focused and prioritizes local concerns, economic and environmental, rather than debating on the common global environments. However, if we influence the perception of new technologies by citizens, we can overcome the local resistance to technology diffusion.¹⁶

Though some technology processes are cheap, others may require subsidies and a liberal regulatory environment. This may be attributed to the R&D

¹¹ *Climate Change: Technology Development and Technology Transfer*, UNITED NATIONS DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS, November 8, 2008, sustainabledevelopment.un.org/content/documents/1465back_paper.pdf.

¹² *Supra* note 7.

¹³ Muthukumara Mani, *Trade and Technology Transfer in Climate Change Context*, 24-25, 2009, www.wto.org/english/tratop_e/envir_e/wksp_goods_sept09_e/mani_e.pdf.

¹⁴ *Supra* note 6.

¹⁵ Kenneth Markowitz, *Technology Transfer: A Pillar of Climate Change Solutions*, AKIN GUMP STRAUSS HAUER & FELD LLP, November 5, 2007, www.akingump.com/images/content/4/8/v4/4832/Climate-Article-K-Markowitz-Technology-Transfer-Nov-20.pdf.

¹⁶ Tim Forsyth, *Promoting the "development dividend" of climate technology transfer: can cross-sector partnerships help?*, LSE RESEARCH ONLINE, May, 2008, pdfs.semanticscholar.org/22f4/b661866ea79610c00aed93e4ea592ce90688.pdf.

needed to make it economically attractive in the market. One of the propositions that have been made is that the developing nations should be subsidised for the actual technology costs since the developed world is in a position to bear the cost of research. The developed world has been pushed to consider bearing the incremental costs of adoption of GHG reducing technology to bring it to the same economic level as other technologies.¹⁷

In addition to the above, another way to accelerate clean technology diffusion would be to reduce tariff barriers on goods and services that are less carbon intensive, and this would also result in trade liberalisation. However, the developing countries err on the side of caution and are not enthusiastic to merge the trade and climate discussion since they fear that the developed countries would promote their climate agendas using the trade regime to compromise the interest of the developing nations. The developing countries can, in fact, benefit by producing and exporting these technologies. These developing nations also have weak IPRs and investment regimes along with inadequate local adaptability of technology which causes deterrence in foreign direct investment ('FDI'). To ensure there is assimilation of climate technologies in such countries, it is extremely pertinent to streamline the IPR regimes as well as the investment policies domestically. Some solutions to overcome the IPR barriers in such economies are patent buyouts, tariff reduction, global clean energy fund, transferring technologies to the public domain, short term licensing schemes, etc.¹⁸

The South-South cooperation also has an increased scope, in light of the greater economic cooperation within the South and due to the financial instability in the North. The political environment is more conducive for technology transfer within the South. Given the vulnerability of the South to the issue of climate change, the technology transfer can enable the nations in the South to further their opportunities for improving adaptive capacities to climate change and also enhance the social and developmental advantages linked to these adaptation measures. Having greater cooperation within the South will also enhance access to a wider range of technologies and expertise.¹⁹

¹⁷ *Supra* note 10.

¹⁸ Muthukumara Mani, *Technology Transfer in the Climate Context: Who is responsible?*, THE WORLD BANK BLOGS, June 29, 2009, blogs.worldbank.org/climatechange/technology-transfer-climate-context-who-responsible.

¹⁹ *Supra* note 16.

3. Hurdles Faced in Technology Transfers Across Nations

Currently, the means for transfer of climate technology comprise Clean Development Mechanisms ('CDM'), Expert Group on Technology Transfer ('EGTT'), Overseas Development Assistance ('ODA'), FDI, Licensing and Trade, etc. However, there are limitations to these as well. The inefficient approval mechanisms, the amateur carbon markets and the disproportionate access in the developing countries often create hurdles in the path of CDM. FDI and ODA are also affected by externalities such as the size of the economy, market scale, existing infrastructure, IPRs and political governance. When it comes to licensing, the IPR and investment environment, unequal bargaining power and insufficient manufacturing capacities of domestic entities poses problems. Trade is also affected by the high tariffs and inadequate policies for market creation.²⁰

Research studies show that the familiarity of lesser developed countries with the Technology Mechanism is significantly low. However, this can be solved by better flow of information in this sector and even by guidance in translating documents.²¹ The CDM serves as a means for transferring technologies and knowledge to the economies going through transition and the developing nations. The common criticisms of CDM have been that large-scale projects are limited in number and the participation of the public sector is low. However, CDM has been successful as a risk mitigating mechanism since the revenue generated serves as a comfort for entrepreneurs seeking to upgrade technology.²²

Given the lack of measures to reform CDM, in order to combat GHG emissions, traditional routes of trade and investment of technology transfer will have to be explored. Apart from an increase in spending for adoption of clean technologies, innovative measures in addition to traditional R&D are the need of the hour. Carbon pricing is another key requirement for incentivising private entities to act for clean energy technologies.²³

Barriers such as inadequate IPR protection, insufficient institutional capacity, cumbersome bureaucratic hurdles, and vague dispute resolution measures create legal hurdles in introducing climate sensitive technologies, especially when

²⁰ *Supra* note 13.

²¹ Brianna Craft, *Supporting Least Developed Countries on climate technology transfer*, INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT, April 4, 2018, www.iied.org/supporting-least-developed-countries-climate-technology-transfer.

²² Purnamita Dasgupta & Nisha Taneja, *Trade, Technology Transfer and Climate Change*, ECONOMIC AND POLITICAL WEEKLY, June 20, 2018, www.jstor.org/stable/25664012?seq=1#page_scan_tab_contents.

²³ *Supra* note 17.

accompanied with political instability and government intervention in the domestic markets, in the absence of coordinated policies. Technological challenges such as inadequate infrastructure, limited R&D, and lack of technical support make this worse. In the developing economies, there are other economic hindrances (like lack of transparency in the market, high cost of renewable energy technology, trade barriers and subsidies) along with the paucity of information, restricted access to finances and cultural biases as well.²⁴

One of the flaws in the idea of technology transfer is that we assume that all the required technology is already in place and also ready for transfer. However, this is only partially true since the developed countries are in the process of innovation and experimentation even now. Thus, by diverting our ambition from technology transfer to collaboration, the climate technology investments from the private sector will be able to meet the market demand created by the public sector.²⁵

4. Concerns of Intellectual Property Rights in Climate Technologies

As discussed above, the lack of incentives, high tariffs, and unfriendly IPR regimes have reduced the interest of investors in the private sectors. In the green technology debate, IPR forms one of the foremost concerns when it comes to doing business in the developing nations. This is because companies are not eager to establish projects and transfer technology to a country where there is a high probability of their products being copied and being sold for lesser money by local bodies. The World Trade Organisation ('WTO') Agreement on the Trade-Related Aspects of Intellectual Property Rights ('TRIPS') seeks to strengthen the IPR protection amongst its signatories. However, in the absence of penalties to deter non-compliance, this remains a challenge and only reduced trade barriers can sustain growth of market opportunities.²⁶

There are a high number of patents on climate technologies and this will increase with more funding for research. Patent ownership trends reflect that the distribution of patents is highly in favour of developed economies. This raises concerns of whether the developing economies will be obstructed in their access to affordable climate technologies and know-how for adaptation locally. What is

²⁴ *Promoting the Transfer and Development of Climate-Smart Technologies*, UNITED NATIONS ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC, www.unescap.org/sites/default/files/15-PAR~1.PDF.

²⁵ Cath Bremner, *Technology transfer to developing countries is an impossible dream*, THE GUARDIAN, December 9, 2009, www.theguardian.com/environment/cif-green/2009/dec/09/technology-transfer.

²⁶ *Supra* note 15.

needed is a mechanism to cover excessive costs so that developing countries are offered a low price for availing these technologies, and also creating more means of financing R&D for the manufacture of more such technologies. Patents create hurdles since it allows the patent owner to prevent third parties from using their invention and to dictate the terms of licensing, which means that they end up charging monopolistic prices and high royalties, or may indulge in anti-competitive tactics by refusing licenses to competitive parties or and by threatening litigation. Even when the technologies are licensed to the developing nations, it is usually to the emerging economies such as China. Moreover, the licensees may still not be given the liberty to use and adapt the technology as per their requirements. Thus, as a study by The Energy and Resources Institute ('TERI') concluded, in case the patent controls lie with a few dominant players, it creates monopolistic environment with the diffusion of knowledge being limited because of restricted access and exorbitant pricing of green technologies.²⁷

While the developed countries opine that IPR is imperative for the development of climate technologies and weak IPR protection is a barrier to technology development, the same is opposed by the developing countries who identify the existence of IPR as a hindrance to accessing technology. In fact, a United Nations Industrial Development Organization ('UNIDO') study confirms that strong IPR regimes at the initial development stages of an economy actually act as limitations on technology transfer rather than as facilitators.²⁸

Evidence shows that stringent IPR protections do not facilitate greater technology transfer. Moreover, the TRIPS failed to promote technology access to the least developed countries and the North-South divide, in this case, continues. Thus, the TRIPS alone cannot enhance the spread of climate technology and it is crucial to implement the "Common but Differentiated Responsibility" principle for technology development, whereunder the responsibility of nations for promoting development differ as per their socio-economic development. Since the developed nations are the major source of GHGs, their responsibility is higher than that of the developing nations whose contributions to emissions are much lesser in comparison.²⁹

²⁷ *Supra note 3.*

²⁸ Nitya Nanda & Nidhi Srivastava, *Facilitating Technology Transfer for Climate Change Mitigation and Adaptation*, TERI, November, 2011, www.teriin.org/eventdocs/files/CoP17/Facilitating_Tech_Transfer.pdf.

²⁹ K. Ravi. Srinivas, *Climate Change, Technology Transfer and Intellectual Property Rights*, RESEARCH AND INFORMATION SYSTEM, www.ris.org.in/climate-change-technology-transfer-and-intellectual-property-rights.

Perhaps one of the most contentious issues in the UNFCCC negotiations for technology transfer is that of compulsory licensing. When the government allows the manufacture, use, sale and trade of a patented product or process without mandating the consent of the patent owner in cases where this consent would be needed otherwise, it is called compulsory licensing.³⁰ Developing countries like India and China have vocalised their concerns of expanding compulsory licensing to clean technologies as well. However, the US has opposed this on the ground that such a step will discourage innovation. Alternatively, they suggest the reduction of transaction costs arising from technology transfer as an incentive to boosting the development of green technology.³¹ Thus, the real effect of compulsory licensing is yet to be realised in climate technology and looking at the increasing number of markets turning climate friendly, it is expected to happen sooner than expected.

5. Finance and Investment Related Trade Barriers

The introduction, diffusion and adaptation of technology requires considerable investment, making financing a crucial element in technology transfer. Financing is harder to obtain in the initial phases of technology transfer. Public finance is done through direct government funding, official development assistance as well as multilateral lending.³²

The investment in relation to technology transfer is required for increasing the efficient conversion of energy and the improved demand and supply also contribute to the reduction of GHG emissions. The gaps in the least developed countries can be filled by innovation, adoption, diffusion and adaptation of technologies. Though barriers to clean technology are country specific, there are international trade barriers such as IPRs as well. However, the most popular concern in the developing countries is that of financial constraints, as outlined in the technology needs assessments. This is because of shortage of capital in the developing nations, where the financial sectors are still underdeveloped and the investment environment is not hospitable. The high cost of the existing technologies and the lack of information on the availability of green technologies continue to be the main weakness in the developing

³⁰ *Supra* note 28.

³¹ Tessa J. Schwartz and Sarah Tierney Niyogi, *The Issues of Tech Transfer and Intellectual Property in Climate Change Solutions*, GREENBIZ, December 18, 2009, www.greenbiz.com/blog/2009/12/17/issues-tech-transfer-and-intellectual-property-climate-change-solutions.

³² *Methodological and Technological Issues in Technology Transfer*, IPCC, www.ipcc.ch/ipccreports/sres/tectran/index.php?idp=94.

nations.³³

The Global Environment Fund ('GEF') has been provided with a mandate from the UNFCCC to finance the transfer of Environmentally Sound Technologies, and has grown into the largest source that generates funding from the public-sector. These technologies, comparatively, have the potential for significantly improved environmental performance. They include know-how, goods and services, and equipment, as well as organizational and managerial procedures.³⁴

Further, it is imperative to understand that technology development needs investment from both the public and the private sector. Public sector research stimulated development of some crucial technologies and will play a similar role in transitioning to low carbon technologies. Most of the climate sensitive technologies have been created with the explicit support of the government through a number of means such as R&D grants, tax incentives, favourable regulations, etc. The large extent of public sector involvement gives the government leverage to diffuse these technologies further in public interest. However, this also increases national competitiveness, which becomes a problem for the developing countries seeking access to the same. However, the government's participation helps in shaping the global agreements in the direction of technological cooperation.³⁵

The private sector has only a limited engagement in this field, as of now. The role of the private sector needs to be enhanced as public financing can only lead to a minimal share in the total investment. This can be done if there are policies that make resources affordable and accessible to entrepreneurs who can operate in a competitive market with improved capacities. Hence, with the requisite infrastructure, economic stability, skilled workforce and ease of financing, the involvement of private sector can be stimulated. Additionally, if the government takes steps for developing and regulating energy, increasing transparency in investments, giving access to subsidised green funds, providing incentives for R&D, enforcing the IPR regime, taxing energy intensive technology, etc., the commitment to climate technology will strengthen.³⁶

For the developing countries, ODA is still a significant source of financing,

³³ *Supra* note 12.

³⁴ *Technology Transfer*, Global Environment Facility, December 8, 2017, www.thegef.org/topics/technology-transfer.

³⁵ *Supra* note 12.

³⁶ *Supra* note 13.

although trade support through export credits may be biased against climate technologies. There must be institutional coherence so that there are streamlined international finance policies amongst donor nations. To that end, there is a shift in the trend from the public to the private sector, with the private sector recognising the importance of climate change. The government can enhance participation of private entities through innovations in different kinds of financing, like micro credit. To overcome the barriers of information, technology intermediaries can help in stimulating financing schemes that address capability and institutional weaknesses. In this aspect, energy service companies and technology transfer agencies can increase the feasibility of engaging in competitive practices by decreasing the costs of energy consumption.³⁷

In order to address cost considerations, subsidies and tariffs can help in adoption. We can also set up centres for innovation which are based on public private partnerships between the North and South where public funds are employed for private investment leveraging. Moreover, donor funding can be deployed as a means of public financing.³⁸

However, it is important to note that finance itself is not an effective solution. In the developing countries, the readiness for generating demand and the capacity for absorbing investment is often missing. Instituting adequate support in the form of firm policy trajectories and legislative reforms, investment strategies and assessment of potential of resources, initiatives to promote climate resilience, etc. are crucial.³⁹ Investment in renewable energy projects in the developing nations, in the form of solar electrifications, wind farms, energy efficient chillers, etc., and setting aside of funds for climate investment will reflect the countries' commitment to climate change technology.⁴⁰

6. Conclusion and Recommendations

In order to create a more enabling environment for addressing the barriers to the development and transfer of technology, one of the options is of technology pooling through collective efforts, globally. Secondly, greater cooperation for regulation of monopolistic or restrictive practices in patent licensing is needed.

³⁷ *Supra* note 31.

³⁸ *Supra* note 12.

³⁹ *Supra* note 2.

⁴⁰ *Supra* note 13.

Thirdly, greater funding for R&D will facilitate greater access for climate technologies. Fourthly, in addition to the TRIPS agreement, we also need a declaration solely on IPRs and Climate Technologies to make the developing countries less hesitant in fully utilising technologies and also for promoting export to other countries.⁴¹

Another key aspect that should be looked at is investment. Access must be improved to finance, with the focus on venture capital. The lack of access to finance is a barrier with significant international and national political implications. There can be no “one size fits all” approach, especially in the developing countries facing constraints on public expenditure. Thus, suitably designed economy-wide and market transformation incentives are needed at the national level to attract finance.⁴² Transparency and accountability are key to building trust and to improving the effectiveness of international financial support over time. The international community should work together to ensure improvement upon the existing multilateral systems and institutions that are responsible for measurement, reporting and verification in both developed and developing countries.⁴³

The debate about green technology will be successful if the climate policies are integrated and aligned with the broader policies, there are proper regulations, taxes, permits and incentives, and there is investment in R&D. A sustainable transfer of technology would need economic stability, the participation of social groups, initiative by the national centres for innovation, institutional capacity building for furthering IPR protection and mitigating risk, cooperation in R&D and well framed standards.⁴⁴ We recommend that having regional action plans that are sensitive to local circumstances, costs and capacity, focussing on R&D, extending financial benefits such as subsidies and tax benefits in case of technology transfer, etc. will be able to solve the issue of climate technologies in developing nations.⁴⁵

Efforts to move towards a low carbon climate future are critically dependent, for their success, on the availability and use of the climate technologies across all countries and sectors. While the TEM envisages enhanced actions for

⁴¹ *Supra* note 3.

⁴² *Supra* note 23.

⁴³ *Financing Climate Change Action and Boosting Technology Change*, ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, March 10, 2011, www.oecd.org/env/cc/46534686.pdf.

⁴⁴ *Supra* note 2.

⁴⁵ *Supra* note 32.

cooperation in this regard, there exist several issues and questions. Implications of technology cooperation need to be examined at the international, regional and national levels.⁴⁶

We can conclude that the need of the hour is the actual investment in new facilities and adoption of energy efficient technologies in the developing world. This can be possible with the help of subsidies and structured regulatory incentives. In the light of the differences between the industries in terms of the progress at climate change, sectoral agreements will help in bridging the gap between subsidies and international standards. Enabling foreign firms to benefit from research support or by creating a global fund for R&D in GHG reduction is another option to globalise the climate change narrative and reduce the price differentiation between nations.⁴⁷

With the implementation of projects, secured funding, greener industrial production and academic research underway, the potential success of climate technology cannot be undermined. However, the lack of long-term foreseeability leads to vague objectives and outcomes in light of constrained resources and capacity.⁴⁸ There is no urgency shown internationally, or even nationally, when it comes to climate technology. Therefore, we need a revolution in the technology space for dealing with the problem of climate change effectively, and to make the world a better place to live in.

⁴⁶ *Technological Cooperation and Climate Change*, UNDP, September 23, 2011, www.in.undp.org/content/dam/india/docs/technological_cooperation_and_climate_change_update.pdf.

⁴⁷ *Supra* note 10.

⁴⁸ *Supra* note 2.

**ARE CORPORATE SOCIAL RESPONSIBILITY MEASURES
ADEQUATE TO MAKE MNCs RESPONSIBLE FOR THEIR ACTIONS
TOWARDS THE ENVIRONMENT?: A GLOBAL PERSPECTIVE**

*Anuradha Arputham**

Multi-National Corporations (“MNCs”) are able to grow and operate seamlessly across borders only due to their ability to maximise profits, exploit the natural resources and ensure the bare necessary compliance with environmental regulations. Some MNCs have adopted pro-environment Corporate Social Responsibility (“CSR”) measures as a mandatory part of their business operations due to the reduced cost of operation, enhanced public image, lesser governmental interference etc. Yet, the same are not sufficient to ensure that MNCs are responsible towards their duty to prevent environmental degradation. MNCs can be held accountable inter alia through mandatory public reporting of their environmental performance. Eco-Efficiency Concept proposed by the World Business Council for Sustainable Development, Equator Principles, Sector Specific Norms, International Codes of Conduct are some of the brewing concepts. Proactive role of NGOs, legal mechanism, the threat of litigation also plays an important role in ensuring the accountability of MNCs in environmental matters.

Keywords

Corporate Social Responsibility, MNCs, CSR Measures, Environmental Degradation

1. Introduction

With the rapid rise in the number of Multinational Corporations (“MNCs”), there has been a corresponding rise in the exploitation of natural resources, which in turn has led to a rapid deterioration of the environment. Some experts argue that this uncontrolled economic exploitation of natural resources has set us on an irreversible path of environmental degradation with increasing problems such as climate change, erratic weather conditions, rise in sea levels, extinction of rare species etc.¹ It is due to this massive impact on the environment and the resulting effects, that the MNCs are required to play a proactive role towards the environment and ensure that their actions cause the least possible harm to it. In this regard, it is pertinent to analyse whether mere Corporate Social Responsibility (“CSR”) measures are sufficient to hold MNCs accountable for their actions, or are more stringent measures required.

* Anuradha Arputham, Advocate, Supreme Court of India and National Green Tribunal.

¹ Nicholas Stern, The Economics of Climate Change: The Stern Review, 1 Cambridge University Press (2007).

The MNCs play a pivotal role in the socio-economic development of countries, especially in the developing world and many argue that they have a fiduciary duty towards the society.² With increasing industrialisation and globalisation, there has been a steady decline in the public ownership of natural resources in favour of private use. Furthermore, responding positively to environmental concerns is an important external factor. It affects the company's transparency and reputation, and provides an important incentive in influencing decisions. That apart, CSR measures, to protect the environment, can overcome the principle of corporate veil which provides for limited liability for the managers and other decision makers of the company, thereby reducing their personal interest in protecting the environment.³

While some MNCs have adopted CSR measures to play a responsible role in protecting the environment, most of them have continued with the belief that their primary goal is to generate profits for their shareholders and with respect to the environment they are only obliged to follow the law of the land.⁴ Consequently, governments have stepped in and imposed various forms of environmental taxes and levies, to ensure that MNCs are compelled to act positively towards the environment. The revenue collected from such taxes can be pooled together at a national level by the concerned government which can then be used to fund research into new technologies to protect against environmental degradation.⁵ At the same time, some governments are offering tax concessions to companies willing to adopt more environmentally friendly technologies.

Globalisation is adversarial in nature as it requires MNCs to adapt their systems, processes and structures to meet the requirements of the local area in order to cut down costs. Further, the continuous expansion of MNCs from one country to another is based on their ability to exploit poverty, inefficiency and poor legal framework in the developing world. MNCs exploit the natural resources which they consider a free gift that can be appropriated for commercial ends. More importantly, even in the production process, the wastes generated and pollution caused is merely seen as an externality to be accounted for rather than viewing it as

² Thomas P Lyon and John W Maxwell, *Corporate Social Responsibility and the Environment: A Theoretical Perspective*, 1 *Review of Environmental Economics and Policy* (2008).

³ Milad Abdelnabi Salem et al., *Can the Eco- Efficiency Represent Corporate Environmental Performance?*, 1 *International Journal of Humanities and Social Science* (2011).

⁴ Rajesh Makwana, *Multinational Corporations (MNCs): Beyond The Profit Motive, Share The World's Resources* (May 16, 2018), <http://www.sharing.org/information-centre/reports/multinational-corporations-mncs-beyond-profit-motive>.

⁵ Jim Corkery, *A Carbon Tax – Onwards*, *Revenue Law Journal* (2009).

an important business decision for protecting the environment.⁶ Even when some companies realise their responsibility towards the environment, they believe that the costs involved for environmental protection make it prohibitive for them to act. It is this capitalist nature of functioning that discourages MNCs from taking steps for environmental protection.

The right to a clean and healthy environment is universally seen as an essential fundamental right. However, most often, vulnerable and oppressed societies are denied this basic right by MNCs. Environmental degradation is seen as a consequence of industrialisation and economic progress and is often manifested in the form of urban air and water pollution, industrial waste, deforestation, loss of agricultural land and overall destruction of precious natural resources. Even though developing countries have the legal regime to protect the environment, the policies are routinely flouted due to poor enforcement mechanisms, rampant corruption and lack of political will. It is this ineffective and inefficient regulatory regime that has allowed irresponsible corporate practices to flourish.⁷

Given this state of vulnerability, MNCs have a responsibility to ensure that the environmental rights of these communities are not trampled upon and their interests are protected by the company. This is especially important in light of the fact that MNCs play a pivotal role in the economic growth in third world countries. As a result, Governments are actively urging MNCs to play a more inclusive role in preventing pollution and environmental degradation. MNCs are required to adopt more responsible environmental practices, keeping in mind the internationally recognised concepts of polluter pays principle, precautionary principle and sustainable development. MNCs ought to be compelled to act not only in the interest of their shareholders, but also their stakeholders.

2. The Rise of MNCs is Interlinked with increasing Environmental Degradation

The rise of MNCs has been facilitated by the international acceptance of globalisation, which has resulted in reducing trade barriers internationally.⁸ As a result, MNCs have profited considerably and grown in size to such an extent that

⁶ John Bellamy Foster et al., *The Ecological Rift: Capitalism's War on the Earth*, Monthly Review Press (2010).

⁷ Ataur Rahman Belal et al., *Corporate Environmental Responsibility and Accountability: What Chance in Vulnerable Bangladesh? 1 Critical Perspectives On Accounting* (2015).

⁸ Gao Shangquan, *Economic Globalization: Trends, Risks and Risk Prevention*, U.N., (May 14, 2018), http://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2000_1.pdf.

the turnover of some companies like Walmart is greater than the GDP of countries like Pakistan.⁹ One of the main reasons for their rapid growth is the ease with which they have increased the exploitation of natural resources¹⁰ with evidence suggesting that humans presently use around 50% more natural resources than they did 30 years ago.¹¹ It is argued that MNCs have used this increased economic clout and command over resources as a bargaining chip in their relationship with developing countries. Developing countries often adopt less stringent environmental norms in order to attract foreign investment through MNCs, which results in a 'race to the bottom' for environmental regulation.¹²

MNCs also use their powerful position to ensure that they have to follow less stringent environmental regulations in developing countries as opposed to the developed world. Notably, in 2003, it was found in India that Coca-Cola and Pepsi have high pesticide content in their products, which was much higher than the level of pesticides for similar products in Europe and the United States.¹³ In response, these MNCs argued that their products were in conformity with the prevalent Indian laws, which was abysmally poor as compared to the legal regime followed in the developed world. This goes to show that MNCs are inherently motivated towards following the minimum possible environmental and health regulations in order to maximise their profits, and therefore stringent measures are required to hold them accountable for their actions against the environment.

3. CSR and its Advantages to MNCs With Respect to Environmental Protection

While CSR has many definitions, the European Union has defined it as

“the concept that an enterprise is accountable for its impact on all relevant stakeholders. It is the continuing commitment by business to behave fairly and responsibly and contribute to economic development while improving the quality

⁹ Vincent Trivett, 25 US Mega Corporations: Where They Rank If They Were Countries, Business Insider (May 14, 2018), <http://www.businessinsider.com/25-corporations-bigger-than-countries-2011-6?op=1>.

¹⁰ Fabian Blaser et al., Measuring the Use of Natural Resources and Its Impacts - Indicators and Their Application, Swiss Academies of Arts and Sciences (2012).

¹¹ Overconsumption? Our Use of the World's Natural Resources, Sustainable Europe Research Institute (May 14, 2018), <https://www.foe.co.uk/sites/default/files/downloads/overconsumption.pdf>.

¹² Lyuba Zarsky, Stuck In the Mud? Nation-States, Globalization and the Environment, Globalisation and Environment Study - Oecd Economics Division (May 15, 2018), http://oldsite.nautilus.org/archives/papers/enviro/zarsky_mud.html.

¹³ Ranjit Devraj, Indian Coke, Pepsi Laced with Pesticides, Says NGO, India Resource Centre (May 15, 2018), <http://www.indiaresource.org/news/2003/4725.html>.

of life of the work force and their families as well as of the local community and society at large."¹⁴

From a perusal of this definition, it is clear that CSR refers to the responsibility of the organisation or enterprise towards its stakeholders such as the society, environment, employees etc. It implies that the enterprise needs to focus on things that are relevant and beneficial to its stakeholders, apart from mere profit maximisation. Therefore, CSR measures are not mere charity and form an important function on the basis of which the company's overall contribution to society is assessed.

In particular reference to the environment, the proactive adoption of CSR measures will be beneficial to MNCs as they can avoid stringent environmental legislation which will make compliance more expensive. If the lawmakers feel that environmental issues are being addressed by MNCs on their own, then there will be lesser public pressure to enact stringent legislation. At the same time, with the spread of information technology, consumers are aware of the environmental problems facing them and therefore, they will be more attracted to buy products from companies which are sensitive to environmental issues.¹⁵ Further, MNCs can possibly charge higher price for their products from the customers on the ground that they are proactively following environmentally positive measures. The increased public consciousness regarding environmental issues can permit them to use this higher price for offsetting their cost for undertaking CSR measures. That apart, adopting environmentally friendly CSR measures can also reduce the cost of operations for MNCs as they will be using new technologies permitting greater output with lesser resources.¹⁶ Further, being pro-environment can improve the MNCs image in the eyes of its stakeholders, thereby increasing profitability¹⁷ and enhancing its reputation.¹⁸

In light of the above-mentioned advantages, many MNCs have adopted pro-

¹⁴ EU Green Paper: Promoting a European Framework for Corporate Social Responsibility, European Commission (May 15, 2018), europa.eu/rapid/press-release_DOC-01-9_en.pdf.

¹⁵ Jackie Luan and Kusum L Ailawadi, Does Corporate Social Responsibility Build Customer Loyalty?, *Advertising Age* (May 24, 2018), <http://adage.com/article/cmo-strategy/corporate-social-responsibility-build-customer-loyalty/227729/>.

¹⁶ Atle Blomgren, Does Corporate Social Responsibility Influence Profit Margins? A Case Study of Executive Perception, 18 *Corporate Social Responsibility and Environmental Management*, 263 (2010).

¹⁷ *Corporate Social Responsibility (CSR)*, INDIAN INSTITUTE FOR SUSTAINABLE DEVELOPMENT (May 15, 2018), <https://www.iisd.org/business/issues/sr.aspx>.

¹⁸ J McGuire et al., Corporate Social Responsibility and Firm Financial Performance, 31 *The Academy Of Management Journal*, (1988).

environment CSR measures as a mandatory part of their business operations. Notably, Google is one of the leaders in this field with high use of renewable energy and making their products more energy efficient. Google claims that the environmental impact of using its services for a month is less than the environmental impact of driving a car for a mile.¹⁹ Similarly, Starbucks has implemented a recycling policy for its coffee cups with discounts for customers using their cups.²⁰ Further, it has decided to source its energy requirements from renewable sources like wind energy and have also adopted pro-environment measures in sourcing its coffee beans.²¹ Another important MNC which has adopted environmentally positive CSR measures is General Electric (“GE”), which has become a pioneer in clean technology products. By introducing the Ecomagination strategy, the company has declared that it views its environmentally friendly products as an essential aspect of its business strategy.²² Under this strategy, GE has not only reduced its reliance on fossil fuels, but has developed innovative solutions and new technologies to resolve environmental issues.²³ GE’s Trip Optimiser, which is the auto-pilot system for railroads, has helped reduce operational costs and fuel usage by over 10%, thereby helping in reducing costs and also protecting the environment.²⁴ These examples show that pro-environment CSR measures are not only beneficial to the environment, but can also be profitable to the company.

4. Are CSR Measures Sufficient to Hold MNCS Accountable for their Anti-Environmental Actions?

As noted above, many prominent MNCs have adopted pro-environmental CSR measures, but many still continue to focus their goals on profit maximisation rather

¹⁹ Products – Google Green, Google Green (May 14, 2018), <https://www.google.com/green/products/#cloud-platform>.

²⁰ Rebecca Smithers, Starbucks Introduces Reusable Cups, *The Guardian* (May 21, 2018), <http://www.theguardian.com/environment/2013/apr/19/starbucks-coffee-reusable-cups>.

²¹ Water and Energy Conservation, Starbucks (May 15, 2018), <http://www.starbucks.com/responsibility/environment/water-and-energy>.

²² How to Grow Revenue 90%, *Environmental Leader* (May 14, 2018), <http://www.environmentalleader.com/2015/08/12/how-to-grow-revenue-90/>.

²³ Tina Casey, Ecomagination Builds Big Green Revenues for GE, *Triple Pundit* (June 7, 2018) <http://www.triplepundit.com/2012/07/ge-announces-revenue-for-ecomagination-sustainable-business-projec/>.

²⁴ GE Transportation Saves Rail Industry \$197M in Fuel Costs, *Environmental Leader*, *Environmental Management News* (May 15, 2018), <http://www.environmentalleader.com/2015/10/06/ge-transportation-saves-rail-industry-197m-in-fuel-costs/>.

than mitigating the harm caused to the environment.²⁵ MNCs are able to grow and operate seamlessly across borders only due to their ability to maximise profits, exploit the natural resources and ensure the bare necessary compliance with environmental regulations. It is due to this negligent attitude that Government and other bodies such as Non-Governmental Organisations (“NGOs”) have been compelled to step in and ensure that MNCs do their bit for the environment.²⁶

5. Public Awareness and Public Reporting

One of the most important ways by which MNCs can be held accountable is through mandatory public reporting of their environmental performance standards. This will not only make the public aware about the environmental impact of the MNCs’ operations, but also provide a positive feedback to MNCs which have taken steps towards environmental protection. Another important mechanism is the ‘Eco-Efficiency Concept’ which was proposed by the World Business Council for Sustainable Development. The concept provides that the environmental impact of the products made by the MNC ought to be assessed on a number of conditions such as energy intensity, toxic dispersion etc. This can be used to measure the environmental impact and sensitiveness of the MNC as it monitors the whole gamut of activities undertaken and their result on the environment.²⁷

6. Sector Specific Principles

Another important method of ensuring environmental accountability of MNCs is the use of sector specific principles. This refers to the voluntary code of conduct adopted by a particular industry or sector, the adoption of which provides certain advantages to the MNC. One of the most prominent of these is the Equator Principles, which have been adopted by the financial services industry. Under the Equator Principles, MNCs are required to conduct the requisite due diligence on environmental matters to assess the impact it would have before rendering services.²⁸ These principles have set the benchmark of environmental best practices in the financial sector. Notably, similar pro-environment principles have also been adopted in the mining sector under the aegis of the International Council

²⁵ Rajesh Makwana, *Multinational Corporations (MNCs): Beyond The Profit Motive, Share The World’s Resources* (May 16, 2018), <http://www.sharing.org/information-centre/reports/multinational-corporations-mnacs-beyond-profit-motive>.

²⁶ Aatur Rahman Belal et al., *Corporate Environmental Responsibility and Accountability: What Chance in Vulnerable Bangladesh?*, 1 *Critical Perspectives On Accounting* (2015).

²⁷ Milad Abdelnabi Salem et al., *Can the Eco- Efficiency Represent Corporate Environmental Performance?*, 1 *International Journal of Humanities and Social Science* (2011).

²⁸ *The Equator Principles in Project Finance*, Credit Agricole (May 15, 2018), <http://www.ca-cib.com/group-overview/the-equator-principles-in-project-finance.htm>.

of Mining and Metals (“ICMM”). In particular, the ICMM requires its members to consider sustainable development principles while undertaking business decisions.²⁹ Similarly, in the cotton industry, the Better Cotton Initiative has been adopted for environmentally friendly practices regarding cotton cultivation.³⁰ Pertinently, the Responsible Care scheme has been adopted in the Chemicals Sector under the guidance of the International Council of Chemical Associations (“ICCA”) to ensure that there are no harmful effects on the environment due to the operations of companies in the chemical sector. These sector specific principles help judge the environmental friendliness of MNCs and also become a benchmark for assessing their reputation.

7. Role of International Institutions

Apart from the Sector Specific Principles, even international institutions have developed Codes of Conduct for MNCs in order to guide them to reduce their adverse environmental effects. The most prominent amongst these is the Global Compact formulated under the leadership of the United Nations. MNCs have to follow certain guidelines with respect to environmental, social and other issues in order to participate in the Global Compact. If they comply with the guidelines, they can advertise themselves as being compliant with the UN mandated Global Compact. Similar guidelines or Codes of Conduct have also been formulated by the Organization for Economic Co-operation and Development³¹ and the International Chamber of Commerce³², apart from other organisations.

8. Litigation

Another useful tool against MNCs with respect to environmental issues is litigation and some landmark international judgments have helped in enforcing accountability of MNCs. Many MNCs have been successfully sued in court for their detrimental acts against the environment. Notably, in *Wiwa v. Royal Dutch*

²⁹ Sustainable Development Framework - 10 Principles, International Council of Mining And Metals (May 15, 2018), <http://www.icmm.com/our-work/sustainable-development-framework/10-principles>.

³⁰ Pioneer Member IKEA Reaches 100% More Sustainable Cotton - Better Cotton Initiative, Better Cotton Initiative (May 30, 2018), <http://bettercotton.org/bci-pioneer-member-ikea-reaches-100-more-sustainable-cotton/>.

³¹ OECD Guidelines for Multinational Enterprises, Organisation For Economic Co-Operation And Development (OECD) (May 14, 2018), <http://www.oecd.org/corporate/mne/48004323.pdf>.

³² ICC Business Charter for Sustainable Development, International Chamber Of Commerce (May 15, 2018), <http://www.iccwbo.org/advocacy-codes-and-rules/areas-of-work/environment-and-energy/icc-business-charter-for-sustainable-development/>.

*Shell*³³, the Royal Dutch Petroleum Company and Shell Transport and Trading Company were sued for the environmental degradation caused in the Niger delta due to their oil exploration activities. There was no judgment in this case since the parties settled the dispute, under which the Plaintiffs received USD 15.5 million and a trust was established for the affected people in the region.³⁴ Similarly, a lawsuit was filed against Texaco (now Chevron) regarding the oil spill in Ecuador. Even in this case, the MNC was held liable by the Ecuadorian Supreme Court to pay compensation of USD 9.5 billion for the environmental harm caused.³⁵

Some important examples of MNCs being held accountable for their acts against the environment are as follows:

9. Wiwa v. Royal Dutch Shell

This case dealt with the environmental degradation and other human rights abuses caused due to the rampant exploitation of oil by MNCs in the 1990s in the Ogoni region of the Niger delta. It was alleged that the Nigerian government, along with representatives of the Royal Dutch Petroleum Company and Shell Transport and Trading Company, used violence to quell protests by the residents of the Ogoni region. In particular, attention of the US Court was brought to the incident of 10th November 1995 which involved the hanging of two leaders of the Movement for the Survival of the Ogoni People (“MOSOP”), shooting of peaceful protestors and other human right abuses. The intent behind these abuses was to suppress the peaceful protests being carried out by the Ogoni people against the environmental damage caused due to oil extraction by MNCs.³⁶

With the support of international environmental NGOs, the Plaintiffs brought an action before US Courts under the Alien Tort Claims Act. This was opposed by the defendant MNCs on the ground that the US Courts had no personal jurisdiction in the matter and that the same should be heard by Courts in Netherlands or England. It was further argued that the Alien Tort Claims Act ought not to apply to a company and that too for alleged acts which would be ordinarily covered by Nigerian law. On 25th September 1998, the New York District Judge agreed with the defendants and ruled that even though US Courts could have jurisdiction in the

³³ *Wiwa v. Royal Dutch Shell*, 133 S.Ct. 1659 (2013).

³⁴ Jad Mouawad, Shell to Settle Abuse Case for \$15.5 Million, The New York Times (June 8, 2018), http://www.nytimes.com/2009/06/09/business/global/09shell.html?ref=global&_r=0.

³⁵ Texaco/Chevron Lawsuits (re Ecuador), Business & Human Rights Resource Centre (May 22, 2018), <http://business-humanrights.org/en/texacochevron-lawsuits-re-ecuador>.

³⁶ Ingrid Wuerth, *Wiwa v. Shell: The \$15.5 Million Settlement*, American Society Of International Law (June 9, 2018), <http://www.asil.org/insights/volume/13/issue/14/wiwa-v-shell-155-million-settlement>.

matter, the Courts in England would be the better forum. However, on appeal, the US Court of Appeals for the Second Circuit on 15th September 2000 held that the US Courts have jurisdiction in the matter and remanded the matter back to the District Court for adjudication.³⁷

The Appeals Court decision was challenged before the US Supreme Court by the Defendants, but on 26th March 2001, the Supreme Court refused to interfere and upheld the decision of the Appeal Court. Pursuant to the Supreme Court's decision, the District Court also denied the other challenges to the Court's jurisdiction which were raised by the Defendants. However, the trial in the matter never commenced since the Defendant Companies agreed for a settlement on 8th June 2009. Under the terms of the settlement, the terms of which were public, the MNCs were required to pay the Plaintiffs a sum of \$15.5 million, establish a trust for benefitting the Ogoni people and cover the legal costs involved in the litigation. However, the Defendant Companies did not acknowledge any liability for the alleged acts.³⁸

This became a landmark case. The US Courts were always reluctant to exercise jurisdiction over human rights abuses committed abroad against foreign persons, especially if there was an alternative forum to hear the issue.³⁹ More importantly, the public nature of the settlement and the substantial amount granted highlighted that MNCs ought to be held accountable for their acts against the environment. The immense public pressure and negative publicity for the MNCs involved was greatly responsible for forcing them into a settlement.

10. Unocal Yadana Gas Pipeline in Myanmar

The Yadana Gas Pipeline was a \$1.2 billion project which was jointly undertaken by the French Company Total, American Company Unocal, Thailand's PTT Exploration and Production and Myanmar's Oil and Gas Enterprise. The gas which was to be extracted from Myanmar⁴⁰ was to be bought by Thailand. Even from its outset, the Project drew international criticism due to various human rights issues, especially on environmental matters. It was alleged that the concerned MNCs, in collusion with the Myanmar Government, constructed the gas pipeline by using

³⁷ *Wiwa v. Royal Dutch Shell Case History*, Earth Rights International (May 24, 2018), <http://www.earthrights.org/legal/wiwa-v-royal-dutch-shell-case-history>.

³⁸ *Supra* 34.

³⁹ Aaron Xavier Fellmeth, *Wiwa v. Royal Dutch Petroleum Co.: A New Standard for the Enforcement of International Law in U.S. Courts?*, 5 *Yale Human Rights And Development Law Journal* (2002).

⁴⁰ Note: Burma was renamed as Myanmar in 1989.

forced labour from the villages and Myanmar's military regime also committed various crimes against humanity such as rape, torture and mass killings of the local village population. Apart from the criminal human right violations, the pipeline raised serious environmental concerns. The pipeline threatened to severely alter the largest block of rainforests in Southeast Asia and destroy the precious flora and fauna in the region. According to reports by various NGOs, the concerned region in Myanmar had 23 endangered species and 42 threatened species. The problem was further compounded by the fact that there was no independent Environmental Impact Assessment of the region and no steps taken to mitigate the potential harm to the environment.⁴¹

In light of the flagrant violation of environmental and other human rights, cases were filed in US Courts against Unocal and other MNCs involved with the alleged illegal activities in Myanmar. Reliance was placed on the Alien Tort Claims Act to highlight the gross human right violations committed against the people of Myanmar. That apart, the widespread protests and publicity surrounding this issue brought pressure on the United States Government to impose sanctions against Myanmar. Notably, the United States Government effectively banned American companies from starting operations in Myanmar, which had a debilitating effect on Myanmar's economy. Further, the International Labour Organisation also imposed sanctions against the Myanmar Government for permitting forced labour in violation of international conventions.

The litigation in the American Court was finally settled by Unocal and the parties reached an out-of-court settlement whereby the company not only provided funds but also undertook to take steps to improve the living conditions of the people affected by the Project. Even though the terms of the settlement remain confidential, it is estimated that the amount runs into millions of dollars. The thrust of the settlement is to reaffirm the company's commitment towards protecting human rights, environment and the all-round benefits to the people of Myanmar. This settlement was accepted by the Court on 13th April 2005.⁴²

This case again highlights the significant impact of non-legal factors on MNCs in protecting the environment and other human rights. Even though Unocal faced a serious litigation in American Courts, it was ultimately the pressure imposed by bad publicity which compelled the company to arrive at an out-of-court

⁴¹ Zaw Oo, *Yadana Gas Pipeline in Burma*, Trade And Environmental Database Case Studies (May 25, 2018), <http://www1.american.edu/ted/burma-pipe-conflict.htm>.

⁴² *Unocal Lawsuit (re Myanmar)*, Business & Human Rights Resource Centre (June 18, 2018), <http://business-humanrights.org/en/unocal-lawsuit-re-myanmar#c9309>.

settlement.⁴³ This shows that MNCs can be made accountable for their acts on the basis of measures not exclusively based on the legal regime.

11. Oil spill in Ecuador's Amazon Rainforest

Texaco, which subsequently merged with Chevron in 2001, had drilled for oil in Ecuador's remote Amazon rainforest known as the Oriente from 1964 to 1990. It is alleged that the company dumped around 18.5 billion gallons of toxic waste into the streams and rivers which was used by the indigenous people of the region for fishing, drinking, bathing and other purposes. The spilling of oil and other hazardous chemicals, such as benzene and polycyclic aromatic hydrocarbons, has had a terrible effect on the environment and the health of the local population.

It is alleged that Texaco used outdated technology for its drilling operations, which had already been banned in the United States. The negative effects of the environmental pollution are still felt till date with increasing instances of cancer, birth defects, skin diseases and other such problems. Apart from the medical problems to human beings, the substantial environmental deterioration has further undermined the livelihood and food security of the people in the region.⁴⁴

Given the substantial harm to the environment and the public, the indigenous people and farmers in the area filed a case against Texaco in the Ecuadorian Court in 1993. The case was decided in 2011, in which the Court ordered Chevron to pay damages of \$18 billion. However, the company appealed the decision and observed that it had nothing to do with the ecological disaster. Subsequently, in July 2012, the Appellate Court upheld the decision of the lower Court and directed the company to pay the amount involved. Subsequently, on 12th November 2013, the verdict was upheld by the Ecuadorian Supreme Court, but they reduced the amount of damages to \$9.5 billion. Despite these decisions, Chevron continues to pursue legal options to stall paying the damages.⁴⁵

Notably, on 4th March 2014, the District Court of New York held that the judgment awarding compensation of \$9.5 billion is unenforceable as it was

⁴³ Duncan Campbell, Energy Giant Agrees Settlement with Burmese Villagers, *The Guardian* (May 15, 2018), <http://www.theguardian.com/world/2004/dec/15/burma.duncancampbell>.

⁴⁴ Support the Struggle Against Big Oil in Ecuador, Culture Of Resistance Network (May 25, 2018), <http://culturesofresistance.org/chevron-ecuador>.

⁴⁵ Texaco/Chevron Lawsuits (re Ecuador), Business & Human Rights Resource Centre (May 22, 2018), <http://business-humanrights.org/en/texacochevron-lawsuits-re-ecuador>.

obtained by fraud and racketeering activities. The New York Court observed that Mr. Steven Donzinger, who was the main American lawyer for the Ecuadorian people, had committed various offences under the Foreign Corrupt Practices Act, Racketeer Influenced and Corrupt Organisations Act, money laundering and wire fraud.⁴⁶ That apart, the Ecuadorian villagers had filed a case in Canada in May 2012 seeking to enforce the judgment against Chevron's assets in Canada. Recently, in September 2015, the Canadian Supreme Court held that the lawsuit filed by the Ecuadorian plaintiffs is maintainable as Canadian Courts can exercise jurisdiction over the matter. However, whether the judgment is enforced or not and the extent of Chevron's assets that are seized will depend on the outcome of the trial court proceedings in Canada.⁴⁷

The issues surrounding the massive environmental degradation in Ecuador due to oil drilling were raised internationally by numerous reputed NGOs such as Amnesty International, Amazon Watch, The Campaign for Justice in Ecuador and Rainforest Action Network. In May 2014, the Anti-Chevron activists created a global event across five continents to protest against the environmental damage caused by Chevron's oil drilling activities and marked the event as the Anti-Chevron Day. The protestors wanted Chevron to pay the \$9.5 billion compensation awarded by the Ecuadorian Court and compensate the people for the adverse effects of its environmental activities.⁴⁸

This became a landmark case because it was the first time that indigenous people in a developing country successfully sued a MNC in their domestic court and been awarded a substantial amount in damages. It highlighted the unequal power balance between a giant MNC and a developing country's government. It sent a strong message to MNCs that adopting cost-cutting techniques which ignore environmental matters and have a negative effect on human life can be counter-productive in the long run. Even after the Ecuadorian Court's decision, environmental activists have continuously imposed pressure on Chevron through various protests and demonstrations to compel them to pay up the compensation awarded. This shows how the legal mechanism, along with NGOs and

⁴⁶ Ecuador Lawsuit - The Facts About Chevron and Texaco in Ecuador, Chevron (May 20, 2018), <http://www.chevron.com/ecuador/>.

⁴⁷ Nicole Hong and Kim Mackrael, Canada's Top Court Rules in Favor of Ecuador Villagers in Chevron Case, *The Wall Street Journal* (June 4, 2018), <http://www.wsj.com/articles/canadas-top-court-rules-in-favor-of-ecuador-villagers-in-chevron-case-1441384265>.

⁴⁸ Global Anti-Chevron Day: Environmental Activists Stage Protests Worldwide, *RT Question More* (May 22, 2018), <https://www.rt.com/news/160652-anti-chevron-global-protest/>.

international organisations, can play an important role in making MNCs accountable for their acts against the environment.⁴⁹

12. Role Played by NGOS

Apart from the above-mentioned methods, the pressure imposed by NGOs also plays a critical role in checking the anti-environmental activities of MNCs. They play a crucial role in developing countries, where governments are unable to exert pressure on MNCs due to financial and other considerations. Further, NGOs spread awareness among the public regarding the environmental impact of the activities of MNCs.⁵⁰

There is no internationally accepted definition of NGOs. However, there are certain criteria which are usually applied to identify an NGO. These are as follows:

- NGOs are not created by an intergovernmental agreement
- They must be accredited under some domestic laws and have expertise in a particular area
- However, they must not be a part of any government and must be free to express their independent views.⁵¹

The above-mentioned criteria are not exhaustive but is indicative of the main features of NGOs i.e. freedom from government control, expertise in a particular area and no restriction on its independence to freely express views on any issue.

With the spread of MNCs to new territories, there has been a corresponding rise in the pressure imposed by NGOs on MNCs to comply with environmental norms. NGOs have played an important role in the acceptance of sustainable development principles at the national and international level. Various NGOs have raised a vast array of environmental issues ranging from air pollution to disposal of hazardous waste. More importantly, through various activist measures such as demonstrations and protests, these NGOs have ensured that MNCs cannot surreptitiously avoid their accountability towards the environment.

As discussed earlier, governments in developing countries are unable to exert the

⁴⁹ Polly Botsford, Ecuador, Oil and Elusive Rule of Law, International Bar Association (May 25, 2018), <http://www.ibanet.org/Article/Detail.aspx?ArticleUid=64269491-2600-4fbf-9a13-d8285bc2516d>.

⁵⁰ The Rise and Role of NGOs in Sustainable Development, Iisd's Business And Sustainable Development (June 20, 2018), <https://www.iisd.org/business/ngo/roles.aspx>.

⁵¹ Sebastian Oberthür, Participation of Non-Governmental Organisations in International Environmental Governance: Legal Basis and Practical Experience, Ecologic (June 5, 2018), http://www.ecologic.eu/download/projekte/1850-1899/1890/ngo_summary_en.pdf.

necessary pressure on MNCs due to political and economic considerations. NGOs have effectively stepped into this vacuum and act as a social and moral check on the almost unfettered power with MNCs. NGOs effectively use modern day technology and social media tools to focus on the environmental degradation caused by business activities. They effectively reach the consumers and other stakeholders in society to raise awareness about the anti-environmental activities of MNCs.⁵² These NGOs also ensure the effective implementation of international agreements and domestic laws on environmental matters. Their importance has been appreciated even by the United Nations in its 1992 Earth Summit as important non-state actors for achieving sustainable development goals.

A prominent example of the influence of NGOs on the decisions taken by MNCs is found in India. The Centre for Science and Environment (“CSE”) is a prominent NGO based in New Delhi which focuses on implementation of measures for sustainable development. In 2003, the CSE issued a report highlighting that soft drinks and mineral water manufactured by prominent MNCs such as Coca Cola and Pepsi have a high degree of pesticide residue. Notably, the levels of pesticide residue were tested on the basis of norms set by the European Economic Commission. At the same time, it was pointed out that tests conducted on samples of cold drinks manufactured and sold by these companies in the United States did not contain such high level of pesticides. It was argued that such high levels of toxics could cause cancer, damage to respiratory systems and deterioration of the immune system. That apart, the production processes employed by these MNCs meant that there was substantial ground water pollution, which resulted in contamination of crops in the region. Subsequently, due to rising public pressure, the Indian government carried out its own tests of the soft drinks and found that the pesticide level was within the range set by Indian laws, but certainly fell short of the standards set by the European Union. In response, the CEOs of Pepsi and Coca Cola in India argued that they met the requirements laid down under Indian laws and regulations and therefore, the allegations by CSE were unfair and defamatory in nature. Notably, Indian laws did not even provide a framework for regulating the extent of pesticides in soft drinks.⁵³

Even though the MNCs were correct to point out that they met the Indian environmental standards, there was a huge public outcry that Indians are treated as second grade citizens by the MNCs as compared to their European or American

⁵² The Rise and Role of NGOs in Sustainable Development, Iisd’s Business and Sustainable Development (June 20, 2018), <https://www.iisd.org/business/ngo/roles.aspx>.

⁵³ Ranjit Devraj, Indian Coke, Pepsi Laced with Pesticides, Says NGO, India Resource Centre (May 15, 2018), <http://www.indiaresource.org/news/2003/4725.html>.

counterparts. The report issued by the CSE led to a major embarrassment for Coca Cola and Pepsi and faced a ban in one of their biggest markets around the world. Pepsi and Coca Cola initially responded by questioning the integrity of the tests conducted by CSE and attributing motives to its Report. However, this increased the backlash against the companies and they were seen as violating environmental and health norms with impunity. Subsequently, the MNCs were compelled to launch a major advertisement campaign to convince their consumers that their products are environmentally safe and pose no threat to either the health or environment.⁵⁴

This shows the importance of NGOs in protecting the environment and the extent to which they can compel MNCs to adopt international norms on environmental and health matters. This is because NGOs promote the interests of the local community and act as a check on the lax administrative standards and corrupt politicians who are keen to support MNCs for personal gains. Even if the NGOs don't take legal action against the MNCs, they can bring important environmental violations to light and thereby put public pressure on MNCs to protect against environmental degradation. More importantly, in today's era of social media, there is greater public awareness and therefore vigilant NGOs can effectively counter the political and economic clout of MNCs.

13. Conclusion

An analysis of the above-mentioned discussion reveals that mere CSR measures may not be enough to hold the MNCs accountable for the anti-environmental effects of their operations. While some MNCs have adopted CSR measures as an effective business strategy, most of them continue to rampantly exploit natural resources and harm the environment for their vested considerations. This is more acute in developing countries where governments have less bargaining power against powerful MNCs. Therefore, the Sector Specific and International Codes of Conduct play an important role in setting the guidelines which MNCs ought to follow with respect to the environment. Further, the proactive role of NGOs and the threat of litigation also act as a serious check to ensure the accountability of MNCs in environmental matters.

⁵⁴ Diane Brady, Pepsi: Repairing a Poisoned Reputation in India, Bloomberg (May 30, 2018), <http://www.bloomberg.com/bw/stories/2007-05-31/pepsi-repairing-a-poisoned-reputation-in-indiabusinessweek-business-news-stock-market-and-financial-advice>.

INTEGRATION OF ENERGY RESOURCES DIRECTIVE FOR CLIMATE CHANGE MITIGATION POLICY

*Avinash Singh**

Key concerns that this paper focuses on is the conceptual re-visitation of alternative energy resources, and measuring its compatibility with the recent trends in the sector, where tracing the mitigation instruments for climate change have high significance. In the recent years, the policy driven agenda had very little focus on the integration of the climate change mitigation strategies with that of the regular energy sector innovations, which has resulted in a breakdown of the synchronization between the two sectors which, although have flourished independently, with little inference on each other, yet have potential to impact upon the mitigation strategies if taken together from the beginning.

There are two kinds of energy source demarcation studies that are discussed in the paper, one of which is the fossil fuels to non-fossils energy conversion and other is nuclear energy, which, despite all efforts to uphold its sanctity in the energy sector, seems to hold a distinctive characterization in the global order, which has given rise to the perceived susceptibility among some of the most developed and environmentally concerned nations, like Germany, to which the modulation has been referenced in the appropriate part of the paper. Transition in the energy field through substitution of the renewable resources or green energy will affect sectors like energy, transport, and infrastructure that are largely dependent on the same, and will keep the carbon emission strategies in pace with the Paris Agreement.

As per the opinion in general, the carbon-capturing technology has evidently seen limited support from the industry. Certainly, there is a successful attempt to address the problem from the point view of the purpose that it was supposed to serve. It is in the interest of the community to base its ideas of reduction in carbon emission, limiting it to 2 Degree Celsius above the pre-industrial levels and making the possible efforts to limit it to 1.5 Degree Celsius, measuring the relative aspects to policy and science perspective.

Following the recent trends, it is justifiable to suggest that it is pertinent to enhance the green energy by subsidizing it, while also putting a robust research and development ecosystem in place for steady and secure growth of the clean energy initiative. The Indian political arena must focus on using its diplomatic powers and credit in committing to the technological bargains in the energy sectors, like nuclear energy, on which India puts great reliance in meeting the future electricity demands. India also holds a unanimous power to regulate matters among its states, and environment protection and strategies for climate change should have an integrated legislative mechanism to encounter the challenges and the interest of the different states in India, thus cohesively formulating the future path to bring India into a bargaining position at the international platform, depicting itself as an active climate change mitigation partner at the global front.

Keyword:

Climate Change, Energy Resources, Fossil Fuel, Nuclear Energy, Policy Integration

* Avinash Singh, Director, Institute of Public Policy Research and Study, Lucknow [B.B.A. LL.B. (Hons.); LL.M. (Hons.)]

1. Introducing the Energy Sector And The Climate Change Commitments

The longevity of sustainable development strategies is the key concern that must be focused on while making the energy policy for a country, and that, in real time, should also relate to the climate change strategies that lower the economic aspects of assessment. Transition in the energy field through substitution of the renewable resources or green energy will affect sectors like energy, transport, and infrastructure that are largely dependent on the same, so as to keep the carbon emission strategies in pace with the Paris Agreement.¹ As per the opinion in general, the carbon capturing technology has evidently seen limited support from the industry. Certainly, there is a successful attempt to address the problem from the point view of the purpose that it was supposed to serve. It is in the interest of the community to base its ideas of reduction in carbon emission, limiting it to 2 Degree Celsius above the pre-industrial levels,² and the possible efforts to limit it to 1.5 Degree Celsius, measuring the relative aspects to policy and science perspective³ criteria by focusing on the issues that are depicted in the assignment as premises of such Protocol.⁴ Evidently, after coming into force of the UNFCCC in 1994, the CO₂ emissions have amplified around the world,⁵ among which some nations have evinced substantial increase, in which category India falls, while some have reduced the level of emissions as could prefaced from the Table.2.2 of research made by *Oliver and others*⁶ but have increased sectoral emissions, such as that in transportation,⁷ which lays foundation of importance of energy sector integration with climate change efforts at the domestic and global level.

The available solutions to the nuclear power generation capacities, like the usage of

¹ Conference of Parties – Twenty First Session, *Adoption of the Paris Agreement*, FCCC/CP/2015/L.9, 12 December 2015, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, (June 7, 2018), unfccc.int/resource/docs/2015/cop21/eng/109.pdf.

² *Climate Change 2014: Synthesis Report* (The Core Writing Team, R.K. Pachauri and L.A. Meyer, eds.), IPCC, GENEVA, SWITZERLAND, 151 (June 7, 2018), www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf.

³ *Infra* note 45.

⁴ Gao Y, Xiang Gao XG and Zhang X, *The 2°C Global Temperature Target and the Evolution of the Long-Term Goal of Addressing Climate Change - From the United Nations Framework Convention on Climate Change to the Paris Agreement*, (2017) 3 ENGINEERING 272 (July 11, 2018), www.sciencedirect.com/science/article/pii/S2095809917303077.

⁵ *The Emissions Gap Report 2016: A UNEP Synthesis Report*, UNITED NATIONS ENVIRONMENT PROGRAMME (JUNE 7, 2018), uneplive.unep.org/theme/index/13#egr.

⁶ Olivier JGJ and Muntean M., *Trends in Global CO₂ Emissions: 2014 Report* (1st ed., PBL Netherlands Environmental Assessment Agency, 2014) (July 11, 2018), edgar.jrc.ec.europa.eu/news_docs/jrc-2014-trends-in-global-co2-emissions-2014-report-93171.pdf.

⁷ CLIMATE ACTION: A EUROPEAN STRATEGY FOR LOW EMISSION MOBILITY, THE EUROPEAN COMMISSION, 2015 (July 11, 2018), ec.europa.eu/clima/policies/transport_en#tab-0-0.

thorium as an n-fuel and the building of small capacity installations could only be short-term answers and for the same reason, the real input must be on the side of finding replacements of n-fuels permanently. Energy efficiency and demand-side management are the most precise answers to the current n-fuel mitigation plans that subsequently help the strategic renewable energy deployment in place of the fossil and nuclear fuels.

Key concerns that this paper focuses on are the conceptual re-visitation of alternative energy resources and measuring its compatibility with the recent trends in the sector, where tracing the mitigation instruments for climate change have high significance. In the recent years, the policy driven agenda has had very little focus towards the integration of the climate change mitigation strategies with the regular energy sector innovations, which resulted in a breakdown of the synchronization between the two sectors which, although have flourished independently, with little inference on each other, have the potential to impact the mitigation strategies if taken together from the beginning. There are two kinds of energy source demarcation studies that are discussed in the paper, one of which is the fossil fuels to non-fossils energy conversion and the other is nuclear energy, which, despite all efforts to uphold its sanctity in the energy sector, seems to hold distinctive characterization in the global order, which has given rise to the perceived susceptibility among some of the most developed and environmentally concerned nations, like Germany, to which the modulation has been referenced in the appropriate part of the paper.

It is also a factor to be considered that the climate change strategies cannot be implemented if there is no model framework and its implementation, which had occasioned to bring the UNFCCC into the demand for the integrated future of climate change strategies with sectoral support and cohesive function from the energy base technological advancements. Policy-based orientation to the issue under research will help to strategically evolve the method to appreciate the present and potential developmental agenda for the energy sector in India and abroad. It is also advisable to consider the richness and diversity of the energy resources that the Indian terrain offers, which makes India as a suitable destination for the research in said field. The paper has also tried benchmarking the scope of policy-making from the diverse facets, so as to develop the strategic solution to mitigate the climate change factors that include the corporate sustenance grant mechanized through the international cooperation, in the due course of this discussion. Thus, it could be concluded that there are as many elucidations as are apparent wherein the systematic approach towards the Green Energy and anthropogenic climate change

study are being merged.

2. Replacing the Fossil with Non-Fossils

In the future that shows heavy transitioning stimulus towards green energy, the future of fossil fuel seems to be very limited and only extending to its strategic diminution in a phased manner so as to replace it with the green energy based alternative fuels that are the positive response towards the climate change mitigation strategies. The expensive nature of clean energy⁸ would be an obstacle at the starting, as fossils fuels are more economical than clean energy, thereby encouraging the use of fossil fuels supplemented machines, especially as means of transportation, even after considering the climate externality.⁹

The focus of the present world order must shift from crusading to prove the harmful effects of the fossil fuels towards formulating a policy framework to mitigate the use of fossil fuel in different countries. The key response to the use of fossil fuels is by lessening the dependency on it, which is not possible by merely suggesting the use alternative sources of energy to the public. Rather, it is possible by generating a need to use the alternative energy in the day to day life of the people, by providing the resources that consume (functions) only green energy, leading the way to achieve a zero-carbon society. The twin crises in the form of the fossil fuel diminution and the environmental dilapidation¹⁰ have sparked the need to analyse the energy sector in close proximity with the environmental protection practises.

It is observed that some low carbon compound originating fuels like biodiesel have also emerged in the past, having lower carbon dioxide emissions and almost negligible sulphuric content, with lower ozone-forming capabilities in the said speciated hydrocarbon than in diesel.¹¹ Researches have proven successful in determining the novel sources of biodiesels that have high yielding capacity like

⁸ Stern N, *Stern Review on the Economics of Climate Change*, THE UK NATIONAL ARCHIVES (July 7, 2018), webarchive.nationalarchives.gov.uk/20080910155332/http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm.

⁹ NATIONAL RESEARCH COUNCIL, *TRANSITIONS TO ALTERNATIVE VEHICLES AND FUELS* (The National Academies Press 2013).

¹⁰ DEMIRBAS A., *WASTE ENERGY FOR LIFE CYCLE ASSESSMENT GREEN ENERGY AND TECHNOLOGY* 33 (Springer International Publishing 2016) (June 15, 2018), www.springer.com/cda/content/document/cda_downloadaddocument/9783319405506-c2.pdf?SGWID=0-0-45-1573275-p180029587.

¹¹ Dincer K., *Lower Emissions from Biodiesel Combustion*, (2008) 30 ENERGY SOURCES, PART A: RECOVERY, UTILIZATION, AND ENVIRONMENTAL EFFECTS 963 (July 11, 2018), www.tandfonline.com/doi/abs/10.1080/15567030601082753.

that of algae, which has relatively high biodiesel production capacity, crossing the line much ahead of the traditional plants crops like sugarcane.¹² There are estimates that predict the comparatively high yielding capacity of the few algae oils than that of the normal vegetable/plant oils, which in result yield higher biodiesel content, wherein the said algae oil estimates are 200 times the normal plant oils.¹³ It is also noteworthy to mention that the biofuels yielded from algae doesn't displace the risk of direct land use for producing food and feed-crops utilised for the production of biofuels, which would have otherwise been used for food production for the consumption of the population, while protecting carbon-stock and biodiversity¹⁴ of said agricultural area.

Hydrogen-based fuel cells¹⁵ have been also one of the recent innovations that have focused on the need for research and development with an industrialized approach towards such sources of energy. In the area of mobility, the GHG emission control measures are dependent upon the source of fuel and its emission standards both, wherein, after electricity, hydrogen fuels were presented as most suitable form of energy source for vehicles.¹⁶ However, electricity has proved to be the cost-vulnerable in comparison with fossils fuels, which has effectuated an entry barrier to such sources of electrical energy.¹⁷ While it is also acknowledged that biomass can also be the production source of hydrogen fuel,¹⁸ which substantiates further the use of biomass as accentuated in the aforementioned paragraph, it has been quantifiably observed that the usage of such hydrogen-based fuels have better performance and lower pollutant (nitrogen based) emissions¹⁹ from the internal combustion engines used in vehicles and other machinery. Stationary power plants have great potential for administering fuel cells as major elements, and while their

¹² Chisti Y., *Biodiesel from Microalgae Beats Bioethanol*, (2008) 26 TRENDS IN BIOTECHNOLOGY 126 (July 11, 2018), www.ncbi.nlm.nih.gov/pubmed/18221809.

¹³ Sheehan J. et al, *A Look Back at the U.S. Department of Energy's Aquatic Species Program: Biodiesel from Algae - Close-Out Report*, NATIONAL RENEWABLE ENERGY LABORATORY (July 7, 2018), www.nrel.gov/docs/legosti/fy98/24190.pdf.

¹⁴ *Infra* note 38, at p. 27.

¹⁵ Sperling, D., *An Innovative Path to Sustainable Transportation*, ACCESS 28–34, 2014 (June 5, 2018), www.accessmagazine.org/wp-content/uploads/sites/7/2015/01/access45-InnovativePath-revise-links.pdf.

¹⁶ *Id.*, at p. 33.

¹⁷ Greene D.L., Park S and Liu C, *Analyzing the Transition to Electric Drive Vehicles in the U.S.*, (2014) 58 FUTURES 34 (June 11, 2018), www.sciencedirect.com/science/article/pii/S0016328713001456.

¹⁸ Byrd A.J., Pant K.K. and Gupta R.B., *Hydrogen Production from Glucose Using Ru/AI2O3 Catalyst in Supercritical Water*, (2007) 46 INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH 3574 (July 7, 2018), pubs.acs.org/doi/abs/10.1021/ie070241g.

¹⁹ Berry G, *Hydrogen as a Future Transportation Fuel*, (1996) 37 FUEL AND ENERGY ABSTRACTS 181 (June 17, 2018), www.sciencedirect.com/science/article/pii/0360544295001042.

feasibility for mobility requirement is already stated, they can also be source of electricity for small machine mechanisms in the form of micro fuel cells²⁰.

Certainly, the most important concern the future of the economies that would be on a verge of failure due to the loss of income from fossil fuels extraction and export, to which the cities like Dubai have presented a model answer before the similarly situated countries. This is just one way closing to open many such opportunities that lie within the newly-opened gate of the energy sector of alternative fuels such as solar, wind and water-based energy resources. The countries have not seen even the tip of the iceberg that is present in form of the alternative energy fuels processing and exports that is likely to be extended to form a whole new sector of business industry in the coming days and will be more lucrative than the fossil fuels industry is today. It is a calculated assumption that it will take voluminous years to be completely independent of fossil fuels, but it being the only solution has to compulsorily be underway in countries irrespective of their developmental status. However, the intensity of measures moving towards fossil fuel usage decline will vary relatively. The research in technological advancement and the integration of green energy technology as a profitable industry will work as the catalyst in the said process of fossil fuel abatement strategies.

3. Nuclear Energy: Relative Choice with Generalized Approach

3.1 N-fuel Adaptability and Advancement

Nuclear energy presents a confusing solution before the global leaders of the climate change that it selectively adopts the characteristics of the green energy and results in massive lowering of carbon emissions (though not leading zero-carbon emission), but the cost of danger that comes with it makes it susceptible in the world economies that also shelters a heavy population among their territories. It is inevitable to conclude that India aims to achieve a high dependency on nuclear energy by 2050, and it may account for 30% of its total energy consumption,²¹ i.e. 3.3% of total electricity consumption at present.²² Also, India has technologically advanced in the nuclear power generation, an example of which is the Fast Breeder

²⁰ Merewether E.A., *Alternative Sources of Energy - An Introduction to Fuel Cells*, (2003) U.S. GEOLOGICAL SURVEY BULLETIN 2179 (July 7, 2018), pubs.usgs.gov/bul/b2179/B2179-508.pdf.

²¹ Mane, M.A., Kamath S.U. and More N.N., *India's Expansion in the Nuclear Power Sector and Its Effects*, (2013) 4 INTERNATIONAL JOURNAL OF SCIENTIFIC & ENGINEERING RESEARCH 384 (July 11, 2018), www.ijser.org/paper/Indias-Expansion-in-the-Nuclear-Power-Sector-and-Its-Effects.html.

²² *Nuclear India*, DEPARTMENT OF ATOMIC ENERGY'S MAGAZINE, (2016) Vol. 58, Issue 1-3, Jan-March, 15 (18 June, 2018), dae.nic.in/writereaddata/ni/nimar16.pdf.

Reactor that blends the two n-materials, Plutonium and Uranium, to form an n-fuel called the Mix Oxide for use in the new reactors. These Fast Breeders take around 15 years to double the fuel that is put into them and make it usable for the next generation indigenous n-reactors²³ by converting Thorium into Fissile U,²³ thus fuelling the third generation reactors,²⁴ and the reason for such a closed nuclear fuel cycle is the scarcity of natural Uranium and the abundance of Thorium.²⁵ However, India's recent decision to ripping down its future strategy towards new reactors installation by two-third²⁶ has alarmed the risk of electricity insufficiency for more than 1 billion people and hampered the international climate change commitments, as India will have to enhance capacity of coal fired power plant.²⁷

Though there are several externalities that are not included in the production cost and ultimately paid by consumer, it rather produces costs that are payable by all citizens, be it positive or negative. Whether it is the risk of a nuclear power plant accident, that has generated much concern in the recent years, with such incidents occurring in Japan, and thereby, the debate over the safety of nuclear power, or its emission cost, which seems to be the next big thing in the future as newer tools and technologies are simultaneously developing at a very fast pace with ample research concerns, while the advocates of the anti nuclear energy regime are successfully explaining their concerns and relative outcomes. Nuclear energy does great good in power generation and as in the case of developing countries like India, it has given boost to the much needed economic strength and stability, but if the same comes at the cost of human life, will definitely be an issue of discussion in the present age. There are advanced nuclear technologies that have promising safety and non-proliferation standards which will revolutionize the n-power generation and then, it will be possible to make available such clean energy even in remote locations as a step towards broadening the n-power footprint around the globe.²⁸

²³ *Studies on Physics Parameters of Metal (U-Pu-Zr) Fuelled FBR Cores*, INDIRA GANDHI CENTRE FOR ATOMIC RESEARCH (July 7, 2018), www.igcar.ernet.in/benchmark/science/25-sci.pdf.

²⁴ Banerjee S. and Gupta H., *The Evolution of the Indian Nuclear Power Programme*, (2017) 101 PROGRESS IN NUCLEAR ENERGY 4 (July 7, 2018), <https://www.sciencedirect.com/science/article/pii/S014919701730032X>.

²⁵ Natarajan R., *Reprocessing of Spent Nuclear Fuel in India: Present Challenges and Future Programme*, (2017) 101 PROGRESS IN NUCLEAR ENERGY 118 (June 11, 2018), www.sciencedirect.com/science/article/pii/S0149197017300458.

²⁶ Yurman D., *India Slashes Plans for New Nuclear Reactors by Two-Thirds*, ENERGYPOST.EU, April 16, 2018 (July 12, 2018), <http://energypost.eu/17408-2/>.

²⁷ *Ibid.*

²⁸ *Economics of Nuclear Power*, WORLD NUCLEAR ASSOCIATION, May 2016 (June 17, 2018), www.world-nuclear.org/information-library/economic-aspects/economics-of-nuclear-power.aspx.

3.2 *Rising Concerns*

The definition of renewable energy resources have to be understood in terms availability of such energy sources indefinitely, i.e. in the words of Professor Cohen, be persisting till the relation between the sun and earth continues, which is approximately 5 billion years. So, there is a fundamental query over the nature of nuclear energy as renewable, since the risk of depletion of n-fuels is present, but with the illustration by Prof. Cohen, it has been settled that n-fuels will continue to exist as long as the earth lives.²⁹ However, the efforts to include n-energy as renewable form of energy has brought no fruitful outcomes even after an inter-governmental authority named IRENA (International Renewable Agency) advising 140 member countries which have not considered n-energy as their favoured form of clean energy,³⁰ not due to concerns about indefinite obtainability, but rather due to the risks and the long and complicated processes associated with it. There are very few researches that have evolved the pattern of public opinion regarding n-energy, and one such study has shown that the most of the participants asked about their opinion regarding nuclear energy were found to be fence-sitters with no clarity on the subject-matter under study.³¹ This public opinion was changeable in the long term by presenting to them the multi-faceted promise or perils in the due course, as was seen in the US scenario. However, such induced alternation in public opinion could not stand the test of justifiability in every scenario, particularly in the situation at present, where several other alternative energy sources exist. It is inevitable to consider that nuclear energy has potential of an outbreak at the global level, that has resulted in a nuclear liability regime being proposed by the EU, which is an active global nuclear liability regime leader, and also being heavily discussed at various international platforms, which is distinctive from the scenarios in case of non-nuclear liability regime.³²

Some of the key concerns that seek the attention of the nations at the global level debate are:

²⁹ Cohen B.L., *Breeder Reactors: A Renewable Energy Source*, (1983) 51 AMERICAN JOURNAL OF PHYSICS 75 (June 15, 2018), large.stanford.edu/publications/coal/references/docs/pad11983cohen.pdf.

³⁰ Kanter J., *Is Nuclear Power Renewable?*, THE NEW YORK TIMES, August 3, 2009 (July 11, 2018), green.blogs.nytimes.com/2009/08/03/is-nuclear-power-renewable/.

³¹ Bisconti A.S., *Changing Public Attitudes toward Nuclear Energy*, (2018) 102 PROGRESS IN NUCLEAR ENERGY 103 (July 11, 2018), www.sciencedirect.com/science/article/pii/S0149197017301695#sec4.

³² Heffron R.J., Ashley S.F. and Nuttall W.J., *The Global Nuclear Liability Regime Post Fukushima Daiichi*, (2016) 90 PROGRESS IN NUCLEAR ENERGY 1 (June 11, 2018), www.sciencedirect.com/science/article/pii/S0149197016300415.

1. Statements against nuclear energy reside on the notion of the green energy boost regime, as it is apparent that nuclear energy is only a low carbon emission source of power whereas the need of the future is indisputably zero-carbon emission sources of power that the other alternative energy sources are going to provide, once they start functioning.
2. Nuclear energy uses the fuels that are limited, and, hence, the cost analysis of the nuclear energy predicts that such a source of energy could be replaced by other sources of zero carbon emission sources of energy.
3. The most important point of concern is that the purpose of formulating and working on a climate change mitigation strategy is to secure the human race from immediate threat of natural calamities, but nuclear fuel itself is a contradictory setup that has the potential to end the human race in case of any unfortunate global incident of leakage or disaster. The potential is not the only concern, but the possibility of the happening of such a perceived massacre generated by nuclear power plant accidents is the reason to advocate for the decommissioning of nuclear power generation around the world.

Hence, after the thorough observation and deduction from above arguments, it seems to be clear that the nuclear energy must be kept out the green energy nomenclature and be put on hold, and there be a subsequently phase-wise discontinuation of its use when an alternative plan to replace such energy is available.

4. Policy Interventions for Integrating and Up-Scaling Renewable Energy Production

The major policy shift for the integration of energy production seems to be reducing the transmission loss during the energy transmission from one territorial region to the other, which has been one of the major challenges faced by the states in present time. Optimization of energy as a material product will only bring one to the traditional theories in place, whereas if energy is considered to be one of the basic necessities, then it will need to be configured as per the humane considerations and lessening the contribution of the purely financial tools to determine the policy measures. The basic idea is to bring about a scenario where energy is not seen as a commodity to regulate and manage, but as a basic human necessity that technology has ever given birth to, and that has to be nourished as a life-supporting object that has a direct impact on the climate and environment.

It is also important to consider that there are many ways to make policies for regulating the energy sector and the ongoing researches have proved that it is comprehensible to calculate that the risks and measures to eliminate such contingent

danger that may cause a threat to such energy action plans, but the lack of integration among the different energy markets and the reasons that have made it impossible to regulate the market as one sector, have negatively impacted the anthropogenic climate change prevention measures that are compromised by such a disseminated energy market, which indeed if integrated, will bring about growth and development in the energy market. The steps to integrate the policy for such energy markets suitably is to structuralize the policy-making authority and constituting a single point regulatory authority with a core ministerial power that will regulate the energy market, and research with a separate departmental role to tackle with the energy policy integration with respect to climate change. The Indian sustainable growth has shown truncated response in the past years as environmental sustainability in business is one of the key considerations that stand as a trade-off in profit-making of the corporate world in a nutshell. The Indian energy sector has never integrated with climate change response in the business models, and is certainly lacking to yield a low carbon transition in Indian scenario after the Paris Agreement. There are serious concerns in the Indian business sustainability model that lacks financing in the green energy sector vis-à-vis the failure of strategic implementation of a low carbon to zero-carbon portfolio in corporate governance, presenting serious threats to long term sustainability, which is evident in the section of this paper that discuss the zero carbon led corporate governance.

Policy intervention from the government, around the world and specifically in India, should not just make policy over direct energy consumption and regulation, but also bring in changes in the allied sectors that require energy at the core of their operations and hence, targeting them in a phased manner. One such sector is the transportation industry that requires energy for its continuous functioning, and there is a higher pollutant release from the urban transportation, accounting for 40% of the total GHG emission wherein single occupancy vehicles have four times the rate of discharge per person as compared to the mass transits systems.³³ Thus, the International Association for Public Transport has worked with the International Energy Agency for modulatory expansion of public transport while doubling the share of public transport worldwide by year 2025.³⁴ India has seen a steep downfall of CO₂ emission from the transportation sector from 1975 to 2014, which presently

³³ *Climate Change Summit: Catalysing Action*, INTERNATIONAL ASSOCIATION OF PUBLIC TRANSPORT ACTION PLAN (2014) (July 11, 2018), <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-Resources-1411limitcost.pdf>http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/07/TRANSPORT-Action-Plan-UITC_revised.pdf.

³⁴ *Ibid.*

accounts for 11.8 % of total fuel combustion as compared to 24.3% in 1975.³⁵ On the other hand, the US has implemented the Renewable Energy Standards for their transportation sector, originating from Energy Independence and Security Act, 2007, requiring a blending mandate of four biofuels (biomass-based diesel, cellulosic biofuel, advanced biofuel, total renewable fuel³⁶), up to 36 billion gallons in the total transportation fuel per year by 2022.³⁷ Likewise, the EU Renewable Energy Directive mandates the mixing of biofuels in the transportation and machinery fuels, with a 10% usage of biofuels in all forms of transportation fuels, as per EU Directive of 2015.³⁸

The weak Indian policy response and the delicate regulatory forces have further stimulated the leisurely corporate actions that lack the commitment towards climate change, thereby losing a large share of stakeholders that are the key drivers of economic growth. It is indeed vital to synthesize the coherence between economic suitability and environmental sustainability, which could present the clear derivatives upon which policy initiatives could be equipped to govern corporate investment in green energy, which presents them with a long term economically feasible model, and to internally govern the business that leads to an integrated climate mitigation determined economic growth. An integrated strategic approach of the government towards encompassing environment sustainability and climate change initiatives with the corporate policy would present the finest approach to attain the environmental sustainability in its originally perceived policy driven structural arrangement. Moving towards the structured Global Corporate Policy under the present International Climate Change Model that effectively impacts dynamism among statehoods, including India, must be the focal point at present, among the other initiatives available at our disposal.

5. Integrating Climate Change Policy with the Energy Sector

Climate change policy governance is directly related to the energy sector, the integration of which is crucial towards finding a global solution for the anthropogenic climate change. The opportunities or benefits emerging out of such a

³⁵ *CO2 emissions from transport (% of total fuel combustion)*, WORLD BANK GROUP (2014) (July 11, 2018), data.worldbank.org/indicator/EN.CO2.TRAN.ZS?end=2014&locations=IN&start=1971&view=chart.

³⁶ *Overview for Renewable Fuel Standard*, EPA, June 7, 2017 (July 17, 2018), www.epa.gov/renewable-fuel-standard-program/overview-renewable-fuel-standard.

³⁷ *Renewable Fuel Standard*, ALTERNATIVE FUELS DATA CENTER, US DEPARTMENT OF ENERGY (July 11, 2018), www.afdc.energy.gov/laws/RFS.html.

³⁸ EU Directive 2015/1513 of the European Parliament and of the Council, dated 9 September, 2015 (July 11, 2018), data.europa.eu/eli/dir/2015/1513/oj.

climate change policy is likely to expedite the present momentum of achieving the goals of climate change mitigation. The governance frameworks have not been much studied in the past as individualistic approaches have been taken up by most of the governments that have tried to deal with climate change strategies in a solitary method, confining it to a sectoral outlook to the problem and the conveniently inherited focus on the product based solutions (including technological advancements), but there are no such integrated measures being taken to involve the energy sector as part of the public policy.

It is worth mentioning that the challenges being faced by the governments in the earlier period of such integration will be more complex and obstructive in nature than those that follow in the later period. Governments around the world will succeed as policy making bodies integrate energy as key factor to determine the future of climate change mitigation strategies, when they work on a global platform to measure and construct such a regime of policy making which includes the experience of the global leaders of climate change policy making contributing in the policy making of the States having lower experience and resourcefulness.

This conformation with the global leaders will eventually result in changing the dynamics of the underperformers in climate change and will lead them to integrate the policy of climate change with the energy sector in a state-of-the-art fashion, and the technological input that was never seen before the internationalization of such event will boost the modalities of the public policy making regimes in the countries around the globe. It is not only the Paris Conference targets that has to be solely taken into consideration regarding the carbon emission standards; relatively, there must be a scientific annotation and assessment on the said long term climate change mitigation goals along with the negotiation process in the political diaspora of the global leaders.³⁹

At the regional level, the sharing of statistics among the states or with neighboring countries, resulting in joint endeavors to effectively work on climate change, could bring down the pollution levels and also mitigate the anthropogenic climate change in India and abroad. The parent Directive of the EU in 2009 sets a mechanism for such endeavors for their member states, which affords the opportunity to adopt such a mechanism in India or in the regional organizations like ASEAN, SAARC, BRICS, etc. The political commitments of nations have to be taken into consideration for such endeavors to be approved unanimously, amongst the ever-raging international issues and conflicts occurring regionally and globally.

³⁹ *Supra* note 4.

The EU Directive of 2009⁴⁰ provides for the sharing of statistics among the member states,⁴¹ which, if implemented at the regional level, will bring in clarity and statistically sound policies that would be structured, if the joint operation will come into effect among the domestic States or within the States, at an internal level. If India takes the same course, keeping in mind its federal character, the states will be compelled to share their data with the Central Government, which will, in return, make the joint strategy of renewable energy binding on such states through a Central Legislation, with the constitutional inclusion of the aforementioned agreements. Article 7 to 12 of EU Directive of 2009 further computes the applicability of the Joint Project and the Joint Scheme that are distinctive in their scope and nature.

6. Concluding Inference

In the wake of the subtle policy changes, warranting the desired accord among the global players, it is advisable to mention that the carbon emission and its theories that are recognized by the participating organization of the climate change initiative must synthesize the potential perils that they pour into the conventional path to the future observers, as the meaning of climate change mitigation is not to monetize the platform but rather to conclusively attempt to bring an atmosphere of a harmonized regime of compliance to curb the anthropogenic climate change. One of the perceived notions of the economic ruining effects generates from the application of the principles of Kyoto Protocol.⁴² However, it is in the interest of the society at large that brings the attention towards the taxonomy of cost estimation that brings into account the social cost calculation and its effect on the environment protection measures.⁴³ It not that the safety threshold of global warming set for 2 Degree Celsius is conclusive, as averred in above sections, wherein some notable contributions to such an impact was analysed and the researches attempted to make it the post-Paris science agenda, after probing from a science and a policy perspective, to set the threshold at 1.5 Degree Celsius.⁴⁴

⁴⁰ EU Directive 2009/28/EC of the European Parliament and of the Council, dated 23 April, 2009 (July 7, 2018), data.europa.eu/eli/dir/2009/28/oj.

⁴¹ *Id* at Article 6.

⁴² Quinn D, *Limiting Cost, Assuring Effort, and Encouraging Ratification*, RESOURCES FOR THE FUTURE 14 (July 11, 2018), www.rff.org/files/sharepoint/WorkImages/Download/RFF-Resources-141-limitcost.pdf.

⁴³ Pizer W.A. and Kopp R., *Calculating the Costs of Environmental Regulation*, [2003] RESOURCES FOR THE FUTURE 1 (June 15, 2018), www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-03-06.pdf.

⁴⁴ Schleussner C.F. et al, *Science and Policy Characteristics of the Paris Agreement Temperature Goal*, (2016) 6 NATURE CLIMATE CHANGE 827 (June 8, 2018), www.nature.com/articles/nclimate3096.

One of the most healthy babies born out of the Kyoto Protocol was the EU Directive of 2009 on utilization of Renewable Energy, which has as its objective⁴⁵ – “The control of the European energy consumption and the increased use of energy from renewable sources, together with energy savings and increased energy efficiency, constitute important parts of the package of measures needed to reduce greenhouse gas emissions and comply with the Kyoto Protocol to the United Nations Framework Convention on Climate Change, and with further Community and international greenhouse gas emission reduction commitments beyond 2012. Those factors also have an important part to play in promoting the security of energy supply, promoting technological development and innovation and providing opportunities for employment and regional development, especially in rural and isolated areas.”

This objective was further assisted by the subsequent paragraph intensifying the scope of said objective and hence, the Article supporting the cause to mitigate climate change. It is the technological and political commitment of the EU member countries that has led to putting such a mechanism in place.

Following the recent trends, it is justifiable to suggest that it is pertinent to enhance the use of green energy by subsidizing it, while also putting in place a robust research and development ecosystem for the steady and secure growth of the clean energy initiative.⁴⁶ The Indian political arena must focus on using its diplomatic powers and credit in committing to technological bargains in the energy sectors, like nuclear energy,⁴⁷ on which India has put great reliance for meeting the future electricity demands. India also holds a unanimous power to regulate matters amongst its states, and as proposed in the above sections of the paper, environment protection and strategies for climate change should have an integrated legislative mechanism to encounter the challenges and interest of the different states in India, thus, cohesively formulating the future path to bring India into a bargaining position on the international platform, depicting itself as an active climate change mitigation partner at the global front.

⁴⁵ *Supra* note 40.

⁴⁶ Santos G., *Road Transport and CO2 Emissions: What Are the Challenges?* (2017) 59 *TRANSPORT POLICY* 71 (June 11, 2018), www.sciencedirect.com/science/article/pii/S0967070X17304262.

⁴⁷ Mohan A., *The Future of Nuclear Energy in India*, ORF, August 9, 2016 (June 17, 2018), www.orfonline.org/research/the-future-of-nuclear-energy-in-india/#_ednref25.

RIO TO PARIS VIA POZNAN- THE JOURNEY OF TECHNOLOGY TRANSFER MECHANISM UNDER UNFCCC

Chiradeep Basak and Swastik***

“We are changing the world with Technology.” *Bill Gates*

“Science knows no country, because knowledge belongs to humanity, and is the torch which illuminates the world” *Louis Pasteur*

Glaciers melting, droughts, floods, extinction of species, shift in seasons, etc. have rung the bell and told the world that climate change is real and it possesses the capacity to wipe out the entire planet. Just as climate change has been able to affect and invade everything on this planet, so has technology. Both of them are present everywhere and are interlinked with each other, and, therefore, possess a solution to this world problem. The United Nations Framework Convention on Climate Change (“UNFCCC”) was an attempt to bring both these elements together and try to tackle the issues of sustainable development, environment degradation and climate change effectively.

Technology today is surely changing the world, and innovation is the key to achieving all the goals of the UNFCCC, as it is the key to the future. The UNFCCC was an idea which caused all the countries of the world to come together and look for a solution to this world problem. The Principle of International Equity governs the Convention and, in collaboration which the Precautionary Principle, promotes Technology Transfer. Technology Transfer is the answer to reduce the differences among the nations of the world and to curb climate change. The UNFCCC was just the beginning of this process and has progressed since then. The current paper tries to show the roadmap of the development in Technology Transfer from the UNFCCC to the Paris Agreement via the Poznan Strategic Programme, the changes that were incorporated in the Technology Transfer regime and how it might be able to address the issues of Climate Change and International Equity.

1. Introduction

We live in the era of technology, where everything is affected by technology directly or indirectly. People are dependent on technology for almost everything, be it making your breakfast, travelling, power production, or space projects. It has roots everywhere and is evolving at a rapid pace. Improvement and innovation are the way forward, without which the evolution of technology and

* *Chiradeep Basak, Assistant Professor of Law, National Law University & Judicial Academy- Assam.*

** *Swastik, LL.M, National Law University & Judicial Academy- Assam.*

rapid development will be adversely affected.

Climate and technology have a long history which can be traced from the beginning of industrial revolution, which was the change that had an impact on every field, but some were less known. Technology led to social and economic development and helped in making human life easier and more comfortable; however, on the other hand, it disturbed the ecological cycle of the world, causing problems like global warming, climate change, etc. Therefore, the effect of technology is immense and it even has the capacity to undo whatever wrong has been done by the use of technology. Technology can make it possible to achieve the goal of sustainable development and improving the environment. Since the 1950s, many of the observed changes have been unprecedented. It is conceivable that more than half of the observed increase in global average surface temperature between 1951 and 2010 was caused by the anthropogenic increase in greenhouse gas (“GHG”) concentrations and other perturbations.¹

Development today has become an essential commodity for all, as people need better living standards and the nations strive towards this goal.² The UNFCCC and the Sustainable Development goals³ provide that development is essential for all nations of the world and it’s against the principle of equity under International Law not to allow the developing and the least developed countries (“LDCs”) to be brought at par with the developed nations.⁴ The Prime Minister of India, Narendra Modi, in his speech at the Paris Agreement, used the term ‘Climate Justice’,⁵ which, in a way, can be understood as the principle of “common but differentiated responsibilities”.⁶ There is a need for global

¹ Jiang Jiani, *Can the System Promote Climate-friendly Technology Transfer?*, 44 ENVIRONMENTAL POLICY AND LAW 422 (2014).

² United Nations Framework Convention on Climate Change, 1992, FCCC/INFORMAL/84, GE.05-62220 (E) 200705, (June 10, 2018, 8:29 PM), <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

³ United Nation Development Program, Sustainable Development Goals, (June 10, 2018, 8:45 PM), <http://www.undp.org/content/undp/en/home/sustainable-development-goals.html>.

⁴ *Supra* note 2; *Supra* note 3.

⁵ PTI, *Paris Agreement a victory of ‘Climate Justice’, says Modi*, THE HINDU, December 13, 2015, (June 10, 2018, 9:15 PM), <https://www.thehindu.com/news/national/paris-agreement-a-victory-of-climate-justice-says-modi/article7983268.ece#>; Nirupama Subramanian, *At UN General Assembly, PM Modi pitches for Climate Justice, War on Poverty*, THE INDIAN EXPRESS, September 26, 2015, (June 10, 2018, 10:11 PM), <https://indianexpress.com/article/india/india-others/pm-at-un-general-assembly-narendra-modi-pitches-for-climate-justice-war-on-poverty/>.

⁶ Nirupama Subramanian, *At UN General Assembly, PM Modi pitches for Climate Justice, War on Poverty*, THE INDIAN EXPRESS, September 26, 2015, (June 10, 2018, 10:11 PM), <https://indianexpress.com/article/india/india-others/pm-at-un-general-assembly-narendra-modi-pitches-for-climate-justice-war-on-poverty/>.

emphasis and co-operation in developing renewable sources of energy through innovation, finance and technology from the developed nations, and this can help in stopping the environmental degradation.⁷ Also, there is a need for change in the lifestyle of the developed nations, which can help us to move towards a more sustainable consumption.⁸

Climate Justice believes in the principle of equity and it is the right of the developing nations and the LDCs to get at par with the developed nations in terms of social and economic development.⁹ It is true that the climate is changing and the carbon emissions have to be reduced, but the developing nations and the LDC's advocate that making them obligated for the activities of the developed nations which resulted in the climate related problems in the process of attaining that developed state and asking them to reduce their emissions is against the principle of equity.¹⁰ They argue that it is their right to eradicate poverty, hunger and illiteracy, and attain better standards of living, and thus, they have the right and the necessity to use resources and develop themselves.¹¹ This argument along with the above provided statement tries to explain the idea of Climate Justice.¹²

Continued emissions of GHGs will cause further global warming and changes in all components of the climate system. Limiting climate change will require substantial and sustained reduction of GHG emissions.¹³ On one hand, the global trading activity is closely related to climate change, i.e. the absence of effective climate policies can contribute to climate deterioration. On the other hand, trade can be regarded as having a positive effect on mitigating climate change by improving resource allocation, promoting economic growth and increasing overall welfare.¹⁴ To tackle the problem of climate change and maintain equity among all the nations of the world, Climate Justice is essential, and it can only be attained if there is an exchange of funds, knowledge and technologies amongst them.¹⁵

⁷ *Ibid.*

⁸ *Ibid.*

⁹ *Supra* note 2.

¹⁰ Werner Scholtz, *Equity as the Basis for a Future International Climate Change Agreement: Between Pragmatic Panacea and Idealistic Impediment - The Optimisation of the CBDR Principle via Realism*, 42 COMP. & INT'L L.J.S. AFR. 166, 166 (2009).

¹¹ *Ibid.*

¹² *Supra* note 6.

¹³ *Supra* note 1.

¹⁴ *Ibid.*

¹⁵ *Supra* note 2.

Technologies that we use to address climate change are known as climate technologies.¹⁶ Climate technologies help us in combating problems related to climate change by helping in the reduction of emissions and concentration of GHGs in the atmosphere, in switching from the conventional forms of energy to the renewable forms, such as wind energy, solar power and hydropower. Further, to adapt to the adverse effects of climate change, development and the use of climate technology is essential as it can be used to produce drought resistant crops, early warning systems, sea wells, etc.¹⁷

2. UNFCCC and Technology Transfer

The UNFCCC talks about Technology Transfer under Article 4 (Commitments) and Article 11 (Financial Mechanism).¹⁸ It provides that the developed countries should provide new and additional financial resources in order to meet the costs incurred by the developing countries in complying with their obligations. Also, the developed nations should provide financial resources for the transfer of technology, which is essential for the developing nations. All this is with regard to fulfilment of the commitments made under Article 4 of the UNFCCC. The implementation of these commitments should take into account the need for adequacy and predictability in the flow of funds and the appropriate burden sharing amongst the developed countries.¹⁹ This Article facilitates the idea of Climate Justice and Common but Differentiated Responsibilities, and it asks the developed countries to provide the developing nations with financial and technology aid to meet their commitments as per the UNFCCC and appropriately share the burden among themselves, in order to attain sustainable development and address the issue of Climate Change.²⁰ Moreover, the UNFCCC provides that the calculations regarding the emissions by sources and the removal through sinks of GHGs for the purpose of the Convention should take into account the best available scientific knowledge, including the effective capacity of sinks.²¹

¹⁶ *What is technology development and transfer?*, UNFCCC (June 18, 2018, 12:00 PM), <https://unfccc.int/topics/climate-technology/the-big-picture/what-is-technology-development-and-transfer>.

¹⁷ *Ibid.*

¹⁸ *Supra* note 2.

¹⁹ Article 4(3), United Nations Framework Convention on Climate Change, 1992, FCCC/INFORMAL/84, GE.05-62220 (E) 200705, (June 10, 2018, 8:29 PM), <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

²⁰ *Supra* note 10.

²¹ Article 4(2)(c), United Nations Framework Convention on Climate Change, 1992, FCCC/INFORMAL/84, GE.05-62220 (E) 200705, (June 10, 2018, 8:29 PM) <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

The Framework Convention also provides that the extent to which the developing countries will implement their commitments depends on the effective implementation by the developed countries of their commitments related to financial resources and transfer of technology, and considers that economic and social development and poverty eradication are the most important concerns of the developing nations.²² It has been proven with scientific evidence that the major cause for climate change today is the past activities of the developed nations²³ and, therefore, as per the principle of International Equity, the burden to correct their wrongs falls upon them.²⁴ Therefore, they have more obligations towards the other nations and towards climate change.

Special focus is on the LDCs and the countries which are most likely to get affected by climate change, i.e. small island countries, countries with low-lying coastal areas, etc.²⁵ and the other parties are to take into full account the specific needs and special situations of these countries with regard to the funding and transfer of technology.²⁶

Developing and transferring technologies to support the national action on climate change has been an essential element from the beginning of the UNFCCC process. In 1992, when the countries established the Convention, they included specific provisions on technology with the aim of achieving the ultimate objective of the Convention, i.e. curbing climate change.²⁷ The Convention notes that all parties shall promote and cooperate in the development and transfer of technologies that reduce emissions of GHGs. It also provides that all the developed countries should take all practicable steps to promote, facilitate and finance the transfer of, or access to, climate technologies to the other countries.²⁸ The Convention states that the extent to which the developing countries will effectively implement their commitments will depend on the

²² Article 4(7), United Nations Framework Convention on Climate Change, 1992, FCCC/INFORMAL/84, GE.05-62220 (E) 200705, (June 10, 2018, 8:29 PM), <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

²³ *Climate change: How do we know?*, GLOBAL CLIMATE CHANGE: VITAL SIGNS OF THE PLANET (June 20, 2018, 11:00 PM), <https://climate.nasa.gov/evidence/>.

²⁴ *Supra* note 10.

²⁵ Article 4(8), United Nations Framework Convention on Climate Change, 1992, FCCC/INFORMAL/84, GE.05-62220 (E) 200705, (June 10, 2018, 8:29 PM) <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

²⁶ *Ibid*; Article 4(9), United Nations Framework Convention on Climate Change, 1992, FCCC/INFORMAL/84, GE.05-62220 (E) 200705, (June 10, 2018, 8:29 PM), <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

²⁷ *Supra* note 16.

²⁸ *Ibid*.

effective implementation by developed countries of their commitments regarding the financial resources and transfer of technology.²⁹

The response to climate change will critically depend on the cost, performance, and availability of technologies that can lower emissions, and mitigate, and adapt to climate change. Technological innovation can furthermore lower the cost of achieving environmental objectives.³⁰ The objective of the UNFCCC provides that the ultimate objective of this convention is to achieve stabilization of GHG concentrations in the atmosphere to a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development in a sustainable manner.³¹

3. The Poznan Strategic Program (PSP) on Technology Transfer

There is no doubt that the cardinal principles of Climate Change encompass within themselves an enormous databank of activities, initiatives, measures undertaken to respond to certain genuine crises, which is an outcome of certain practices by the developed States for quite a long period of time.

From there emerged the principle of Common but Differentiated Responsibility (CBDR), which justified a common concern that we (group of nations) share a common responsibility to protect, preserve and conserve the essence of the environment. The brunt has to be borne by the developed nations in fixing the damages they have done. Hence, the researcher intends to take this principle a starting point and link the same to some of the major elements of Climate Change, i.e. capacity building, adaptation & technology transfer.

It was during COP-13, when the contracting State parties realized and decided to adopt a strategic program on technology transfer. The prime objective of this initiative was to enable the developing countries, to develop environmentally sound technologies.

Thereafter, the Global Environmentally Facility (GEF) Council, Special Climate

²⁹ *Ibid.*

³⁰ Stephanie Chuffart, *Technology Transfer and Dissemination Under the UNFCCC: Achievements and New Perspectives*, COLUMBIA PUBLIC LAW RESEARCH PAPER NO. 14-450, May 1, 2013 (June 20, 2018, 1:00 PM), <https://ssrn.com/abstract=2565891>.

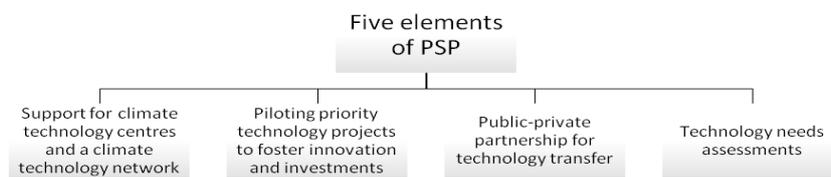
³¹ Article 2, United Nations Framework Convention on Climate Change, 1992, FCCC/INFORMAL/84, GE.05-62220 (E) 200705, (June 10, 2018, 8:29 PM), <https://unfccc.int/resource/docs/convkp/conveng.pdf>

Change Fund (SCCF) and Least Developed Countries Fund (LDCF) came together to adopt the GEF’S strategic program on technology transfer. The same was later renamed as Poznan Strategic Program on Technology Transfer.

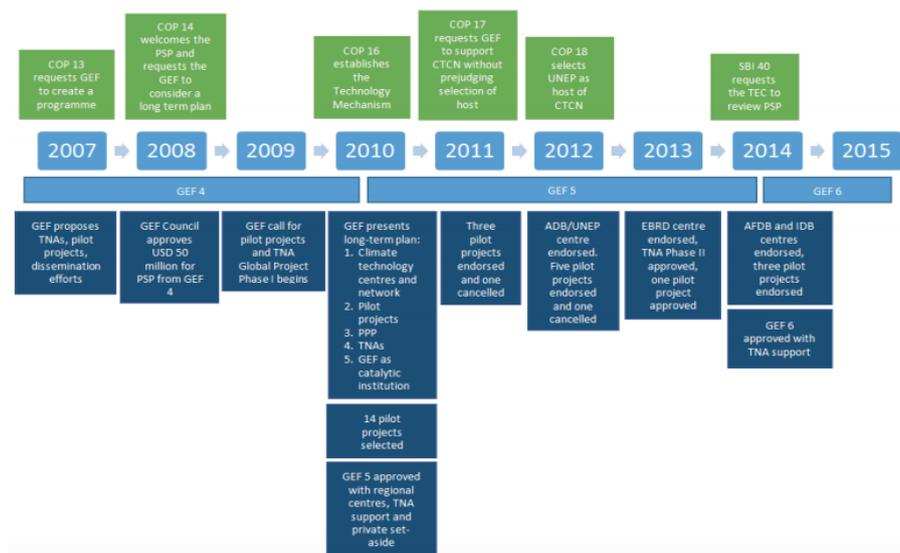
In 2008, the GEF Council approved a strategic program on technology. The program had three windows:

- Technology needs assessments (TNAs);
- Piloting priority technology projects linked to TNAs;
- Dissemination of GEF experience and successfully demonstrated environmentally sound technologies.

The GEF submitted to the COP-16 a plan for the long-term implementation of the PSP.³²

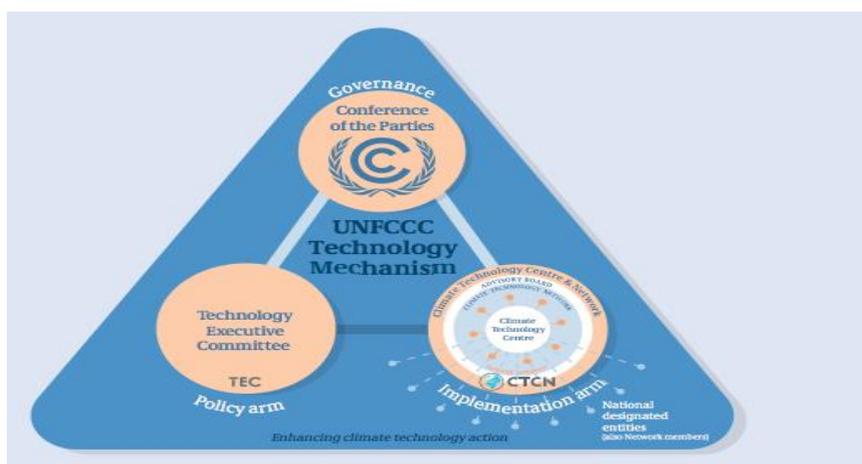


The PSP has evolved quite substantially, since its inception (source: UNFCCC Webportal):



³² FCCC/SBI/2010/25.

The Technology Mechanism's two bodies, the TEC and the CTCN, work together to enhance climate technology action. Their complementary functions support developing country efforts to address both policy and implementation aspects of climate technology development and transfer. They work to enrich coherence and synergy in the delivery of climate technology support and respond effectively to the needs of countries.



Source: UNFCCC web-portal

The TEC is the policy arm of the UNFCCC Technology Mechanism. It consists of 20 technology experts representing both developing and developed countries.³³ The CTCN is the operational arm of the Technology Mechanism. It is hosted by the United Nations Environment Programme, in collaboration with the United Nations Industrial Development Organization, and is supported by 11 partner institutions with expertise in climate technologies. The Centre facilitates a network of national, regional, sectoral and international technology centres, networks, organizations and private sector entities.³⁴

Despite all good attempts to develop a good technology transfer mechanism, there has been a strong jolt as regards climate finance as a whole and even with respect to PSP. There have also been challenges and risks associated with the channelizing the finance,

³³ *Technology Mechanism: Enhancing Technology Transfer Mechanism and Development*, UNFCCC (June 14, 2018, 2:10 PM), http://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/TEM/0e7cc25f3f9843ccb98399df4d47e219/174ad939936746b6bfad76e30a324e78.pdf.

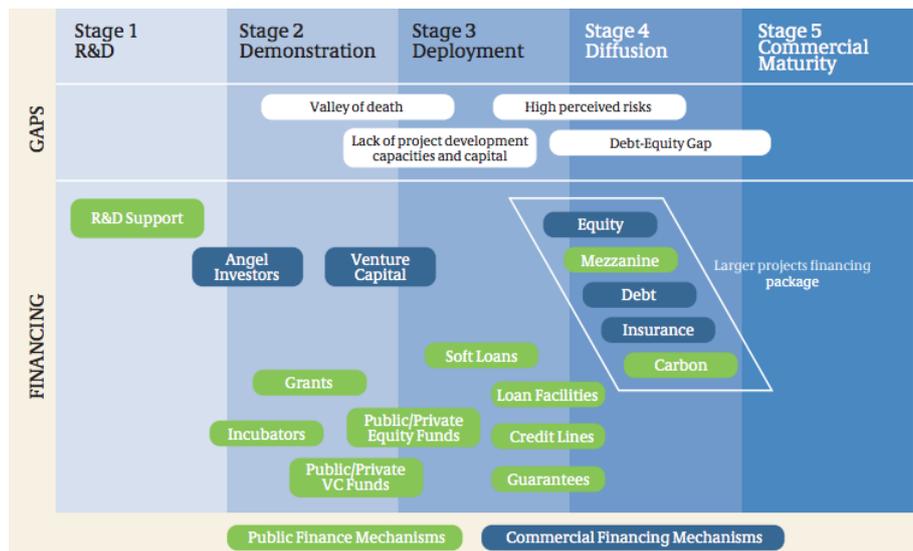
³⁴ *Ibid.*

For technologies with negative abatement costs, misaligned incentives, intangible benefits, high transaction costs and lack of standardization in the quantification of energy savings and other benefits, in addition to the upfront capital costs, frequently hamper their financing and uptake.³⁵

Obtaining financing for climate technologies is particularly challenging in the developing countries due to the additional uncertainty and risks that are hard to mitigate in private financial markets, lack of patient and low-cost capital, poor creditworthiness, lack of guarantees and low availability of capital for public investment.³⁶

One of the major problems associated with economic barriers with respect to technology transfer, revolves around inadequate access to financial resources and inappropriate economic incentives. Another aspect of financial barrier is with respect to risk management. Policy risks affect those climate investments that rely on revenue and regulatory support; market and commercial risks refer to economic risks and include financial risks, such as access to capital and the cost of financing; and technology risks are inversely related to technology maturity.³⁷

The gaps in the field of technology transfer (source: UNFCCC)



³⁵ *Ibid.*

³⁶ *Enhancing Access to Climate Technology Financing.*, UNFCCC TEC Brief #6, TECHNOLOGY EXECUTIVE COMMITTEE (June 15, 2018, 11:00 AM), http://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/TEC_documents/204f400573e647299c1a7971feec7ace/ea65db0ca9264cdbaefeb272dd30b34c.pdf.

³⁷ *Ibid.*

There are several initiatives in allied schemes, which are working on technology development and transfer initiatives. They are as follows:³⁸

- Africa Renewable Energy Initiative
- Breakthrough Energy Coalition
- Consultative Group on International Agricultural Research (CGIAR)
- ClimateTechWiki
- Climate Technology Initiative (CTI)
- Food and Agriculture Organization of the United Nations (FAO)
- International Energy Agency (IEA)
- International Solar Alliance
- International Renewable Energy Agency (IRENA)
- Mission Innovation
- Clean Energy Info Portal Reegle
- Renewable Energy Policy Network Ren 21
- The Energy and Resources Institute (TERI)
- United Nations Conference on Trade and Development (UNCTAD)
- United Nations Environment Programme, Division of Technology, Industry and Economics (UNEP DTIE)
- World Intellectual Property Organization (WIPO)
- World Bank.

4. Technology Transfer under the Paris Agreement

Under Article 10 of Paris Agreement,

Parties, noting the importance of technology for the implementation of mitigation and adaptation actions under this Agreement and recognizing existing technology deployment and dissemination efforts, shall strengthen cooperative action on technology development and transfer.

A technology framework is hereby established to provide overarching guidance to the work of the Technology Mechanism in promoting and facilitating enhanced action on technology development and transfer in order

³⁸ Support for implementing climate technology activities, TT:CLEAR (June 16, 2018, 10:00 PM), <http://unfccc.int/ttclear/support>.

to support the implementation of this Agreement, in pursuit of the long-term vision referred to in paragraph 1 of this Article.

Accelerating, encouraging and enabling innovation is critical for an effective, long-term global response to climate change and promoting economic growth and sustainable development. Such effort shall be, as appropriate, supported, including by the Technology Mechanism and, through financial means, by the Financial Mechanism of the Convention, for collaborative approaches to research and development, and facilitating access to technology, in particular for early stages of the technology cycle, to developing country Parties.

Support, including financial support, shall be provided to developing country Parties for the implementation of this Article, including for strengthening cooperative action on technology development and transfer at different stages of the technology cycle, with a view to achieving a balance between support for mitigation and adaptation. The global stock take referred to in Article 14 shall take into account available information on efforts related to support on technology development and transfer for developing country Parties.

To achieve the goals of the Paris Agreement, there is a pressing need to accelerate and strengthen technological innovation so that it can deliver environmentally and socially sound, cost-effective and better-performing climate technologies on a larger and more widespread scale. But there is no ‘one size fits all’ approach. Different innovation approaches are needed.³⁹ Harnessing technological innovation is a prerequisite for countries to smoothly implement their NDCs, national adaptation plans and mid-century strategies. These are the central elements of the Paris Agreement.⁴⁰

Technological innovation is a key part of the climate solution. Without scaling up and speeding up climate technology innovation, it will be difficult, if not impossible, for the world to achieve the Paris Agreement objectives and sustainable development goals. The climate plans under the Paris Agreement – NDCs, national adaptation plans and mid-century strategies – present us with challenges of different time horizons.⁴¹

³⁹ *Technological Innovation for the Paris Agreement*, UNFCCC TEC Brief #10, TECHNOLOGY EXECUTIVE COMMITTEE (June 18, 2018, 11:16 PM), http://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/brief10/8c3ce94c20144fd5a8b0c06fefff6633/57440a5fa1244fd8b8cd13eb4413b4f6.pdf.

⁴⁰ *Ibid.*

⁴¹ *Ibid.*

5. Concluding Remarks

Despite all the attempts in past decade, we have seen that the major blow to technology transfer is due to want of climate finance. The set target of raising the GEF has not yet seen the light of the day and with equity at stake, it will be justifiable to state that there is a lack of political will from the end of many of the influential developed countries to attain the set targets. The R&D cooperation is strengthening but the world needs more intellectual property friendly regimes to promote technology transfer under the aegis of the climate change negotiation. In addition, the TEC needs to be depoliticized in order to ensure independence in technical and policy expertise. An independent review of technology mechanism will provide better insights and validation in attaining the goals of the Paris Agreement.

SUSTAINABILITY VIS-À-VIS PEOPLE'S PARTICIPATION IN ENVIRONMENTAL DECISION MAKING

Dr. Rupam Jagota and Praisya Chanana***

Man is a creator and molder of his environment which vests him with physical sustenance and affords him an opportunity for overall growth and development .Development is a perpetual process enabling a man to realize his potentialities to achieve his targets by exploiting nature's resources .Sustainability is a pattern of socio structural economic transformation which optimizes the benefits without compromising or jeopardizing the interest and potentiality of future generations but ensuring the evolution of a common principle so that human beings can survive for a long time with the natural environment .People are one of nation's greatest resources for enforcement of environment laws and regulations are intimately related to the natural attributes as citizens are omnipresent, motivated and interested in environment quality.

The researcher has assessed the environment laws and the protections available to restrict, control and check environment pollution. The research paper primarily focuses on the various roles which population can play to preserve and improve the quality of environment. The International and National laws have stressed on building an ecosystem which would ensure Right to Life and Right to Pollution free environment as envisaged under Article 21 of the Constitution along with Article 48-A and Article 51A(g) .State as well as the citizens should actively participate in environmental decision making to evolve efficient and effective protection measures that would secure a healthy sustainable environment that has been degraded due to excessive dumping , rapacious logging , deforestation ,global warming causing serious ramifications for human health and habitation. The paper also analyses the ways citizens can use courts to work towards environment enforcement roles.

Environment must be developed as a mass movement so that essential inputs of the people can be incorporated in the decision making process. The research paper emphasizes on developing and nurturing a role for the citizens in enforcement efforts to provide the missing ingredients necessary to make Environment Protection goals a reality.Further the benefits of people's participation would help in generating a sense of responsibility among people for their environment. This would contribute to implementation and enforcement of environment law to bring about sustainability.

* Dr. Rupam Jagota, Senior Assistant Professor, Department of Laws, GNDU Regional Campus, Ladhe wali, Jalandhar, Punjab.

** Praisya Chanana, Senior Manager Legal and Compliance in an MNC.

1. Introduction

Man is a creator and molder of his environment which vests him with a vision to conserve and preserve the Himalayan environment, its physical sustenance and keep the wheels of progress on the path of overall growth and development. Development is a perpetual process enabling a man to realize his potentialities to achieve his targets by exploiting nature's resources. Conservation, improvement, development and its implications cannot be ignored. Sustainability is a pattern of socio structural economic transformation which optimizes the benefits without compromising or jeopardizing the interest and potentiality of future generations. Public participation is a necessary and fundamental component of a vibrant, dynamic, functional and participatory democracy where administrative and legislative decision making of environmental governance has the potential of making it fair, just and responsive¹. It is inextricably linked with decentralization, self-administration, self-management, respect for human rights and fundamental freedoms². Today environmental decision making is discernible at all levels of government to evolve environmental protection measures, reflect the aspirations of present and future generations and to incorporate value judgments in environmental decisions.

Law alone is incapacitated to strike a balance. There is no doubt a plethora of social, ethical and legal issues related to participation of the public, which need to be addressed to find a viable solution, justification to environmental problems in decision making. The increased demand globally for protection, preservation and sustainability of environment has not only cast the responsibility on the State to meet the environmental threats but has equally shifted the burden on the citizens as environment is the common property of all.³ Rational management of the environment and people's participation for whose benefit and on whom responsibility is vested to restrict potential harm to environment by laying down a substantive criteria for environmental decisions.

There are two rationale for public participation:

1.1 Process Perspective

It is valuable in itself and imparts a degree of democratic legitimacy to decision making.

¹ B.C. Nirmal; Public Participation in Decision Making: International Standards & Indian State Practice, Indian Society of International Law, New Delhi, 702, (ed. 2007).

² *Ibid.*

³ Maria Lee & Carolyn Abbot, The Usual Suspect, Public Participation under the Aarhus Convention, Modern Law Review, 107-108 (ed. 2003).

1.2 *Substantive Perspective*

It emphasis on quality of decision making and therefore the outcome too is positive. It rests on the assumption that public participation in environment law increases the possibility of its implementation and enforcement by creating a sense of responsibility and ownership among the population. Further, State is only a trustee of the flora and fauna which are vested in the people. The fact remains that it is the public for whose interest public protection measures are taken and the public is expected to comply with the measures to safeguard environment, thus, the public should be given the opportunity to develop and articulate its opinion on environmental decisions so that the possibility of future conflicts can be reduced. Further, the attempt of striking a balance between growth, prosperity, development on one hand and sustainability on the other is maintained.

In the name of development, industrial projects, tourism projects have a direct interest and their concentrated stake in planning. They advocate vociferously in favour and usually succeed in convincing and promoting their interest often leading to the silence of the forest, canal, marine and hill authorities and their concern that it will adversely effect the environmental balance. The recent incidents of Tata's project of Nano car manufacturing shifted out of West Bengal due to public opposition, stoppage of building and commercial sites near the Sukhna Lake, Chandigarh, The Hon'ble High Court of Karnataka's order specifying public involvement in decision to cut trees in Bangalore after huge public protest, rallies and door to door awareness, public opposition to construct dams, Narmada Bachao Andolan, Tehri Dam Project, Lakhwar Power Project on Yamuna in Uttarakhand, Sethusamudram Project after allocating alternate sites to the tribal population but without ensuring protection of their flora and fauna,⁴ which is completely lost and cannot be regenerated at the other place since it was nature's gift to humanity. These acts and conduct have encouraged the role of public participation in decision making since the Environment clearance agencies make modifications to the convenience of the governments in power. However, it also highlights the fact, that, decisions on environment protection are usually made by communities least affected by environment decisions. Industrial undertakings have a direct interest and stake in planning and development decisions.

Due to better resources, persuasive method of convincing, political power,

⁴ Jabe Holder, Environment Protection, Law and Policy, 91, (ed. 2007).

money power, they succeed in gaining an upper hand even at the cost of compromising on protection of environment. The need is therefore to include public participation in environment decisions to check the control of the powerful groups. It would bridge the gap and do away with the unequal positions of the general public and the industrial houses. Further, such decisions threaten the ecological system and disturb the habitat of the world's endangered species apart from depriving the population of their basic resources of livelihood. The government's new environment impact assessment notification is a glaring example of omissions and dilutions in the existing provisions. The much needed grievance Redressal Mechanism, appellate environment authority and re-categorization of industries still eludes the law.⁵The new notification has rather relaxed the environment protection requirements for construction projects, thereby posing a need to re-assess the core issue of sustainability, development and re-engineering of environment without compromising it in favor of state advocated growth and prosperity.⁶

2. Advantages of Public Participation in Environment Decision Making

The Community participation, consultation with the local population and creating awareness amongst them about their ecology, for increasing output would not only streamline the work in the field of environment protection, but also energizes the decision-making agencies to take positive people oriented initiatives in their planning and preparation for paving a way towards environmental protection.

Public Participation is categorized into four heads⁷ :-

- i. Information – Transfer
- ii. Consultative – Advisory
- iii. Collaborative – Joint decision – making
- iv. Local Control

Public participation enables the people to express their opinions on the defined subject as they are accustomed to the terrain, weather changes and fluctuations, opportunities for exploring and exploiting environment resources to make them assessable to the local as well as other people and contribute towards the growth of the economy. It would also invite proposals for multiple growth, seek alternatives, to analyse these proposals, differences, suggestions so as to

⁵ Stuart Bell & Donald McGillivray, Environment Law, Oxford University Press, (5th ed. 2008).

⁶ Participation includes citizen control, delegated power and partnership.

⁷ World Bank, The World Bank Participation Source Book, Washington D.C.1996.

create a balance between environmental achievement and attainment of sustainability.⁸

Public, having a direct bearing, facilitates substantive quality of decisions, by entertaining all objections, reducing the chances of delay and procrastination, leaving no space for judicial review of administrative acts or recourse to judicial procedure.⁹ It provides a reasonable and effective opportunity to all who would likely be effected, to give their valuable opinion.

3. Law on Public Participation in Environment Decision Making

Public participation in environmental decision making is not a new concept, rather it appears in all International Human Rights instruments like Article 21 of the Universal Declaration of Human Rights 1948, Article 25 of the Covenant on Civil and Political Rights 1966, ILO Indigenous People's Convention, 1989 and Chapter 27 of Agenda 21, 1992.

Principle 10 of The Rio Declaration of 1992, declares that environment issues are best handled with participation of all concerned citizens at the relevant levels. The Convention on Environmental Impact Assessment, 1991 emphasized on establishment of a procedure that permits public participation in certain circumstances. The Aarhus Convention on Access to information, Public Participation in Decision making and access to justice in environment matters, 1998¹⁰ is the most comprehensive document on access to information and public participation. The Convention emphasizes on the four basic objectives:

- i. Protection through Quality Environment Decisions
- ii. Increased Accountability
- iii. Transparency in Decision Making
- iv. Strengthening of Public Support for Environment Decisions

It is recognized that the best way of protecting the environment and ensuring effective implementation of environment rules could be achieved by involving large number of people including tribals, indigenous people who are adept in environmental traditional knowledge, women in environment decision making and other stake holder's involvement in enforcement of environmental statutes. Convention provides for public participation at 3 stages:

⁸ B. Barton, Underlying Concepts and Theoretical Issues in Public Participation in Resource Development, 79, (ed. 2009).

⁹ Robert D Bullard, Environmental Justice in the 21st century, <http://www.ejrc/cau.edu.p.3>.

¹⁰ The Convention entered into force on 30-October -2001.

- i. Specific Activities & Other Activities having impact on environment¹¹
- ii. Plans, programs and policies relating to environment.¹²
- iii. Preparation of executive regulations or legally binding normative instruments.¹³

4. National Laws on Public Participation in Environment Decision Making

The Constitution of India, under Article 48A in Part IV declares that the State shall endeavor to protect and improve the environment and to safeguard the forest and wild life of the country. Article 51(A)(g) in Chapter IV-A makes it a fundamental duty of every Indian citizen to protect and improve the natural environment including forest, lakes, rivers and wild life and to have compassion for living creatures. The enactment of the Air Act, Water Act, Environment Protection Act have reinforced a desire to preserve and protect the environment from destruction and has emphasized the people and non-government organizations to actively promote the cause of environment by cultivating a sense of belongingness¹⁴ and making public participate in decisions on and related to environment a mass movement.

Every citizen has a fundamental right to enjoyment of quality of life in a healthy,¹⁵ clean, fresh environment. They have a right to clean drinking water, right to live with dignity which includes protection and preservation of environment¹⁶, ecological balance free from pollution,¹⁷ sanitation without which life cannot be enjoyed. The spread of knowledge on environment laws, right to information on environment matters must be communicated by channelizing all possible modes of communication which includes newspapers, audio visual modes, campaigning and participation in seminars and group discussions.

The Water (Prevention and Control of Pollution) Act, 1974 (“**Water Act**”) specifies that previous consent of the board is necessary for discharging sewage

¹¹ Article 6 of the AARHUS Convention on Access to information, Public Participation in Decision Making & Access to Justice in Environmental Matters, 1998.

¹² Article 7; *ibid*.

¹³ Article 8; *ibid*.

¹⁴ The right to seek and disseminate information appears in all human rights text, such as Article 19 of The Universal Declaration of Human Rights (1948), Article 19 of the Covenant on Civil and Political Rights (1996)

¹⁵ Prakash. C. Shukla & B. C. Nirmal; Public Participation in Decision Making: International Standards & Indian State Practice, ISIL, Delhi, 2007, p- 705.

¹⁶ State of M.P. v. Kedia Leather & Liqueur Ltd., (2003) 7 SCC 394.

¹⁷ Intellectual Forum v. State of A.P. AIR, 2006 SC 1350; P. N. Govardhan v. UOI AIR 2006 VOL1, p-1., M.C.Mehta v. UOI, AIR 2004 SC 4018

and trade effluents into the water bodies. However, there is no provision for publication of a consent application or even notice. State pollution control board after receiving the application may conduct an inquiry or it may not. It is also not specified in what form or what would be the nature of such an enquiry. The Board has the exclusive discretion. Such discretion is wide and prone to abuse. The act contains no provision of consultation with the public. The inspection register is not open to public but is confined to a person interested in or effected by discharge. Absence of public participation results in depriving them of knowing the damage caused to them.

The fact is that the industrialist being powerful and regulating the government norms usually do not disclose everything relevant to the board officers. The inspecting officer may not be in a position to act in accordance with public interest or his efforts may not be accepted. Thus, public participation and scrutiny may rationalize the process, resulting in projection of relevant factors before the authorities who would try to remove the inherent lacunas.

Public is the first victim of all developmental projects which cause air and water pollution or any significant, considerable or even minor impact on the environment. People should be aware of:

- i. Who applies for consent?
- ii. What kind, form of pollutant is to be discharged?
- iii. What extent of contamination would be caused if consent is granted?
- iv. What would be the liability of the polluter?
- v. Precautions that need to be taken to restrict discharge by the owner needs to be assessed by granting participation in decisions related to environment.

Informed vigilant groups are competent to fight environmental issues and being well versed are able to project and identify environment problems. Such groups can effectively suggest solutions by participating in environment decision making. It would help in restricting installation of nuclear plants, licensing of chemical factories in habitation or adjoining water bodies, development activities in forest area or coastal zones, dumping of bio medical waste in soil or in water, discharging effluents directly without subjecting to treatment etc. Public engagement in all such cases would give them an opportunity to restrict, restrain and ensure conservation of environment as public hearing would be mandatory before environmental clearance is given.

Public participation in environmental decision making if evolved as an essential

ingredient then potential benefits would include:

- i. Innovative approach of the people and positive solution to address the cause of ecological devastation.
- ii. The increase in people's perception of environment plans and they would assist, aid and help in making viable projects.
- iii. Public participation in decisions and implementation would bring efficient environment policies with no opposition.
- iv. Public participation along with experts would reduce the adverse impacts of projects like environmental destruction, displacement of the population as it would be assessed to determine the effect on the quality of life before approving it.
- v. States being welfare oriented are taking initiative of vesting people, well proficient in traditional knowledge, a right to participate in decisions but the fact remains: -
- vi. Whether they are truly interested in permitting encroachment of their exclusive right to decide.
- vii. Whether the decision-making panel is biased comprising of favorites who promote the interest of their group at the cost of environment.
- viii. Whether voice of the common man is actually heard or is lost in the face of money, political and muscle power.
- ix. Hearing being procedural, do they tend to justify decisions made.
- x. Law of public participation varies depending on the role of intimidation, degree of acceptance in the presence of police, hired goons to give a decision otherwise.
- xi. Whether public participation techniques and strategies applied in different degrees mystify issues so as to deviate from the real issue.
- xii. Whether public participation involves communication or feedback to public to entrust them responsibility.
- xiii. These issues reveal the truth but active vigilant participation by the public would inculcate a sense of responsibility. The decisions should be time bound and public environment participants must be adequately informed. Adequate time must be provided for the public to assimilate and comment meaningfully on these processes, taking into consideration the nature of what is being commented on. Time span fixed for public participation must be adhered to by the government and all role-players, though legitimate participation should not be void merely due to, a deadline being missed for a credible reason.

5. Conclusion

Project-specific public participation must be initiated at the outset of the decision-making process. It may be on framing of policy issues, development of policy solutions and alternatives or on design of development proposals. This will ensure that public would guide and shape the formulation and design of the proposal (whether policy or development) and can potentially reduce the length of the overall process.¹⁸ It is therefore imperative to seek public participation prior to the initiation of a process by technical experts.

Further it would provide guidance to reconcile strain between confidentiality of commercially sensitive information versus citizens' rights to information.¹⁹ Public participation is integral to all stages of policy, planning and project processes so it must extend beyond policy/project development processes and must be integrated into the implementation, monitoring, evaluation and review stages.²⁰ People must be informed of revisions of existing plans as well as the development of future policies, programs and plans.

No innovative approach of controlling communication has been adopted. Further regulatory agencies are unfriendly and do not provide assistance in imparting training to people to participate in decision making. Training initiative is completely absent. It is a mere farce and just to acquire hold over the project by posing an eco-friendly, eco-developmental perspective with sufficient employment opportunities and high returns for the exchange of land.

There is no acknowledgement of public participation and even if it exists the issues raised are ignored not just in the final decision-making process but since the beginning. The Central Government through the Ministry of Environment and Forests should take an initiative to start pilot projects to define different environmental zones across the country. These zones will vary in terms of biodiversity quality, air, water along with socio-economic parameters like population density, income, prevalence of water borne diseases, educational status, etc. This would help to predict the future environmental risks. The State boards are not accountable so even laws are not suitably amended to fulfill people's demands.

Further, administrative attitude to limit public participation and understanding of

¹⁸ B. S. Parneetha, People's Participation & Environmental Protection, Journal of Business Management & Social Science Research, Vol 2, No.2, (Feb.2013).

¹⁹ *Ibid.*

²⁰ *Ibid.*

projects increases conflict, misunderstanding while the beneficiaries earn huge profits and thrive, while people are rendered homeless, their livelihood lost, if they oppose, they may be arrested, jailed and even killed or eliminated. Ex.- Nandigram and Kalinganaya emerged as the most profitable projects.

There is a need to relatively open public intervention, lobbying mechanism and procedure controlled by people. Public opposition through acts, protests, rallies, draw huge attention, widens interest, engages debate and media attention.

To effectively induct people's participation and to increase their involvement there is need to re-engineer environment clearance process. There is a need to increase access to information to the public. Necessary changes in practice with public opinion and redistribution of power in decision making is essential. There is a need to create awareness among the masses for their rights.

There is a greater willingness of management, bureaucrats, regular industry to reach out proactively and work together in decision making. Public participation and scrutiny would force the decision-making machinery to act in a fair and just manner to realize the goal of sustainability and healthy environment. Environmental policy that can be successfully implemented, by considering the ways in which people understand their environments through culture, morality and social interaction—and build these into an environmental policy.

Public as a legitimate source of knowledge by increasing political support can improve the technical rigors of decisions. Environment laws promote development and resource utilization for special environment benefit without camouflaging the potential short and long deleterious effects on environment.

SOLID WASTE MANAGEMENT LAW IN INDIA: OBSTACLES AND OPPORTUNITIES

*Filzah Belal**

This research is centric to one of latest problems being faced in the field of environmental law, despite its gradual growth over time – waste management. There are many classifications of waste – solid, wet or dry. These wastes have been tried to be controlled and managed through various legislations, national and international. In this research, the various legislations for solid waste management in India will be looked at along with various case laws in this regard highlighting the role of the judiciary which has always kept in mind that the right to a clean environment is a fundamental right.

The Environment protection Act, 1986 lays down different rulemaking provisions from which solid waste management rules have flown from. The same has also been amended in 2016 to keep up with the needs of changing Times. Legislations have also been witnessed in the International Law platform.

The various social and economic problems will be studied. This will be supplemented by three primary case studies which are different from each other drastically - Delhi, Alleppey and Punjab. In the end, this research will try to point out the existing obstacles that are being faced in the effective management of solid waste and some possible solutions. It will also highlight the importance and required participation from the municipality, the general public, etc. in order to bring the right to a clean environment into effect.

Keywords:

Solid Waste, Environment, Challenges, Obstacles.

1. Introduction

Waste management is one of the most pertinent issues in India today, and it is the municipal corporations that are primarily responsible for management of these activities. A problem that has had a long history in the country has now started receiving its due attention. Various initiatives have been taken by the government and NGOs, as well as the local population. Yet landfilling remains the most popular resort despite having a lot of adverse effects. This results in methods of disposing of waste which is unsustainable in nature. The need of the

* B.A.LL.B. (Hons.) [Pursuing], National Law University and Judicial Academy- Assam.

hour is to figure out options for Waste Management which are economically viable and socially acceptable and at the same time are environmentally sound.

The more advanced the human settlements the more complex is the waste management, and hence, more there is a pressing need to bring a change. Management of waste involving good practices like that of segregation of waste in the household as well as scientific recycling of all components is partially utopian keeping in mind the social conditions in India.

It needs to be understood that the main ideas of reusing and recycling are not enough to build an environmentally and economically sustainable waste management system. Especially it has to be kept in mind that with a growing population every day, the amount of waste being generated is also increasing and so the complex task of waste management keeps getting more and more difficult.

This paper outlines various advances in the area of waste management. It focuses on current practices related to waste management initiatives true comparative method, and how a better environment can be envisaged for the citizens. The purpose of this paper is to gain knowledge about various laws that exist in India and a scope for improvement in the management of solid waste.

2. An Analysis of The International Legal Framework

2.1 *London Convention, 1972*¹

The preliminary committee for the 1972 Stockholm Conference on the Human Environment, set up by the United Nations General Assembly, settled on an intergovernmental gathering working on marine contamination. At the national level, a few countries began creating ways to deal with controlling dumping that caused such contamination. The United States of America set forward recommendations for an international concession to the subject. Prodded from the national level by an endeavour by the vessel *Stella Maris* to dump 650 tons of chlorinated waste, a few countries began creating ways to deal with controlling such dumping.

States abutting the North-East Atlantic embraced an international convention managing dumping in Oslo, Norway, on 15 February 1972. Soon thereafter, the Stockholm Conference received an arrangement of standards for international environmental law and called, in addition to other things, for an international

¹ Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 26 UST 2403, 1046 UNTS 120, 11 ILM 1294 (1972).

instrument to control dumping of waste adrift.

The United Kingdom, in meeting with the United Nations Secretariat, convened a further conference in London, and the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (the 1972 London Convention) was entered into on 13 November 1972 in London, Mexico City and Moscow.

The generally prohibitive arrangement of the Contracting Parties to the 1972 London Convention towards the dumping of waste and another issue brought about a further advancement in 1996 when a protocol to the convention was received. This Protocol was proposed to supplement the 1972 London Convention. The London Protocol went into constraining in 2006. Among various different changes, the key contrast between the 1972 Convention and the 1996 London Protocol is that the Protocol embraces a “turn around list” approach. All dumping of waste is precluded, with the exception of a predetermined classes of waste where dumping could be allowed (eg: fish waste, sewage sludge, dredged material, etc.), as opposed to the 1972 Convention approach, which restricted dumping just of a predefined rundown of substances, while requiring permission for everything else.

2.2 *Basel Convention, 1989*²

The Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal, commonly referred to as the Basel Convention, is an international treaty designed to reduce the shipment of hazardous waste between nations. In particular, it is meant to prevent the shipment of hazardous wastes to developing countries, where less strenuous or non-existent environmental laws could allow for the processing of waste in ways that would be forbidden in the country of origin of the waste. This was furthered under the *Stockholm Declaration, 1972* under *Article 6*.

The Convention encourages the environmentally responsible management of waste as close as possible to its point of generation.³ The Convention further promotes reduced volume and toxicity of waste generation by all countries that are parties to the Convention, as well as environmentally sound waste management within developing countries. The Basel Ban Amendment (not yet in force, but considered morally binding by parties to the Convention)

² Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1673 UNTS 126; 28 ILM 657 (1989).

³ Preamble, Basel Convention, 1989

prohibits the export of hazardous waste from a list of developed countries to less developed countries for any reason, including recycling. The Convention came into force in 1992 and has 172 Parties. Among those Parties Afghanistan, Haiti and the United States of America have yet to ratify the treaty. India is a party to the Basel Convention.

Article 4 imposes general obligations on all parties to the convention. *Paragraph 1* states that all parties that exercise the right to prohibit the import of waste for disposal and shall inform the other parties before doing so. Moreover, parties are even allowed to prohibit the export of waste to those parties which are prohibited Import of the same. *Paragraph 2* obliges each party to take appropriate measures to ensure that minimum waste is produced and that there is the availability of adequate disposal facilities as well as to ensure that trans-boundary movement of waste is reduced to the minimum and that it is conducted in a manner which shall not hamper human health and the environment. *Paragraph 3* Express sleeper all parties must consider the illegal traffic of waste as criminal in nature, as explained under *Article 9* of this convention, and hence all parties must take appropriate steps in this direction.

Article 6 mandates the trans-boundary movement between parties that is acceptable under this convention. It states that before the trans-boundary movement the exporting state must notify the importing state in writing and that the importing state must also acknowledge the notification given by the exporting state before such trans-boundary movement. However, *Paragraph 5* states that this is only to be permitted in case of ways that are legally defined or considered to be acceptable by the importance state. Under *Article 7* this procedure is also extended to transfer between parties, one of which may not even be a party to this convention.

When the trans-boundary movement of waste cannot be done according to the terms of contract then under *Article 8* of this convention the exporting state can take back the waste unless an alternative arrangement for the disposal cannot be arranged within 90 days from the time the importance state informed the exporting state of the problem in disposing it. No other country shall oppose, hinder or prevent the return of those wastes into the exporting state.

International co-operation is also emphasized upon under *Article 10* taking into account the needs of developing countries. The convention calls for appropriate means for cooperation to assess the developing countries in the

implementation of measures under Article 4 of this convention. Pursuant to this objective, there might be any bilateral, multilateral as well as regional agreements that can be entered into by the respective state parties to this convention under *Article 11*.

To ensure the instrumentation and regular discussions upon the provisions this convention *Article 13* establishes the Conference of the Parties (CoP) that shall keep under continuous review and evaluations of the effective implementation of this convention. As such if an amendment is required for this convention it may be brought into effect under *Article 17*.

In case of any dispute, it shall be peacefully resolved among the Nations under article 20. However, in case of failure, the matter shall be submitted to the ICJ or to arbitration under annexure vi on arbitration. However, since the principle of international cooperation has already been established under this convention it shall always be the first option to resolve disputes peacefully, and still be pursued even after the matter is referred to the ICJ or for arbitration.

2.3 Rotterdam Convention, 1998⁴

The Rotterdam Convention of 1998 is based on prior informed consent procedure for certain hazardous chemicals and pesticides in international trade. This document was vital and was right in time to respond to the dramatic growth in Chemicals trade and the vulnerability of developing countries and its uncontrolled imports. It covers pesticides and industrial Chemicals that have been banned or severely restricted for health or environmental reasons by parties.

This convention establishes a compulsory prior informed consent procedure between the parties and provides from mechanism to make informed decisions on future Import of Chemicals assisted by decision guidance documents. Thereby to improve the capacity of parties to prevent unwanted imports and avoid stockpiles of obsolete pesticides. The convention works closely and receives technical assistance from regional offices of the United Nations Environment Programme (UNEP) and the Food and Agriculture Organisation of the United Nations (FAO).

The provisions of general obligations, exchange of information and Conference of Parties (CoP) is the same as the Basel Convention.

⁴ Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 2244 UNTS 337; 38 ILM 1 (1999).

3. Legal Framework in India

The Environment Protection Act, 1986 (hereinafter the EPA, 1986) is the parent act from which flows the power to legislate over matters of waste management. Section 3, 6 and 25 of the EPA, 1986 the Central Government can make rules to secure the objective of Environment protection in India. To give effect to this in the context of waste management, the Municipal Solid Waste (Management and Handling) Rules 2000 was enacted. Exercising the same power, the rules of 2000 were amended in 2016.

The judiciary has also strengthened the waste management system in the country through its constant supervision and by playing an active role in bridging the gaps in the legislation.

In *M. C. Mehta v. Union of India* (known as the *Oleum Gas Leakage Case*),⁵ it was held that when an enterprise is engaged in hazardous activities, it must be cautious about the waste being discharged by them. It is an “*absolute and non-delegable duty*” on the part of such enterprise that it owes to the society and the community at large. It must make sure that while the enterprise in the instant case was discharging harmful gas, it was bound to be held liable as it caused damage to the health of a lot of people. It should have therefore adopted “*high standards of safety*”.

But it does not mean that when the responsibility is on the municipality, it can sidestep from its responsibilities giving vague excuses, for example, financial shortage.⁶ In such cases, the Court can hold the municipality liable for public nuisance under sec 133 of the CrPC thereby giving power to the District Magistrate to avert public nuisance.

The Polluter Pays principle has been applied in cases of inappropriate waste management which causes harm to people. However, it has been established that there must be properly produced evidence to prove the burden on the polluter and that he has caused damage. In such a case, the Supreme Court has held that the polluter has to pay for the damage.⁷

The Judiciary has also been active in addressing the religious issues related to

⁵ AIR 1987 SC 1086.

⁶ *Municipal Council, Ratlam v. Shri Vardhichand*, AIR 1980 SC 1622.

⁷ *Research Foundation for Science, Technology and Research Foundation v. Union of India*, (2005) 13 SCC 186.

pollution. In *Amarnath Shrine v. Union of India*,⁸ the Supreme Court addressed the matter of pollution in Amarnath Cave due to waste disposal. The responsibility was entrusted upon the State of Jammu and Kashmir, Amarnath Shrine Board and the Union of India. Proper waste disposal and management system was set up and was facilitated to ensure a better environment in the religious environment while ensuring a better waste management at the same time.

The judiciary has even applied the doctrine of '*Parrens Patriae*' under the Bhopal Gas Leak Disaster (Processing of Claims) Act, 1985⁹ in a similar fashion.

The Rules, 2000 were laid down in the spirit of the objectives of the Environment Protection Act, 1986, meaning that a violation of the Rules, 2000 or 2016 will be addressed according to the penalties enumerated under the Act, 1986. In view of protecting the environment and the interrelation of human beings with the other elements of the environment, it is important to ensure public health and safety and the right to a clean environment, and ensuring proper waste management is only one of those ways. In fact, the judiciary has ruled that proper waste management is also in view of animals.¹⁰ Not only does garbage impact their health, but when they move around from improper waste storage sites or landfill sites to other places, they spread the dangers of improper waste storage to the rest of the community.

These problems surfaced even more prominently when there were problems related to waste management that had become absolutely disturbing the human health and the environment. One of the most troubled cities in matters of waste management has been Delhi. The waste management system in the city is haywire and there seems to be no way to reduce the waste being generated when the population is only expanding day by day. As a result, there was over spelling from the landfills which are limited in area.

When there was waste been discarded into the Yamuna River,¹¹ it affected the river body and created a nuisance that has now started degrading the help of persons depending upon the water body for the everyday lives. When the Judiciary was approached, the Supreme Court made obligations of the states to provide the safe and clean environment, and that every citizen has the right to

⁸ (2013) 3 SCC 247.

⁹ *Charan Lal Sahu v. Union of India*, (1990) 1 SCC 613.

¹⁰ *Ibid.*

¹¹ *Almitra H. Patel v. Union of India*, (1998) 2 SCC 416.

clean environment an Art. 21 of the Constitution of India. The Court emphasized on municipality is being constitutional institutions and how the 12th Schedule of the Constitution enumerates its various important functions, one of them being solid waste management. In the wake of urbanization in Delhi being the capital city, the Delhi Municipal Corporation must have been even more vigilant and cautious about the increase in waste management when the increasing population is very evident. This led upon the Corporation becoming even more responsible and thereby was directed to submit reports on the handling of waste management.

*Dr. B L Wadhera v. Union of India*¹² was another case in the same lines. Dumping of garbage and lack of proper performance of the Delhi Municipality Corporation, as well as the Delhi Development Authority in collection and management of the said waste, was leading to chaos. While there was a prohibition against the accumulation of rubbish and garbage to be administered by the municipal corporation, this responsibility was never carried out adequately. The courts not only imposed a general penalty upon individuals but to ensure the functioning of the statutory authorities, it also interested the government to appointments a Municipality Magistrate for the trial of offences against any act all rule regulation bye-laws etc. which must be complied with in terms of solid waste management.

Another great issue faced as an obstacle to effective solid waste management is the waste generated and dumped by neighbouring areas. The incorporation of the Basel Convention in this regard was effectively seen in *Vijay Laxmanrao Dak v. Union of India*.¹³ Here, it was seen how a nearby village was being polluted by the increasing waste of the growing city of Aurangabad. Despite pleas that were made to the Aurangabad Municipality, the body fails to take actions after making promises. It was under the obligation of choosing and getting registered unapproved site as a solid waste landfill, and yet the authority without doing so was dumping all the solid waste in the mentioned village. When this matter was finally referred to the Court, strict actions were taken and the concerned authorities were reminded of their duties under the SWM Rules, 2016 which not only made the Municipal Corporation of Aurangabad responsible but also the Secretary of the Urban Development Department. The concerned authorities were directed to come up with proper planning food collecting, processing and disposing of the solid waste.

¹² AIR 1996 SC 2969.

¹³ 2018 SCC OnLine Bom 319.

3.1 *Municipal Solid Waste (Management and Handling) Rules, 2000*

Following a private petition brought to the Supreme Court, a group of solid waste management specialists drafted the Municipal Solid Waste (Management and Handling) Rules, 2000 (hereinafter the MSW Rules, 2000) that define the standards that were to be achieved by the end of 2003.

Rule 2 of MSW Rules, 2000 makes the municipal authorities primarily responsible for regional waste management. These rules apply to these municipalities in respect of collection, segregation, storage, transportation, processing and disposal of municipal solid wastes. The municipal authorities are not only governed by these rules but are also responsible to implement these rules within the territorial area according to *Rule 4*. Non-compliance with these rules can be addressed by the Judiciary.¹⁴

It is also these Municipal authorities which shall make an application for the grant of authorisation for setting up waste processing and disposal facility including landfills from the State Board or Committee, as per the compliance criteria are given under *Schedule I*.

Another vital function of a municipality under *Rule 4* is also to prepare annual reports which must be submitted to the Secretary-in-Charge of the Department of Urban Development of the concerned state, and a copy of which must be submitted to the State Board or a Committee, on or before the 30th day of June every year.

This Secretary-in-Charge of the Department of Urban Development of the concerns state or union territory is the head of the application of these rules. He is the first person who shall be held responsible for the enforcement of these rules under *Rule 5*. The District Magistrate or the Deputy Commissioner of the concerned district is entrusted with the same responsibility within the territorial limits of his jurisdiction under *Rule 5* itself. However, the supervisory power and monitoring of the implementation of these rules, under *Rule 6*, is the responsibility of the Central Pollution Control Board and the State Board, or the Committees, in relation to the protection of the environment as well as the compost quality according to the standards specified in the schedules.

Rule 7 and *Schedule II* give provision for the management of municipal solid wastes among the different bodies. Therefore, all functions to be carried out are

¹⁴ *M. C. Mehta v. Union of India*, (2003) 10 SCC 719.

clearly identified and demarcated. Firstly, a collection of municipal solid waste shall be overseen by the municipal authorities that must ensure compliance with the rule of prohibition of littering. Even the State Government is directed to notify the prohibition of littering of municipal solid waste. For this, many steps like organising house to house collection of waste, horticulture in construction or demolition waste or debris, discouraging the burning of waste, etc. have been stated in the MSW Rules, 2000.

The municipal authorities are also entrusted with the responsibility to establish and maintain storage facilities of municipal solid waste in a manner that they do not create an unhygienic and unsanitary environment. The scope of this provision is expanded to also include transportation of municipal solid waste and direct that all vehicles used for such purpose shall always be covered so in order to not make it visible to the public as well as to prevent its exposure to open environment in addition to prevention of scattering.

The municipal authorities are also responsible for the processing of municipal solid waste. Eco-friendly as well as scientific and technologically sound methods must be adopted to make the best use of waste and also to minimise the burden on landfills.

Finally, the disposal of municipal solid waste, that is to be done by the municipal authorities, is also explained. Landfilling shall be the last resort only restricted to non-biodegradable waste or any other ways that are not suitable for recycling of a biological processing. However, all landfilling sites that still operate must meet the specifications under *Schedule III*.

As prescribed under *Rule 9*, in case of any accident that may occur at any municipal solid waste collection segregation storage processing treatment and disposal facility on landfill site or during the transportation of such ways the municipal authority shall report the accident in the prescribed form to the secretary in charge of the Urban Development Department in Metropolitan cities and the district collector or deputy commissioner in all other cases.

The MSW Rules, 2000 allow for only inert waste to be disposed of to landfills. A particular consequence of this requirement is that cities that do not have an operational processing facility for all their mixed waste feel prohibited from landfilling their waste (since it contains biodegradable waste) and so the waste of the city continues to be dumped in an unsatisfactory way, even if a landfill is available. It is clearly preferable to process biodegradable waste in a satisfactory way rather than to landfill it, but it is also clearly preferable to landfill

biodegradable waste rather than to dump it.

Further, since landfills may be designed to accept only the proportion of waste that cannot be processed or recycled, it is argued that they are too small to receive all of the waste generated on a routine basis. Recent attempts to analyse the issue include examining the reasons for the negligible compliance with the requirements for processing and landfilling, and to suggest remedies for this situation.

The Uttarakhand High Court took commendable steps in pursuance of the provisions of these Rules as it gave additional guidelines to be implemented emphasizing on the importance of the roles played by the various authorities, right from the Municipalities to the Pollution Control Board, to the Ministries. It concluded by stating that:

“The zenith of civilization can only be gauged how clean the cities and towns are. Every citizen has a fundamental as well as the human right to a clean and hygienic environment. Every citizen at the same time has a fundamental duty to maintain the cleanliness in and around his abode. There are some persons indulging in littering, dumping of garbage at public places vis-à-vis the persons employed to clean up the mess...The stringent law is required to be made to prohibit the persons... An endeavour should be made to protect the natural environment and protect the health and safety of people and also remove the aesthetical unpleasant sight and smell related to solid waste management.”¹⁵

3.2 Solid Waste Management Rules, 2016

The same power under the EPA, 1986 empowers the Central Government to amend its rules, whereby amendments were introduced in the new Solid Waste Management Rules, 2016 (hereinafter, the SWM Rules, 2016). Through this amendment, various positive changes have been incorporated to pave way for the better waste management system.

The rules have been expanded beyond Municipal areas to include urban and industrial areas within the scope of solid waste management. To make it more effective, the waste generator has been introduced with the responsibility of segregation of waste (wet, dry and hazardous waste). If he fails to do so he will have to pay user fees to the waste collector and a spot fine, the amount of which will be decided by the local bodies. This reflects upon the principle of polluter pays which has been emphasized through the 2016 amendment.

Waste processing facilities are to be set up by all local bodies, the scope of

¹⁵ *Sai Nath Seva Mandal v. State of Uttarakhand and Ors.*, 2017 SCC OnLine Utt 364.

which now includes village panchayats and local authorities of census towns and urban agglomerations. It aims to arrange for door to door collection of segregated solid waste, as well as to integrate into the mechanism rag pickers as informal waste collectors engaged in collecting solid waste, and to train them. It is vital to adopt a scientific approach to managing waste effectively and preventing further damage to the environment and human health.

It also aims at setting up material recovery facility is of secondary storage facilities, establishing waste disposal centres for domestic hazardous waste and ensure safe storage and transportation of the same and empowered the local bodies to frame bye-laws in consonance with the provisions of SWM Rules, 2016. The Apex authority for supervision was shifted to the Central Monitoring Committee under the Environment Secretary.

With great emphasis on recycling and reusing waste, the concept of waste to a wealth of resources found a place in the SWM Rules, 2016. People were generating the waste have been primarily made responsible for the quantum that is generated by them, and will be responsible for littering and non-segregation along with a fine that shall be imposed in the failure of this responsibility. They are not only responsible for the segregation at the stage of generation of this waste but also be responsible for how it is disposed-off, and that it must not be littered.

Moreover, the waste generator is not supposed to throw burn off by the solid waste that is generated in any public space outside his backyard, which once again reflects the concept of “*not in my backyard*”. On one hand, these rules give guidelines on how the waste is to be managed within ones on premises, as well as how to dispose of off to the municipality. The sole responsibility of the waste has been put on the person is generating the waste and this shows the *Cradle to Grave* approach that is implied within the SWM Rules, 2016.¹⁶

3.3 Role of Municipalities and Effective Waste Management

Municipalities are primarily responsible for managing waste, from the collection of waste to disposing of it. It depends on the municipalities as to how they handle the waste. We will see the significance of their work through the two following case studies wherein one city the municipality is not being able to

¹⁶ Press Information Bureau, Ministry of Environment, Forest and Climate Change, “*Solid Waste Management Rules Revised After 16 Years; Rules Now Extend to Urban and Industrial Areas: Javadekar*”, Published 5th April, 2016. URL: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=138591> [Last accessed on 20th April, 2018]

manage the waste and the other in which the municipality shifted to a more scientific system for waste management and reduced hazards related to waste disposal. The similarity in both the cases is that the landfills in both the cities were not established scientifically, but the difference lies in the shift made from the earlier non-scientific landfills to a new system of practising eco-friendly ways to dispose off waste.

3.3.1 Delhi: City that doesn't know how to handle its waste

There are three landfills in Delhi, sites that are chosen due to the distance between far away from the city. These sites are demarcated as garbage areas in urban master plans. But these sites are more than 35 years old today. Since then the city has expanded dramatically witnessing a large population explosion at the same time. Many of the landfills are now engulfed by residential colonies. Therefore the amount of garbage has long spilt out of the landfills leaving the municipal corporation of the city unable to manage its own waste.

The population today is almost 2 million in Delhi, who produce approximately 9000 to 10000 metric tons of garbage. Do all this waste is picked up by the three corporations in Delhi. As long as the economy keeps growing and the population keeps Rising, the level of waste products is also going to keep increasing. It is estimated by EMDC that by near 2025, approximately 18000 metric tons of garbage will be produced per day.

Landfills have become a serious threat to health and the environment considering that 94% of India's waste ends up in the landfills. It emits toxic gases (like methane), but what is more dangerous is the state of those who work in these conditions is even more appalling and dangerous.

As the waste in the landfills is burnt it releases highly combustible Methane Gas. Due to these hazards, the Ghazipur landfill has been declared as a threat to the city.

The amount of waste is increasing day by day but the area of the landfill remains the same. This leads to the reuse of the same land increasing the toxicity of that area as they have already been oversaturated.

While there is an imminent threat of air pollution as well as water pollution, and the land which is already been damaged, the high slopes that have been created by heaps of garbage over all these years also pose a threat of seepage as well as spreading over other land areas which pose a threat to lead to some serious accident. All this affects the ecology and violates basic human rights of persons.

3.3.2 Alleppey: Scientifically Modern Waste Management Set-up

Cities like Alleppey, Panaji, Mysore, etc. are a sharp contrast to the situation in Delhi. These cities have taken an approach whereby they no longer see waste is waste but an opportunity to turn it into a meaningful resource.

In 2012, people in Alleppey protested to close down landfills taking an approach of "not in my backyard". As garbage has started spreading across the city, new methods of waste management came into play. The focus of the project was on segregation and treatment of wet waste and resource. Installing biogas plants and vermicomposting units have been seen where domestic waste is treated. The Alleppey municipality has to install biogas plants in households with 75% subsidy from the government agencies. Through this mechanism, household organic waste is converted into compost, and at the same time is also cost-effective. For instance, the energy that is created can be an effective alternative to the use of LPG gas cylinders. This way not only a more environmentally friendly renewable resource is being produced, but also the cost has gone down.

After biogas and pipe composting, another technique was tested in Alleppey. Here they have waste composting unit where waste is composted within 90 days in these community tanks that are maintained by the Alleppey municipality. The speciality is that these are anaerobic¹⁷ composting units, which means that they no longer have to throw the garbage themselves.

Efficient work by municipalities, awareness campaign programs and segregation of waste within households has together contributed in making Alleppey a model City for waste management in India.

If the Alleppey model is to be adopted in a much larger city like that of Delhi, the problem of scarcity of land and the problem of a much bigger population stands as obstacles. However, if the planned into small divisions and it is according planned properly, it will be easier to manage and easier to execute plans. These plans can be made area specific depending on many grounds such as population density, existing pollution and damage already done, remoteness of the area, etc. which can be inspired from the 'cluster approach' as in the Punjab Model. The plan for Delhi will be complex, but not impossible. But if the current situation in Delhi persists even for another decade, the city will be engulfed by the hazards of uncontrollable waste.

¹⁷ Rule 3 (2), Solid Waste Management Rules, 2016

3.3.3 Punjab Model

The Bhatinda Municipality tied up with a private establishment in order to facilitate proper waste management in the State. Today, Chandigarh is one of the cleanest cities, which is also known as the best-planned city. This is also known as a 'Public Private Partnership', i.e. PPP.

PPP (Public Private Partnership) is a method of working in which the public and private sectors cooperate and partner with each other to create infrastructure and provide service to users. A PPP is a new concept in India for project conceptualization, planning and implementation is sparsely available. Consequently, the municipalities find it difficult to find sample documents to get a better understanding on how the project needed to be structured, which aspects to be covered, what should be the key highlights of the project documentation that will steer the future developments in the project, viz. , the contract document featuring operation and maintenance terms and conditions, etc. This situation is even more critical in the case of small and medium towns having miniscule resources and a herculean task towards the management of basic services, such as solid waste Management. However, the public interest is kept in mind, such initiatives of PPP are taken up.¹⁸

It is not only the duty of this department to clean the city but also to control the diseases such as Cholera, Diarrhoea and spread of mosquitoes and flies. The city is divided into eight Zones for the purpose of cleanliness. There are 423 regular employees, 35 daily wagers and 58 part-time employees who clean and sweep the roads, streets and Mohall's of the city and carry out the silting of drains. The attendance of these employees is checked by the Sanitary Inspectors/ Sanitary Supervisors. In order to further enhance the level of services and to manage the solid waste generated in the city in a scientific manner the Municipal Corporation, Bathinda has executed an Agreement with M/s JITF Urban waste Management (Bathinda) Ltd on Public Private Partnership mode.

Integrated MSW facility has divided into three phases – Construction Phase, Operation & Maintenance Phase, and the Post Closure Phase. The responsibilities of these are divided between the Municipal Corporation of Bhatinda and M/s JITF Urban Infrastructure Ltd. Some of the main problems faced by them jointly are – dust emission control, green belt development,

¹⁸ *Municipal Corporation of Ujjain v. BVG India Ltd.*, (2018) SCC OnLine SC 278; here it was held that contracts between the Municipal Corporations and private entities always involve public interest

erosion management, leachate treatment and disposal, etc.

The objectives of this PPP are:

- a) To develop a self-sustainable, charge-based and community-supported solid waste management system with an emphasis on recycling and resource recovery.
- b) To raise the awareness of environmental protection in the community at large through research, training, publications and the promotion of renewable energy and organic farming.

This PPP has certain stages:¹⁹

- i. Project Initiation and Assessment
- ii. Pre-feasibility and Analysis
- iii. Preliminary
- iv. Detailed Project
- v. Bid Process Management
- vi. Project Construction and Monitoring
- vii. Commencement of Operation

Such a mechanism helps the weaker municipalities in resources to cope up in handling the increasing waste generation by the day.²⁰ It is perhaps at the grass root level that waste management must be focused on. It will gradually lead to better waste management at a higher level. This model is seen as a ‘good practice’ in terms of waste management. This model will obviously not be feasible in every region and is also not the only solution.

3.3.4 Afroz Shah: Individual Efforts of a Champion of the Earth

In the wake of “Swachh Bharat”, even when the authorities were failing to take an action in the beaches of Mumbai, and individual names Afroz Shah took up the initiative to clean the beaches and thereby ‘cure’ the environment from the pollution it was facing. In 2015, a young lawyer, Shah, constituted a team to clean up the coastal areas in Mumbai and clean up the area.

Frustrated with the decomposing waste that kept on piling on the coastal areas,

¹⁹ Kumar, Vipin and Bajaj, Amit, “A Case Study to Public Private Partnership in Solid Waste Management”, International Journal of Innovative Research & Studies, 2013 Jul, pp .5552-559

²⁰ Government of Punjab, Department of Local Government, “Punjab Model Municipal Solid Waste Management Plan – 2014” Published January, 2014. Accessible at: <http://pmidc.punjab.gov.in/wp-content/uploads/2016/12/Punjab-Model-Municipal-Solid-Waste-Management-Plan-2014.pdf>

he set out on his mission. He started with the Versova Beach, which was also being called as “a date with the ocean”.²¹ While his initiative was centric to cleaning up the litter, he also realised that to prevent further littering, he explained to people the dangers of marine littering, and how we could stop it from its root causes.

After having removed almost 13 KGs of waste from the Versova Beach, ²²he took up another initiative that he declared in March 2018. This time the drive is to clean up the Mangrove area. Meanwhile, the government has only recently taken an initiative to ban plastic but it is only a matter of time before we can see how effective this plan works out, but it must be mentioned that the implementation of the plan has been very strongly done.

3.4 Pitfalls and Drawbacks

In India, where the private sector participation must be promoted, it is not happening. It has time and again been emphasized that ‘the private sector must come forward and enable the public sector stakeholders to devise appropriate Framework that results in a Win-Win for both sides.’ Even when talking about the corporate sector, it is not enough for only very few organisations to take a step, the entire sector must lead an initiative. This can largely start from within their own industries as they can take initiative to manage their Industrial waste better rather than littering and throwing it in the rivers. And where the municipal bodies are not strong enough, the private sector can come today at for a PPP, for example, EXNORA is an NGO in Chennai that focuses on the environment through their solid waste management program that works in municipalities throughout Tamil Nadu. This not only ensures the objective of the NGO to manage waste better but also helps the municipality in full feeling its responsibility, thereby providing citizens with a better environment to live in.

Even though the legal framework has loopholes in it, the CSR programs of various companies have compelled many companies to contribute to better waste management. In this regard, even the role of the informal sector engaged in Municipal solid waste management must be given more importance, not only in

²¹ UN Environment, Champion of the Earth, “Afroz Shah, Environmental Organizer, 2016, *Champion of the Earth, Inspiration and Action*”. Accessible at: <http://web.unep.org/championsofearth/laureates/2016/afroz-shah> [last accessed on 25-04-18]

²² Chacko, Benita, “After Versova Beach, Afroz Shah and his team to Clean Mangrove Patches”, The Indian Express, March 7, 2018, Accessible at: <http://indianexpress.com/article/cities/mumbai/after-versova-beach-afroz-shah-and-his-team-to-clean-mangrove-patches-5088642/> [last accessed on 25-04-18]

terms of strategies for solid waste management but also for maintaining the health and dignity. Constructive and effective proposals to merge this informal sector and integrate them into the formal sector to achieve sustainable solid waste management can be done keeping in the back of the mind an opportunity at improving the living standards of the concerned informal sector, which is not given enough importance.

However, these initiatives must not only be a plan for the sake of it but must fulfil the basic goal of recycling the maximum amount of waste generated creating maximum employment through cleaner and healthier methods that minimise the threats to the environment as well as human health.

For a long time, micro-enterprises in the sector of waste management (for example waste recycling sector) has been largely undermined. What countries like Latin America and Egypt show that if Rag pickers and recyclers get official recognition from the concerned local bodies, and if they have the capacity to organise themselves and institutionalize the activities, we can improve the work as well as working conditions. Even in India, we can see very little presence of this concept. The Self Employed Women's Association (SEWA), Ahmedabad successfully improved the living conditions of women paper pickers. the organised themselves into Cooperative and search for easily accessible raw materials in bulk quantity and promoted themselves to better conditions.

It is high time that the importance of competent personnel is recognized in India and that only qualified persons are involved in the waste management system. These persons must have the requisite management, technological and professional skills. All persons employed in this sector must have a blueprint of the plan for managing the waste, which must be clear and must be adhered to.

In India the landfill, sometimes described as “sanitary landfill”, does not go beyond filling up of low-lying areas with stinking waste conveniently bypassing the recommended requirements for ‘sanitary landfill’. In the end, anything that is emptied at dumping or landfill sites continues to cause serious environmental depredation. The developed countries do boast that they handle their waste in a more scientific manner at landfill sites by laying the dumping grounds with a vulcanized plastic sheet to avoid leaching of toxic digested and undigested waste into the ground underneath. ,

The quantum of solid waste is ever increasing due to many reasons. Plastics waste is a significant portion of the total municipal solid waste (MSW), which must be reduced as much as possible, and even if used, it's recycling must be

carried out in a way that does not further add to the environmental pollution levels and instead, that conserves energy.

4. Suggestions

Urban India is the third largest waste generator, where nearly 0.1 million tons of municipal solid waste is generated in India every day. Approximately 36.5 million tons of waste is generated annually. Out of the total Municipal waste collected 94% is dumped on land and 5% is composted. However, the largest obstacle that stands in the way of effective waste management in India is the lack of eco-friendly habits within the households itself and the bad practices that exist. Almost by common practice, very few houses separate that biodegradable and non-biodegradable waste. This further leads to difficulties when the municipality collects the waste in its separation.

Moreover, the belief that once the garbage is outside the household it is no longer the responsibility of an individual is the worst kind of contribution that can be witnessed. Once all the mixed-up trash is dumped in the municipal dustbins, the responsibility shouldered upon the municipality. If the municipality delays the process of collecting such waste it overflows from the dustbins. Both, the ones who dump waste as well as the ones who collect the waste, must be made aware of the consequences in the failure of performing their individual responsibilities. Citizens must be made aware that it is not only the government but also themselves who must take appropriate steps under article do not pollute the environment in to preserve it. In that context, they must realise the importance of segregation of household waste which is the key to minimising the problem of waste management in India today.

More impetus must be on the 4Rs, i.e., Refuse, Reduce, Reuse & Recycle. These can be explained as follows:

- Refuse: Do not buy anything which we do not really need.
- Reduce - Reduce the amount of garbage generated. Alter our lifestyle so that minimum garbage is generated.
- Reuse - Reuse everything to its maximum after properly cleaning it. Make secondary use of different articles.
- Recycle – Keep things which can be recycled to be given to rag pickers or waste pickers (*Kabadiwallahs*). Convert the recyclable garbage into manures or other useful products.

There needs to be a shift in the approach to view waste as an opportunity to turn

into a resource, as we have already seen in the case of Alleppey. These opportunities must be identified by the authorities concerned and must be vigilant. They must innovate and find new ways to reuse and recycle the waste into commodities of value in the market.

In places where landfills are not being able to suffice, more ecologically friendly means of waste management, such as composting within households, must be promoted. Segregation must be given enough importance so that pollution in many forms can be controlled, and eventually be eliminated.

5. Conclusion

The Ministry of Urban Development and Poverty Alleviation, as well as Agriculture, should develop the market for compost, and if required provide subsidies for compost manure – first to provide organic soil nutrients to the farmers and to solve the urban waste problem which continuously is polluting land through uncontrolled dumping.

It is sufficient to say that we require a more stringent integrated and strategic waste prevention framework to effectively address wastage related issues. There is an urgent need to build upon existing systems instead of attempting to replace them blindly with models from developed countries. To prevent an epidemic and to make each city a healthy city-economically and environmentally, there is an urgent need for a well-defined strategic waste management plan and a strong implementation of the same in India.

To achieve financial sustainability, socio-economic and environmental goals in the field of waste management, there is a need to systematically analyse the strengths and weaknesses of the community as well as the municipal corporation, based on which an effective waste management system can be evolved with the participation of various stakeholders in India. The public apathy can be altered by awareness building campaigns and educational measures. Sensitization of the community is also essential to achieve the above objectives and we need to act and act fast as every city in India is already a hotbed of many contagious diseases, most of which are caused by ineffective waste management.

All these above said suggestions are given in relation to India and will be effective only when we individually feel the responsibility of making the environment clean. As the general public, we cannot do much in policy and regulations formulation, adoption of newer technologies related to recycling and other waste management options but we can play a very important role in this

process. For example, separating biodegradable and non-biodegradable garbage for daily waste, saying 'no' to plastic bags and switching to more sustainable alternatives, compost organic waste to find better use of 'waste', etc.

While efforts are being made to improve collection and transportation, the situation with regard to treatment and disposal of solid waste in India is still very unsatisfactory with much remaining to be done.

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A DALIT CRITIQUE OF ENVIRONMENTAL JUSTICE IN INDIA

*Bhimraj M**

The social structure of a country plays an important role in the distribution/deprivation of environmental burdens/benefits. 'Caste' in India, like 'race' in the US, is a significant factor in environmental discrimination. It is the people from lower caste groups, the untouchables, who are being deprived of environmental benefits and share a disproportionate burden of the pollution. In spite of caste being a significant factor in environmental discriminations, the environmental discourses in India usually ignore or do not give adequate consideration to this aspect. The academicians or scholars engaged in the field are either intentionally or unconsciously turn a deaf ear towards this issue. This paper tries to prove how the untouchables in India are being deprived of environmental justice viz., denial of equitable access to natural resources and unequal implementation of the right to health because of their lower status in the casteist hierarchy. The main aim of the paper is to expose the gap in the field and to emphasize the vast scope of empirical studies regarding the issues. Though some of the issues set out in the paper are categorized under the broader concept of 'untouchability', an approach from environmental justice perspective is very effective to regain the lost rights.

Keywords:

Untouchables, Caste, Dalits, Environmental Justice

1. Introduction

The social structure of a country plays an important role in the distribution/deprivation of environmental burdens/benefits. Recently, the United Nations Development Programme in its paper observed that the way in which the states govern ecosystems and natural resources often results in multiple deprivations, marginalization and structural inequality and had also labelled such environmental inequality as a threat to sustainable development goals.¹ Speaking in the context of the United States, *Robert D. Bullard* says that the existing environmental protection paradigm reinforces social stratification instead of mitigating it.² In the United States, people of colour were discriminated in the enforcement of environmental measures. Disposal of toxic industrial or

* LL.M, Faculty of Legal Studies, South Asian University.

¹ UNDP, *Environmental Justice - Comparative Experiences in Legal Empowerment*5 (2014).

² Robert D Bullard, *Environmental Justice in the 21st Century: Race Still Matters*, 49 *Phylon* (1960-) 151, 155 (2001).

commercial hazardous wastes near their vicinity, deprivation of benefits from natural resources, deprivation of quality air, water and land in their place of living and work, inaction on part of the authorities to redress the damage, exclusion from decision making, exposure to harmful pesticides as majority of the hired farm workers are people of colour etc., were some of the environmental discriminations.³ There are numerous studies corroborating those discriminations and one can witness those cited in the Environmental Justice literature of the U.S.⁴ Those findings concluded that 'race' was a most significant factor than 'income' in environmental discrimination. These discriminatory practices resulted in the emergence of a new struggle called '*Environmental Justice*'.

'Caste' in India, like 'race' in the US, is a significant factor in environmental discrimination. It is the people from lower caste groups, the untouchables, who are being deprived of environmental benefits and share a disproportionate burden of the pollution. This paper tries to prove the above proposition by addressing the following questions. First, how environmental discriminations are the product of the caste system? Second, what are the elements of Environmental Justice? Third, whether the environmental rights framework in India is compatible with those elements? Fourth, how are those elements being secured to untouchables in India without any discrimination? This paper mainly focuses on two environmental injustices, namely, inequitable access to natural resources and unequal protection from health hazards. There are rarely few pieces of literature directly dealing with the question of 'caste' in environmental matters. Also, unlike the US, there are no extensive studies conducted at a national level in India directly dealing with caste as a factor in environmental discrimination. The main aim of the paper is to expose the fact that the issues discussed are ignored in the environmental discourses in India and there is a vast scope for empirical studies regarding some of the issues.

Accordingly, the paper is divided into eight sections. Section II sets out the meaning of certain terms used in the paper. Section III analyses how caste system backed by Hinduism supports environmental discriminations and criticizes the attempts made to justify those environmental discriminations under the garb of 'sustainable development'. Section IV sets out the elements of 'Environmental Justice' and Section V analyses the Indian environmental framework to determine its conformity with those elements. Section VI deals

³ Maria Ramirez Fisher, *On the Road from Environmental Racism to Environmental Justice*, 5 Vill. Envtl. L.J. 449, (1994).

⁴ Robert W. Collin, *Review of the Legal Literature on Environmental Racism, Environmental Equity, and Environmental Justice*, 9 J. Envtl. L. & Litig. 121, (1994).

with the statistics relating to environmental discriminations faced by the untouchables. Section VII lists various other environmental discriminations, which were not discussed in the paper, very briefly. Section VIII offers some conclusions.

2. Meaning of Terms

2.1 Untouchables

The 'Hindu Society' is based on hierarchy and eventually inequality. It extends rights "primarily to the privileged upper castes" and "the burden of society fell most heavily on the shoulders of shudras and the untouchables who could claim hardly any privileges or rights."⁵ Theory of 'Chaturvarna' as propounded by Vedas and emphasized in other 'sacred' Hindu Scriptures, divides the society hierarchically into four varnas namely Brahmins, Kshatriyas, Vaishyas and Shudras believed to be originated from the mouth, arms, thighs and feet of the *Purusha* respectively.⁶ The fifth category 'Ati-Shudras' or 'outcastes' are outside the Varna fold and are placed at the lowest stratum of the society due to the practice of 'untouchability' which "is founded on the belief that the lower castes can pollute the higher castes, and the fear that members of the higher castes who have contact with the lower castes will be spiritually damaged."⁷ At the ground level, the society functions based on 'castes' or 'jatis', which is different from Varna.⁸ But they derive "their ideological rationale of purity-pollution, endogamy and commensality, and so forth, from the varna model."⁹ 'Untouchables' are forced to perform menial and filthy jobs like manual scavenging and subjected to numerous other discriminations because of their polluted nature.¹⁰

⁵ Romila Thapar, *The Hindu and Buddhist traditions*, XVIII Int. Soc. Sci. J. 31,35 (1966).

⁶ HINDU MYTHS 28 (Penguin Books 1975).; See Ch. 4 V. 13, Ch.18 V.41 in THE BHAGAVAD GITA (W.J. Johnson trans. OUP 1994).; For other Hindu scriptures emphasizing the Varna model and debates on origin of caste, See DAVID KEANE, CASTE-BASED DISCRIMINATION IN INTERNATIONAL HUMAN RIGHTS LAW 23-70 (Ashgate 2007).

⁷ Scott Grinsell, *Caste and the Problem of Social Reform in Indian Equality Law*, 35 Yale Journal of International Law 199, 204 (2010).; See *Infra* 31.; INDIA CONST. art. 17 abolishes the practice of "untouchability".

⁸ DIPANKAR GUPTA, INTERROGATING CASTE: UNDERSTANDING HIERARCHY & DIFFERENCE IN INDIAN SOCIETY 198-99 (Penguin Books 2000).; "Caste system is not merely a division of labour. It is also a division of labourers." See Dr. B. R. Ambedkar, PHILOSOPHY OF HINDUISM in 3 DR. BABASAHEB AMBEDKAR WRITINGS AND SPEECHES 67 (2d ed. Dr. Ambedkar Foundation, Ministry of Social Justice & Empowerment, Govt. of India 2014).

⁹ Dipankar, *supra* note8, at 199.

¹⁰ Human Rights Watch, *Cleaning Human Waste: "Manual Scavenging," Caste and Discrimination in India* (2014).

2.2 DALIT

The term 'Dalit' was coined by *Jotirao Phule* which literally means 'crushed' or 'broken' in the Marathi language.¹¹ It does not denote a caste, but has become synonymous with 'untouchables'.¹² The term is "inclusive of all the oppressed and exploited sections of the society" and includes meanings such as "downtrodden, disadvantaged, underprivileged, dispossessed, deprived, handicapped, abused, humble, prostrate etc."¹³ There were many terms imposed by 'others' to identify the 'untouchables' and the most prominent one is 'Harijan', coined by M.K. Gandhi which translates into 'people of god'. But the term lost its significance as many felt the term as "patronising and ultimately meaningless exercise."¹⁴ The term 'Dalit' gained acceptance among the untouchable community and is considered as a 'political identity'¹⁵ or a "political category for assertion of identity and mobilization for collective action and connotes an ideology for fundamental change in social structure and relationships."¹⁶

Recently, the Indian Ministry of Information and Broadcasting ordered the media to use the term 'Scheduled Caste' instead of 'Dalit' as it found the latter to be derogatory in nature.¹⁷ This move was severely criticized by the Dalit activists.¹⁸ One author views the term 'Dalit' as 'casteless' and 'empowering'.¹⁹ It is also interesting and significant to note that the *United Nations Office of the High Commissioner of Human Rights (OHCHR)* in its *Guidance Tool on Descent-Based Discrimination* asked the UN agencies "to identify the affected communities by the names by which they identify themselves (e.g. Dalits in

¹¹ ANAND TELTUMBDE, *THE PERSISTENCE OF CASTE: THE KHAIRLANJI MURDERS AND INDIA'S HIDDEN APARTHEID* 35 (Navayana 2014).

¹² Chapter-II, http://shodhganga.inflibnet.ac.in/bitstream/10603/119933/8/08_chapter%202.pdf.

¹³ Ghanshyam Shah, *Dalits and the State: An Overview* in *DALITS AND THE STATE* 16 (Ghanshyam Shah ed., Concept Publishing Co. 2002).

¹⁴ OLIVER MENDELSON & MARIKA VICZIANY, *THE UNTOUCHABLES: SUBORDINATION, POVERTY AND THE STATE IN MODERN INDIA* 3 (CUP 2000)

¹⁵ OMPRAKASH VALMIKI, *JOOHAN: A DALIT'S LIFE* xii-iii (Aruna Prabha Mukherjee trans., Samya 2014).

¹⁶ Das and Massey, quoted in Ghanshyam, *supra* note 13.

¹⁷ Shalini Nair, *Refrain from using word Dalit, stick to Scheduled Caste: I&B Ministry tells media*, *INDIAN EXPRESS* (Sept. 4, 2018, 11:27:59 am), <https://indianexpress.com/article/india/refrain-from-using-word-dalit-stick-to-scheduled-caste-ib-ministry-to-media-5338274/>.

¹⁸ *Dalit' a unifying term: Scholars*, *THE TELEGRAPH* (Sept. 4, 2018), <https://www.telegraphindia.com/india/dalit-a-unifying-term-scholars/cid/1665520>.

¹⁹ Jeya Rani, *So the Term 'Dalit' Can't Be Used But 'Brahmin' and 6,000 Other Caste Names Can*, *THE WIRE* (Sept. 14, 2018), <https://thewire.in/caste/dalit-brahmin-caste-names>.

certain South Asian Countries...).”²⁰

2.3 Scheduled Caste

The term Scheduled Caste (SC), unlike Dalit, is a legal or administrative term categorizing those castes who suffered from the practice of untouchability. It was first introduced by the British government through a 1936 order to guarantee certain political entitlements.²¹ The previous term used was ‘Depressed Classes’.²² Similarly, the Indian Constitution vests the power with the President of India to categorize ‘castes or races or tribes or parts of groups within castes or races or tribes’ as SCs.²³ Those belonging to the SC category are entitled to certain affirmative measures under the Indian Constitution. SCs is interchangeably used with ‘untouchables’²⁴.

In this paper, the term ‘Untouchables’ is preferred to *identify* the affected communities, wherever appropriate, for two reasons. First, mainly, the term has a religious favour which exposes the cruelty of Hindu social order. Second, other terms are anyway used interchangeably with ‘Untouchables’.

3. Caste – Not Eco-Friendly

According to one author, “it is impossible to think of India except in terms of caste.”²⁵ ‘Caste system’ was observed by the Supreme Court as a “curse on the nation.”²⁶ The very essence of the Caste system is based on ‘purity’ and ‘pollution’. Dr. B. R. Ambedkar says, “...Hinduism is overwhelmed with the fear of pollution. It has not got the power to purify. It has not the impulse to serve and that is because by its very nature it is inhuman and unmoral.”²⁷

The Caste system is not merely a religious practice but “have close ties with other social, economic, and political systems, such as kinship, power regimes, and labour relations.”²⁸ This paper argues that the equitable access to natural resources is denied to the untouchables in two ways, namely, by unequal

²⁰ OHCHR, *Guidance Tool on Descent-Based Discrimination: Key Challenges and Strategic Approaches to Combat Caste-Based and Analogous Forms of Discriminations* 5(2017).

²¹ DEVELOPMENT OF SCHEDULED CASTES AND SCHEDULED TRIBES IN INDIA 2-3 (Jagan Karade ed. Cambridge Scholars Publishing 2008).

²² Tanweer Fazal, *Scheduled Castes, reservations and religion: Revisiting a juridical debate*, 51 Contributions to India Sociology 1, 3 (2017).

²³ INDIA CONST. art. 341.

²⁴ Fazal, *supra* note 22.

²⁵ Pillai G., quoted in DAVID KEANE, *supra* note 6, at 215.

²⁶ Lata Singh v. State of U.P. & Another, Writ Petition (crl.) 208 of 2004.

²⁷ Dr. B. R. Ambedkar, *supra* note 8, at 92.

²⁸ SURINDER S. JODHKA, CASTE 4 (OUP 2012).

distribution of land and by imposing disability to utilize common resources. This, in turn, makes them vulnerable and force them to perform degrading jobs. These environmental injustices have its roots in the caste system backed by Hindu scriptures which attribute pollution to the ‘untouchables’. For example, water plays an important role in the caste system. Most of the rituals to purify oneself from the pollution of lower castes involves ‘water’. Water is also sanctified in the Vedic texts.²⁹ Accordingly, the pure water sources are excluded from polluted ‘untouchables’.³⁰

To point out, *Manusmriti*, one of the sacred Hindu scriptures, imposes several disabilities on women, shudras and untouchables. To name a few, a person becomes polluted if he touches a ‘chandala’³¹ and has to purify by bathing³²; ‘shudras’³³ are not allowed to possess wealth even if he has the ability³⁴ and his only job assigned by god is serving the other three classes³⁵; they must eat the leavings of Brahmans food³⁶; more importantly, place of abode of a chandala is *outside the village*³⁷; their dress should be the garments of dead, they should wander constantly³⁸ and are supposed to eat from broken dishes.³⁹

Dr. B.R. Ambedkar says, “The Hindus hold to the sacredness of the social order. Caste has a divine basis.”⁴⁰ Hence, ‘Discrimination’ is a religious duty of Hindus. It is because of this reason of ‘divinity’ the environmental discrimination faced

²⁹ Deepa Joshi & Ben Fawcett, *Water, Hindu Mythology and an Unequal Social Order in India*, Paper presented at the Second Conference of the International Water History Association, Bergen, Aug. 2001.

³⁰ “Access of purity and pollution plays an important role in access to public water bodies and structures.” Swarup Datta et al., *Access to Drinking Water by Scheduled Castes in Rural India: Some Key Issues and Challenges*, 9 Indian Journal of Human Development 115, (2015).

³¹ ‘A member of the lowest caste-an untouchable or Dalit community...Due to their untouchable status, chandalas are *often expected to live far from the rest of the community*.’ (emphasis added) JEFFERY D. LONG, HISTORICAL DICTIONARY OF HINDUISM 77 (Scarecrow Press Inc. 2011); ‘Chandala’ is also translated as ‘fierce untouchable’ See THE LAWS OF MANU 108 (Wendy Doniger & Brian K. Smith trans., Penguin Books 2000).

³² Manusmriti Ch. 5 V 85, THE LAWS OF MANU (Wendy Doniger & Brian K. Smith trans., Penguin Books 2000).

³³ ‘The fourth of the four varnas or castes. In terms of traditional occupation, this caste is made up of trades that involve menial labour and servitude.’ LONG, *supra* note 31, at 287.; ‘Shudra’ is translated as ‘servant’, *Id.*

³⁴ Manusmriti Ch. 10 V. 129, THE LAWS OF MANU, *supra* note 29.

³⁵ *Id.* Ch. 1 V. 91.

³⁶ *Id.* Ch. 5 V. 140.

³⁷ *Id.* Ch. 10 V. 51.

³⁸ *Id.* Ch. 10 V. 52.

³⁹ *Id.*

⁴⁰ DR. B. R. AMBEDKAR, ANNIHILATION OF CASTE in DR. BABASAHEB AMBEDKAR WRITINGS AND SPEECHES 69 (Dr. Ambedkar Foundation, Ministry of Social Justice & Empowerment, Govt. of India 2014).

by the untouchables in India cannot be paralleled with those faced by the people of colour in the United States.

4. Old Wine in New Bottle – Justifying Discriminations

To one's surprise, these environmental discriminations are upheld by some scholars. Arguments are put forward linking ancient Hindu scriptures with the concept of sustainable development.⁴¹ One author says, "...the Hindu caste system can be seen as a progenitor of sustainable development".⁴² He also refers to the following explanation given by *Madhav Gadgil and Kailash Malhotra*,

*"The caste system...was actually based on an ancient concept of sustainable development which disciplined the society by portioning the use of natural resources according to specific occupations (or castes), and created the right social milieu in which sustainable patterns of resource use were encouraged to emerge"*⁴³(emphasis added).

In another article, the author argues that the caste system created an 'ecological space' which reduced competition among various people for limited natural resources.⁴⁴ Some argue that though the caste system in the Hindu society can be a hindrance to social and economic aspects of sustainability, the Hindu tradition promotes environmental sustainability.⁴⁵

Another author asks the people to return to their traditional roles assigned by the caste system. By doing so, he argues, a Brahmin through teaching will contribute to social dimension of sustainable development, a Kshatriya who once martyred to defend his fellowmen will now donate blood and contribute to health aspect of sustainable development, a Vaishya will contribute to socio-economic development and finally a Shudra "could organise campaigns to keep

⁴¹ "Sustainability Science, an emerging new discipline... may benefit directly from the study of this ancient philosophy and its relation to modern thinking." See Dr. John J. Kineman & Dr. Deepak Anand, *Roots of Sustainability in Ancient India*, Proceedings of the 58th Annual Meeting of the ISS – 2014 United States.; Ratna Roshida Ab Razak & Zainal Abidin Sanusi, *The Concept of Sustainable Development in Human Civilisation: An Introspective View*, 17 *Kemanusiaan: The Asian Journal of Humanities* 19, (2010).

⁴² O.P. Dwivedi, *Human Responsibility and the Environment: A Hindu Perspective*, 6 *Journal of Hindu-Christian Studies* 19, 23 (1993).

⁴³ *Id.*

⁴⁴ O.P. Dwivedi, *Satyagraha for Conservation: Awakening the Spirit of Hinduism*, <http://www.bishnoism.com/uploadPDF/DwivediHinduEcol.pdf>.

⁴⁵ The author cites several references from Vedas, Upanishads, Mahabharata and Manusmriti to emphasize the divinity attached to nature. Kartikeya V. Sarabhai, *Sustainability, ESD and the Hindu Tradition*, http://earthcharter.org/invent/images/uploads/15%20Manuscrip_Kartikeya.pdf.

cities/towns clean and motivate fellow-citizens to close the loop and support recycling and contribute to environmental sustainability.”⁴⁶

Even the UN Secretary-General’s Report, ‘*Harmony with Nature*’ submitted to the General Assembly in 2010, observed, “The Vedic philosophy of India has always emphasized the human connection with nature...The Mahabharata, Ramayana, Vedas, Upanishads, Bhagavad Gita, Puranas and Smriti contain some of the earliest messages on ecological balance and the need for people’s ethical treatment of nature. They emphasize harmony with nature and recognize that all natural elements hold divinity.”⁴⁷

Supreme Court of India also engaged in this Romanticization of ancient texts. It observed, “forests...provided shelter for the 'Rishies' and accommodated the ancient 'Gurukulas'...That is why there is copious reference to forests in the Vedas and the ancient literature of ours. In ancient times trees were worshipped as gods and prayers for up-keep of forests were offered to the Divine.”⁴⁸

5. New Traditionalism

Those arguments are labelled as ‘new traditionalist’ discourses which romanticize the ancient scriptures and practices.⁴⁹ These people consider environmental pollution or degradation as a product of colonialism and glorify the practices and traditions in the past as pro-ecological. They praise the verses in the ancient scripture, by cherry picking, which emphasizes the protection and value of nature and environment and ignore those verses which obligate them to discriminate.

A simple question which has no answer is put forth to these types of arguments. And the question is, “If forests and trees are worshipped as gods then why those who lived a pro-ecological life i.e. in a close proximity with nature, ‘the Tribes’, were given a socially inferior position in the Hindu society?”. The ‘new traditionalist’ discourse which considers the subordinate castes and tribals, the victims of the same tradition, as the keepers of shastric tradition is regarded as paradoxical.⁵⁰ Justice *Markandey Katju* stated the discriminations against tribals as follows,

⁴⁶ Venkatesh G., *Where Science Fails Outdated Religion Provides Clues*, 12 Problems of Sustainable Development 119, (2017).

⁴⁷ A/65/314, at Para 21.

⁴⁸ Rural Litigation and Entitlement Kendra vs State of U.P., 1989 A.I.R. 594.

⁴⁹ Subir Sinha & Ors., *The ‘new traditionalist’ discourse of Indian environmentalism*, 24 The J Peasant Stud. 65, (1997).

⁵⁰ *Id.* at 77-78

“The injustice done to the tribal people of India is a shameful chapter in our country's history...The well-known example of the injustice to the tribals is the story of Eklavya in the Adiparva of the Mahabharat... It is time now to undo the historical injustice to them.”⁵¹

These ‘new traditionalist’ discourses not only overlook the environmental injustices but also justify them. They seek to maintain the status quo. Ancient texts are coupled with new concepts like sustainable development to further their cause under the mask of modernity. Ironically, social justice is one of the pillars of sustainable development. Sustainable development and environmental justice are inextricably linked.⁵² Logically, sustainable development is an antithesis to casteism and eventually also to Hinduism. But through ‘new traditionalist’ discourses attempts are made to push such new concepts into the ‘black hole’ of Hinduism. It is not surprising as it is the nature of Hinduism to shape itself according to contemporary times. *Gail Omvedt* says, “Although its [Hinduism] stability has been broken from time to time by invasion, conquests and disturbances, it has nevertheless maintained a fair continuity...Its greatest virtue has been its elasticity, its pluralism, its lack of dogma.”⁵³

6. What is environmental justice?

This section addresses the meaning of ‘Environmental Justice’ in order to formulate the standards against which the existence and extent of discrimination is analysed. ‘Environmental Justice’ is a movement in the United States against the disproportionate impacts of environmental hazards on people of colour. The term suggests, in simple parlance, justice against environmental discrimination.⁵⁴

⁵¹ Kailas & Ors vs State of Maharashtra Tr. Taluka P.S., SLP (CrI) No. 10367 of 2010.

⁵² Daniel Barstow Magraw and Lauren Baker, *Globalization, Communities and Human Rights: Community-Based Property Rights and Prior Informed Consent*, 35 *Denv. J. Int'l L. & Pol'y* 413, 416 (2007).; See Kevin Murphy, *The Social Pillar of Sustainable Development: A literature review and framework for policy analysis* 15 *The ITB Journal* 29, (2014).

⁵³ GAIL OMVEDT, *UNDERSTANDING CASTE: FROM BUDDHA TO AMBEDKAR AND BEYOND*vii, (Orient BlackSwan 2011).

⁵⁴ Other terms used in this context include Environmental racism/equity. ‘Environmental racism’ refers to the discrimination in the enforcement of environmental laws which deprive the people of colour benefits from natural resources and makes them bear the burden of environmental risks. ‘Environmental equity’ suggests the equitable sharing of environmental risks. Some authors use these terms interchangeably without privileging one term over the other. (Marc R. Poirier, *Environmental Justice/Racism/Equity: Can We Talk*, 96 *W. Va. L. Rev.* 1083, (1994)). According to one author though these terms are used interchangeably it was ‘Environmental Justice’ later considered to be appropriate due to ‘uneasy consensus’ (Robert W. Collin, *supra* note 4). The reason for preferring the term ‘Environmental Justice’ is said to be the shortcomings of the other terms. ‘Environmental equity’ speaks on equitable sharing of environmental risks and not on its reduction. ‘Environmental racism’ is limited to identifying the injustices and not on solutions and does not include class perspective i.e. discriminations

‘Environmental Justice’ is considered as an effective means to combat the environmental inequities by socially and legally empowering the vulnerable groups.⁵⁵ US Environmental Protection Agency (EPA) defines *Environmental Justice* as,

*“fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”*⁵⁶

It further continues that the goal of Environmental Justice can be achieved when everyone enjoys

*“the same degree of protection from environmental and health hazards, and equal access to the decision-making process to have a healthy environment in which to live, learn, and work”.*⁵⁷

After citing various definitions, *Robert R Kuehn* says that these definitions fail to fully explain the ‘similarity of themes and concerns’ involved in the Environmental Justice disputes, which results in the lack of understanding of various approaches to resolve the issue. So, he disassembles the term into four traditional notions of justice namely distributive, procedural, corrective and social justice implicated in Environmental Justice for a better understanding. Distributive justice connotes equal distribution of benefits as well as burdens of environmental programs; Procedural justice connotes the fairness and equality in the decision-making process through inclusiveness and public participation; Corrective justice connotes the reparation for damages emphasizing absolute liability through compensation and reparation and Social justice connotes equality in access to natural resources and higher responsibility of the privileged classes.⁵⁸ The procedural and corrective aspects are also emphasized in Principle 10 of Rio declaration⁵⁹ and ‘*The Future We Want*’ outcome document stresses these aspects as essential to the promotion of sustainable development and encourages actions at regional, national, sub-national and local levels to promote access to information, public participation and access to justice in environmental

faced by the low-income groups. (Robert R Kuehn, *A Taxonomy of Environmental Justice*, 30 *Environmental Law Reporter* 10681, (2000)).

⁵⁵ UNDP, *supra* note 1.

⁵⁶ *Environmental Justice*, EPA, <http://www.epa.gov/environmentaljustice> (last visited Feb 9, 2018).

⁵⁷ *Id.*

⁵⁸ Kuehn *supra* note 54.

⁵⁹ Public participation is also recognized in several other international instruments. See. Leslie-Anne Duvic-Paoli, *The Status of the Right to Public Participation in International Environmental Law: An Analysis of the Jurisprudence*, 23 *YIEL* 80, (2012).

matters.⁶⁰ Distributive and Social justice aspects may be placed under Principle 1 of the Stockholm Declaration which condemns policies perpetuating discrimination and also under the broader terms of 'equality' emphasised in several human rights instruments.⁶¹

One is mistaken if she comes to the conclusion that the concept of 'Environmental Justice' is more US oriented. The problem of environmental discrimination is universal. It was in the US where the movement took a concrete shape due to public consciousness and protests against the racial discrimination in environmental arena resulting in judicial decisions recognizing the issue and also created a new discipline for academics to contribute to their writings. This is one of the reasons for the existence of numerous works of literature on Environmental Justice from US scholars compared to other parts of the world.⁶²

6.1 *Environmental Justice in Indian Context*

It is necessary to define the term in Indian context considering the circumstances specific to the country. India, which tops the list of countries having more number of cases of social and environmental conflicts,⁶³ is yet to have a definition of 'Environmental Justice'. One of the main reason is environmental discourses in India are more about conservation of natural resources and environmental rights of the people in general. It turns blind to questions of caste.⁶⁴ To borrow the words from *Gaylord and Twitty*⁶⁵, India is dominated by traditional environmentalists battling to protect endangered species of flora and fauna and lacks non-traditional environmentalists who are willing to protect and

⁶⁰ The future we want in Rio 20 United Nations Conference on Sustainable Development: Rio de Janeiro, Brazil, 20-22 June 2012(2012).

⁶¹ International Covenant on Civil and Political Rights, Dec 16, 1966, 999 U.N.T.S. 171.; International Covenant on Economic, Social and Cultural Rights, Dec 16, 1966, 993 U.N.T.S. vol. 993, 3.

⁶² A study was carried out by identifying 'Environmental Justice' as a key term in databases Scopus, Web of Science, and GeoBase. Authors found that 'Environmental Justice' as a research theme 'remains at its core as an American concept' due to more representations from American scholars and only less than 10% of the Articles are contributed by developing countries. They claim that scholars from other disciplines might also have published on these issues which might have been overlooked due to non-usage of the word 'Environmental Justice'. This analysis serves a heuristic purpose. See. Maureen G. Reed & Colleen George, *Where in the world is Environmental Justice?* 35 *Progress in Human Geography* 835, (2011).

⁶³ Shreya Dasgupta, *India has most cases of social and environmental conflict, according to environmental justice atlas*, MONGABAY (Feb. 2, 2016), <https://news.mongabay.com/2016/02/india-has-most-cases-of-social-and-environmental-conflict-according-to-environmental-justice-atlas/>.

⁶⁴ Mukul Sharma, *Dalits and Indian Environmental Politics*, 47 *EPW* 46, (2012).

⁶⁵ Clarice E. Gaylord & Geraldine W. Twitty, *Protecting Endangered Communities*, XXI *Fordham Urban Law Journal* 771, 771 (1994).

preserve a different endangered species: the *untouchables*.

A successful attempt was made by the International Union for Conservation of Nature (IUCN) to define the term 'Environmental Justice' in its project '*Environmental Justice and Rural Communities: Studies from India and Nepal*'.⁶⁶ It drafted a working definition which was found to be inadequate by the community representatives belonging to the areas where fieldwork was carried out as it did not include any reference to discrimination based on caste, gender, religion and economic status. Accordingly, the working definition was expanded as follows,

*"Environmental Justice in the rural and natural resource context is the responsibility of the state and of all citizens, and requires equitable and fair access to and use of natural resources, participation in decision making and the distribution of benefits without discrimination on the basis of caste, gender, religion or economic status in order to guarantee the livelihood security of all citizens".*⁶⁷

As the definition of IUCN is in the rural context it is necessary to cover the urban context for a comprehensive definition. Instead of coming up with a definition, it would be better and easier to list the elements of Environmental Justice based on different versions of definitions analysed. As seen earlier, *Robert Kuehn's* Taxonomy covers all the aspects of Environmental Justice. Viewing Environmental Justice from the perspective of traditional notions of justice expands the scope of the term and also has a 'universal' application. Therefore, primarily relying on the four notions of justice, the elements of Environmental Justice are listed here for the purposes of this paper. The elements of Environmental Justice *include*,

1. Equitable and fair access to natural resources.
2. Equal distribution of benefits/burdens of the environment.
3. Same degree of protection from environmental laws, schemes, policies, rules, measures etc.
4. Fairness and equality in the decision-making process through inclusiveness and public participation.
5. Equal access to judicial remedy for reparation for damages.
6. All the above must be secured to all without any discrimination on the basis of caste, class, gender, political opinion, race, religion, sex, social or

⁶⁶ M. S. VANI ET AL., ENVIRONMENTAL JUSTICE AND RURAL COMMUNITIES: STUDIES FROM INDIA AND NEPAL (2007).

⁶⁷ *Id.* at xvii-viii.

national origin etc.

7. Historical injustices, if any, have to be taken into account for the purposes of differential treatment. This element was not stressed in the previous definitions. It is necessary to take this into account for treating the disadvantageous groups differently. Especially in a country like India, whose social structure still remains to perpetuate inequality, the historical grievances, which deprived benefits to the majority of the population by treating them as 'trashers', have to be taken into account for two purposes. First, to understand the nature of inequality i.e., the way in which it operates. Second, to move towards an egalitarian society by undoing the injustices. This aspect was also stressed by the Supreme Court of India as follows, "*...giving formal equality to all groups or communities in India would not result in genuine equality. The historically disadvantaged groups must be given special protection and help so that they can be uplifted from their poverty and low social status.*"⁶⁸

The paper is confined to the following two elements of Environmental Justice, a) equitable access to natural resources and b) same protection from health hazards. Because, Firstly, they are the most neglected in the environmental discourses and Secondly, for want of space and time. The next section analyses the environmental rights framework in India to find out how far it embraces the elements of Environmental Justice.

7. Indian Scenario – Right To Environment

The 186th Law Commission of India's Report observes Articles 21, 42, 47, 49 in the original Constitution and Articles 48A, 51A(g), entries 17A and 17B inserted via 42nd Amendment as the significant Constitutional provisions dealing with the environment.⁶⁹ Articles 48A and 51A(g) are the more specific ones which directly imposes an obligation on the State as well as a fundamental duty on the citizens to protect and improve the environment. The principles enshrined in those articles are fundamental in nature entrusting duty upon the state to apply them in making laws and are also to be "kept in mind in understanding the scope and purport of fundamental rights."⁷⁰ The Report also in its Chapter III lays down the important judgments delivered by the Supreme Court in environmental issues which emphasise the innovative role played by

⁶⁸ Kailas, *supra* note 51.

⁶⁹ Law Commission of India, *One Hundred Eighty-Sixth Report On Proposal to Constitute Environment Courts* 23-25 (2003).

⁷⁰ *Intellectuals Forum, Tirupathi vs State of A.P. & Ors*, Appeal (civil) 1251 of 2006.

the Indian Judiciary in securing environmental rights.⁷¹ Indian judiciary, due to the failure of the legislature and administrative organs, is considered to be the sole organ protecting the environment through its activist approach and ultimately regarded as the “only reliable bastion of and the final hope for common man in securing Environmental Justice.”⁷² Though it is true that the judiciary played an important role in developing a vast environmental jurisprudence as claimed by the report,⁷³ it is not free from criticisms particularly for its failure in *Bhopal disaster case*.⁷⁴ One author criticizes Indian judiciary, based on its response to environmental degradation, as a ‘lion’ towards small business, small development projects and a ‘lamb’ towards multinational corporations, large-scale business, large-scale developmental projects.⁷⁵

Most of the articles relating to the environment are placed under Part IV, Directive Principles of State Policy (DPSP), of the Constitution. Unlike fundamental rights, they are non-enforceable but nevertheless fundamental in governance and to be applied by the state in making laws.⁷⁶ With regard to Fundamental rights and DPSP, one is not superior over the other and the Courts have stressed balancing and harmonising both of them during interpretation.⁷⁷ They are complementary and supplementary to each other.⁷⁸ The scope of fundamental rights has been enlarged by the judiciary as they are interpreted through the lens of DPSP.⁷⁹ Particularly, Article 21 was interpreted in a way to encapsulate a plethora of rights⁸⁰ and it would not be an exaggeration to call it a ‘mini’ human rights document. Accordingly, it is said that DPSP has become enforceable “*by riding on the back of fundamental rights*.”⁸¹ Expansive interpretation by the judiciary secured the basic environmental rights of the people including the right to health and access to natural resources which are discussed below.

⁷¹ Law Commission of India, *supra* note 69, at 25-49.

⁷² Ramesh M.K., *Environmental Justice delivery in India: In context*, 2(2) IJEL 9 (2001).

⁷³ Law Commission of India, *supra* note 69, at 26.

⁷⁴ Satinath Sarangi, *Bhopal Disaster: Judiciary's Failure*, 30 EPW 2907, (1995).

⁷⁵ Ayesha Dias, *Judicial Activism in the Development and Enforcement of Environmental Law: Some Comparative Insights from Indian Experience*, 6 Journal of Environmental Law 243, 261-62 (1994).

⁷⁶ INDIA CONST. art. 37.

⁷⁷ M.P. JAIN, INDIAN CONSTITUTIONAL LAW, 1411-16 (7 ed. 2015).

⁷⁸ Chandra Bhavan Boarding and Lodging, Bangalore vs State of Mysore, A.I.R. 1970 S.C. 2042.

⁷⁹ M.P. Jain, *supra* note 77.

⁸⁰ *Id.* at 1413-14. The author calls Article 21 has the biggest beneficiary of judiciary's integrative approach towards fundamental rights and DPSP.

⁸¹ *Id.* at 1413.

7.1 *Right to Health*

The Constitution of the World Health Organization, 1946 in its preamble says health “is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” and emphasized the “enjoyment of the highest attainable standard of health” without any distinction as a fundamental right of every human being.⁸² ‘Right to health’, including accessibility to health facilities and services without any discrimination is a well recognized right under international law.⁸³ Non-discrimination and equality are considered to be critical components of the right to health due to the disproportionate sharing of health problems by the traditionally marginalized groups.⁸⁴ Accordingly, one author links right to health with dignity, non-discrimination, justice and participation.⁸⁵

The Supreme Court of India observed that healthy body is the very foundation of all human activities⁸⁶ and held the right to health as a fundamental human right enshrined in the socio-economic justice of the Indian Constitution.⁸⁷ Indian Constitution under Article 39 (e) directs the state to secure the health and strength of the workers, under Article 41 to secure sickness and disablement, under Article 43 to secure conditions of work ensuring decent standard of life and under Article 47 to raise the level of nutrition, standard of living and to improve the public health.

Due to the indispensability to the very existence of the community public health is accorded higher priority by the Supreme Court.⁸⁸ Right to a healthy environment⁸⁹, unpolluted air and water⁹⁰ were held as Fundamental Rights under Article 21 of the Constitution. Right to life with human dignity was included within the ambit of Article 21 and the protection and preservation of the environment, ecological balance free from pollution of air and water, sanitation

⁸² Constitution of the World Health Organization, 1946, Basic Documents 1-19 (48th ed. 2014).

⁸³ OHCHR, *The Right to health*, Fact Sheet No. 31 (Jun. 2008).; Virginia A. Leary, *The Right to Health in International Human Rights Law*, 1 Health and Human Rights 24, (1994).; Committee on Economic, Social and Cultural Rights, General Comment No. 14, (2000), E/C.12/2000/4.

⁸⁴ OHCHR, *supra* note 83, at 7.

⁸⁵ Leary, *supra* note 83, at 7.

⁸⁶ *Vicent Panikurlangara v. Union of India & Ors.*, A.I.R 1987 S.C. 990.

⁸⁷ *Regional Director, E.S.I Corpn. and Anr. v. Francis De Costa and Anr.*, 1992 S.C.R. (3) 23.

⁸⁸ *Vincent*, *supra* note 86.

⁸⁹ *Hinch Lal Tiwari v. Kamla Devi*, (2001) 6 S.C.C. 496.

⁹⁰ *Subhash Kumar v. State of Bihar and Ors.*, A.I.R. 1991 S.C. 420.

were also held to be necessary for the enjoyment of such right.⁹¹ Any pollution was observed as a violation of Art. 21.⁹² Accordingly, the duty is upon the government to protect the environment under Article 21.⁹³

7.2 *Equitable Access to Natural Resources*

The OECD's Glossary of Statistical Terms defines 'natural resources' as "natural assets (raw materials) occurring in nature that can be used for economic production or consumption."⁹⁴ E. Barton Worthington, on the other hand, defines 'natural resources' in a broader sense to include 'everything that is desirable for the use of man in any part of the universe.'⁹⁵ In the inventory, he lists the natural resources in an order based on their ecological relationships i.e. based on their dependency as follows: land surface, rocks, air, water, soil, plants, forests, arable agriculture, animals, animal husbandry, insects, fish and man.⁹⁶

Though there is no explicit reference to the right to land under international law, it is considered to be essential for the 'realization of many human rights'.⁹⁷ Land issues are addressed under international law only in relation to other rights.⁹⁸ Numerous socio-economic and cultural rights guaranteed under the international human rights law namely, right to housing, food, health and work is 'intimately connected' with access to land.⁹⁹ Food and Agricultural Organization regards equitable access to land and natural resources as an "essential element of the right to food for rural populations in general and for vulnerable and marginalized groups in particular."¹⁰⁰

⁹¹ K.M. Chinnappa, T.N. Godavarman Thirumalpad v. Union of India and Ors., W.P. (civil) 202 of 1995.

⁹² Virendra Gaur and Ors. v. State of Haryana and Ors., 1995(2) S.C.C. 577.

⁹³ K.M. Chinnappa, *supra* note 91.

⁹⁴ Natural Resources, OECD Glossary of Statistical Terms (Dec. 2, 2005), <http://stats.oecd.org/glossary/detail.asp?ID=1740>.

⁹⁵ E. Barton Worthington, *A Definition of Natural Resources*, UNESCO Conference on the Organization of Research and Training in Africa in relation to the study, conservation and utilization of natural resources 1964, <http://unesdoc.unesco.org/images/0014/001436/143605eb.pdf>.

⁹⁶ *Id.*

⁹⁷ OHCHR, *Land and Human Rights: Standards and Applications* 3, HR/PUB/15/5/Add.1, (2015).;

⁹⁸ *Id.* at 3.; Right to land is addressed explicitly under international law only with respect to indigenous peoples and women. See Elisabeth Wickeri and Anil Kalhan, *Land Rights Issues in International Human Rights Law*, 4 Malaysian Journal of Human Rights 16, (2010).

⁹⁹ Elisabeth, *supra* note 98, at 20.

¹⁰⁰ FAO, *The Right to Food and Access to Natural Resources Using Human Rights Arguments and Mechanisms to Improve Resource Access for the Rural Poor* 40 (Lorenzo Cotula ed., 2008).

7.3 *Natural Resources Under Constitution of India*

Article 39(b) obligates the state to direct its policy towards the distribution of ownership and control of material resources to promote the common good. And Article 39 (c) prohibits the concentration of wealth and means of production. These Articles reflect the objectives of socialism.¹⁰¹ The term '*material resources*' has been interpreted expansively by the Supreme Court to include both natural and physical resources as well as movable or immovable properties.¹⁰² It also regarded all things capable of producing wealth for the community as material resources including those resources, natural and man-made, public and private owned.¹⁰³ These Articles 39(b) and (c) allow Legislatures to enact land reformation legislations to distribute land for the benefit of the community and those laws are excluded from judicial review due to immunity guaranteed under Article 31C.¹⁰⁴

Socio-Economic Justice is emphasized under Articles 38, 39 and 46.¹⁰⁵ In *Association of Unified Tele Services Providers & Others vs Union of India*¹⁰⁶ the Supreme Court reiterated that, as natural resources are public goods, the doctrine of equality must guide the state in their distribution. Agrarian reforms vesting the ownership of land in the tiller is an objective secured under Articles 39(b) and (c).¹⁰⁷ Article 46, which deals with the promotion of weaker sections particularly SCs/STs, also emphasizes land distribution through the concept of Distributive Justice and the Court observed that it could be achieved through differential taxation, distribution of property, both agricultural and urban, owned by one to many, etc.¹⁰⁸ Economic empowerment of Dalits, Tribes and the poor were held to be part of Distributive Justice and Fundamental Right.¹⁰⁹ Reading Articles 46, 38, 39 (b) and Preamble of the Constitution, the Supreme Court held that Economic and Social Justice need to be done, particularly, to the SC/STs to prevent them from social injustice and all forms of exploitation.¹¹⁰

¹⁰¹ M.P. Jain, *supra* note 77, at 1419.

¹⁰² State of Tamil Nadu, Etc, Etc v.L. Abu Kavur Bai and Ors., A.I.R. 1984 S.C. 326.

¹⁰³ Assam Sillimanite Ltd. v.Union of India and Others, A.I.R. 1992 S.C. 938.

¹⁰⁴ Kesavananda Bharati Sripadagalvaru and Ors v. State of Kerala and Anr, (1973) 4 S.C.C. 225.

¹⁰⁵ Ahmedabad Municipal Corporation v.Nawab Khan Gulab Khan & Ors, A.I.R. 1997 S.C. 152.

¹⁰⁶ Civil Appeal No. 4591 of 2014.

¹⁰⁷ H.S. Srinivasa Raghavachar Etc. v.State of Karnataka & Ors., 1987 A.I.R. 1518.; M.P. Jain, *supra* note 75, at 1421.

¹⁰⁸ M.P. Jain, *supra* note 77, at 1433-34.

¹⁰⁹ Murlidhar Dayandeo Kesekar vs Vishwanath Pandu Borde, (1995) 2 S.C.C. 549.

¹¹⁰ Charan Singh vs State of Punjab, A.I.R. 1997 S.C. 1052.

When Article 39(b) was discussed in the Constituent Assembly, it had been praised as a 'Charter of the poor man', and also as a 'Charter of economic democracy'. Honourable member of Constituent Assembly *Shri S. Nagappa* opined that

*"...Today, land is concentrated in a few hands and the tiller finds himself in serious difficulties. A friend was moving an amendment for abolishing feudalism in India...I would request the framers of the Constitution to see that every word of it is translated into action."*¹¹¹

7.4 Right to Access to Water

Water is the basic need for the survival and right to access the same is fundamental to human life. There is no explicit right to water under international law but the Committee on Economic, Social and Cultural Rights interpreted 'adequate standard of living' under the ICESCR to include 'right to water' in its General Comment No.15.¹¹² It called upon state parties to adopt effective measures to guarantee the right to water without any discrimination.¹¹³

Right to water was held to be part of the right to life and human rights as enshrined in Article 21 of the Constitution of India and there is a duty on the State under the same Article to provide clean drinking water to its citizens.¹¹⁴ Article 15(2) (b) prohibits any discrimination with regard to access to water. It guarantees use of wells, tanks, bathing ghats, roads and places of public resort 'maintained out of State funds or dedicated to the use of the general public' without being subjected to any disability or discrimination.¹¹⁵ Article 15 is considered as a facet of Article 14 and Article 15(2) in particular, unlike Article 15(1), contains a prohibition of general nature and not confined only to the state.¹¹⁶

The Supreme Court of India in *Chameli Singh and Others Etc. v. State of U.P. And Another*¹¹⁷ observed that the state has a duty to provide facilities like adequate living space, safe and decent structure, clean and decent surroundings,

¹¹¹ Constituent Assembly Debates (Proceedings), Volume VII, Nov. 22, 1948, http://cadindia.clpr.org.in/constituti_on_assembly_debates/volume/7/1948-11-22 (last visited Nov.10, 2018).

¹¹² Committee on Economic, Social and Cultural Rights, General Comment No. 15: The Right to Water, E/C.12/2002/11, (2003).; See OHCHR, *The Right to Water*, Fact Sheet No. 35, (2010).

¹¹³ General Comment No. 15, *supra* note 112.

¹¹⁴ A.P. Pollution Control Board v. M.V. Nayudu II, 2001(2) S.C.C. 62.

¹¹⁵ Shailesh R. Shah v. State of Gujarat, (2002) 3 G.L.R. 447.

¹¹⁶ M.P. Jain, *supra* note 77, at 933-34.

¹¹⁷ A.I.R. 1996 S.C. 1051.

sufficient light, pure air and water, electricity, sanitation and other civic amenities 'to bring the Dalits and Tribes into the mainstream of national life.'

7.5 *Special Protection to SC/STs*

Considering the vulnerability of the untouchables, certain legislations were enacted to give them special protection. Protection of Civil Rights Act, 1955 (PCR Act) and Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989 (SC/STs Act) with an amendment in 2015 addresses certain environmental rights of the untouchables. PCR Act and SC/STs Act were enacted in pursuant to fulfil the objective of Article 17 of Indian Constitution which abolishes 'Untouchability' and categorizes any such practice as an offence to be punishable under the law and also pursuant to Articles 38 and 46 in particular, that obligate the State to render Socio-Economic and Political Justice to untouchables.¹¹⁸ The differential treatment accorded to the SC/STs would not violate Article 14 of the Indian Constitution.¹¹⁹ As they emanate from the Fundamental Rights and DPSP, provisions of PCR and SC/STs can be categorized as fundamental rights. And these rights under Articles 17 and 15(2) can also be enforced against private individuals.¹²⁰

Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 is considered to do away with the historical injustices inflicted on the Scheduled Tribes.¹²¹ No such Act was enacted exclusively to redress the historical environmental injustices inflicted upon the Scheduled Castes. Nevertheless, both the PCR Act and SC/STs Act proscribes certain environmental discriminations committed on the ground of untouchability. They prohibit any disability to use or access to places of public resort including water bodies, burial ground etc.¹²² Refusing to admit a person in a hospital,¹²³ compelling a person to perform scavenging or other filthy jobs,¹²⁴ corrupting or fouling the water sources used by SC/STs,¹²⁵ dumping wastes and obnoxious substances on the premises¹²⁶ are also offences under the Act.

¹¹⁸ M.P. Jain, *supra* note 77, at 1009.

¹¹⁹ Sri Manchegowda vs State of Karnataka, A.I.R. 1984 S.C. 1151.

¹²⁰ M.P. Jain, *supra* note 118.

¹²¹ P. LEELAKRISHNAN, ENVIRONMENTAL LAW IN INDIA 50 (3rd ed. 2008).

¹²² Sec. 4 of Protection of Civil Rights Act, 1955, No. 22, Acts of Parliament, 1955.

¹²³ *Id.* Sec. 5.

¹²⁴ *Id.* Sec. 7A.

¹²⁵ Sec 3 of Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989, No. 33, Acts of Parliament 1989.

¹²⁶ *Id.*

The offences are punishable with an imprisonment for six months up to five years and with fine.¹²⁷ Though the act mandates to set up special Courts to try the atrocities cases there is lack of interest on the part of state governments to set up the same in spite of increasing pendency of atrocities cases and the already existing Courts are criticized of inefficiency.¹²⁸ The Union Minister of Social Justice and Empowerment recently asked the States to accord high priority to establishing special Courts.¹²⁹

The Delhi High Court observed that the SC/STs Act was enacted due to the inadequacy of the PCR Act and Indian Penal Code to punish the atrocities against the members of SC/STs. Hence, there was a necessity for special protection.¹³⁰ Though these Acts were enacted to curb down the practice of 'untouchability', it is surprising that the term is yet to have a definition. The Rajasthan High Court observed that the absence of a definition "may give rise to some legal quibbling" and further added that the term has "to be understood in its historical sense and not in literal and grammatical sense."¹³¹ Also, the Supreme Court of India observed that the term is not capable of precise definition and "it encompasses acts/practices committed against Dalits in diverse forms."¹³² In spite of the debates regarding the adequacy of existing legal framework to eradicate the inhuman practices against the members of SC/STs, the Supreme Court recently had watered down the SC/STs Act by citing abuse of the act by the members of SC/STs.¹³³ It overruled the observations of the High Court which warned blaming of the SC/STs Act on the mere possibility of abuse as "*it may send a wrong signal to the downtrodden and backward sections of the society.*"¹³⁴ The decision of the Supreme Court has been criticised for encouraging the police officers to scare

¹²⁷ *Id.*

¹²⁸ Smriti Kak Ramachandran, *States lag in setting up Courts to address SC, ST grievances*, HINDUSTAN TIMES (Apr 16, 2017, 23:51 IST), <https://www.hindustantimes.com/india-news/states-lag-in-setting-up-courts-to-address-sc-st-grievances/story-K7r3tuEVHnYWHaRGS6zV6K.html>.

¹²⁹ *SC/ST atrocities: States told to prioritise setting up special courts*, THE TIMES OF INDIA (Jan 30, 2018, 22:10 IST), <https://timesofindia.indiatimes.com/india/sc/st-atrocities-states-told-to-prioritise-setting-up-special-courts/articleshow/62714221.cms>.

¹³⁰ *Kusum Lata vs State & Ors.*, CRL.A. 686/2012.

¹³¹ *Jai Singh and Anr. vs Union of India (UoI) And Ors.*, A.I.R. 1993 Raj 177.

¹³² *State of Karnataka vs Appa Balu Ingale and Others.*, A.I.R. 1993 S.C. 1126.

¹³³ *Dr. Subhash Kashinath Mahajan vs The State of Maharashtra*, Criminal Appeal No. 416 of 2018.

¹³⁴ *Id.* at Para 7.

the already weak and vulnerable SC/STs.¹³⁵ After protests from the Dalit groups,¹³⁶ an amendment to the act was passed by the parliament to override the judgment.¹³⁷

8. Environmental Casteism

The Previous section outlined the environmental framework in India. At the outset, it appears to be delightful. The already existing legislation have been broadened by the intellectual creativity of the judiciary. But the problem in India, like many other countries, is implementation. There may not be *de jure* discrimination but there exists a *de facto* discrimination. This section considers how the untouchables in India have been discriminated in enforcing their environmental rights.

8.1 Denial of Equitable and Fair Access to Natural Resources

Untouchables in India are mostly denied to make use of the available natural resources. Though the definition of ‘natural resources’, as seen in section III, is broad enough to cover a whole lot of things for the purpose of this paper only land and water are considered for want of time and space. The denial of equitable access to those resources, as noted above, takes place in two ways. First, by unequal distribution of land and second, imposing disabilities to utilize common resources.

8.1.1 Landless Untouchables

Ghanshyam Shah observes the role of the Indian State is to eradicate the “feudal hierarchical social order based on Brahminical ideology.”¹³⁸ The land ownership in India is based on Caste-Hierarchy.¹³⁹ It is distributed in a way which deprives lowers castes’ equitable access to land resources. As a result, landlessness is extraordinary among the untouchables in spite of them being a majority involved in agriculture economy. The United Nations Human Rights

¹³⁵ *Dilution of SC/ST Atrocities Act Will Have a Crippling Effect on Social Justice*, THE WIRE (Mar 23, 2018), <https://thewire.in/law/dilution-of-sc-st-atrocities-act-will-have-a-crippling-effect-on-social-justice>.

¹³⁶ *SC/ST Act: From dilution to restoration in 5 months*, INDIA TODAY (Aug. 2, 2018, 12:00 IST), <https://www.indiatoday.in/india/story/sc-st-act-from-dilution-to-restoration-in-5-months-1303463-2018-08-02>.

¹³⁷ *Parliament Passes Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Amendment Bill, 2018*, PRESS INFORMATION BUREAU (Aug. 9, 2018, 19:13 IST), [HTTP://PIB.NIC.IN/NEWSITE/PRINTRELEASE.ASPX?RELID=181758](http://pib.nic.in/newsite/PRINTRELEASE.ASPX?RELID=181758).

¹³⁸ Ghanshyam, *supra* note 13, at 15.

¹³⁹ See Ishan Anand, *Dalit Emancipation and the Land Question*, LI EPW 12, (2016).

Council (UNHRC) observed that “Dalits...have limited or unequal access to resources (including economic resources, land and water) and services, and are disproportionately affected by poverty.”¹⁴⁰ Lack of resources is the main reason for their vulnerability as it makes them dependent upon the upper castes for livelihood and consequently a constraint to exercise their constitutional rights.¹⁴¹

According to the 2011 Census, 16.6% and 8.6% of India's population comprises of Scheduled Castes and Scheduled Tribes respectively.¹⁴² 68.8% of India's population lives in rural areas. Nearly 76.3% and 90% of Scheduled Castes and Scheduled Tribes population live in rural areas.¹⁴³ Land is considered to be an important form of revenue in rural areas as it is the primary means and instrument of production and access to the same is a necessity in an agriculture-based rural economy.¹⁴⁴ Landlessness in rural areas is equated with vulnerability and those households without access to land are considered to be at high risk of poverty.¹⁴⁵

9. What is landlessness?

The *National Sample Survey Office 70th Rounds Report* categorizes ‘landless households’ as households holding less than or equal to 0.002 hectares and ‘marginal holdings’ as households holding more than 0.002 hectares but less than or equal to 1.000 hectares.¹⁴⁶ Based on the categorization it concludes that 58.4% of rural Dalit households are landless despite 71% of Scheduled Caste farmers being agricultural labourers.

10. Associated with Labour but Deprived Of Ownership

According to the *Socio-Economic and Caste Census 2011*, out of total 3.31 crore Scheduled Caste households, 2.38 crores were deprived.¹⁴⁷ 2.23 crore

¹⁴⁰ Report of the Special Rapporteur on minority issues, Human Rights Council, U.N. Doc. A/HRC/31/56 (28 Jan 2016).

¹⁴¹ State of Karnataka, *supra* note 132.

¹⁴² A - 5 UNION PRIMARY CENSUS ABSTRACT - 2011, http://www.censusindia.gov.in/2011census/hlo/pca/pca_pdf/PCA-CRC-0000.pdf.

¹⁴³ *Id.*

¹⁴⁴ Aparajita Bakshi, *Social Inequality in Land Ownership in India: a study with particular reference to West Bengal*, 36 *Social Scientist* 95, (2008).

¹⁴⁵ Raji Jayaraman & Peter Lanjouw, *The Evolution of Poverty and Inequality in Indian villages* 6, Policy Research Working Papers No. 1870, The World Bank (1999).

¹⁴⁶ NSS 70th Round (Jan-Dec 2013), *Key Indicators of Land and Livestock Holdings in India*, Ministry of Statistics.

¹⁴⁷ *Socio-Economic and Caste Census 2011*, <http://secc.gov.in/categorywiseDeprivationReport?reportType=SC%20Category#> (last visited on Mar 26, 2018).

households were dependent on manual casual labour.¹⁴⁸ 1.50 crore households were landless and were deriving a major part of their income from manual casual labour.¹⁴⁹ Others possess only marginal lands. Landlessness and dependency upon manual casual labour were higher among the untouchables.

The *Indian Exclusion Report 2016*, also confirms that the historically oppressed groups of Women, Dalits, Adivasis and Muslims are the most excluded groups from access to public goods. It also says that the Indian Republic has failed to secure them equitable access to public goods. Commenting on the pattern of land distribution, the report observed that it closely reflects the socio-economic hierarchy. Lands were owned by upper castes and agricultural labourers were from the Dalits and Adivasis.¹⁵⁰

Landlessness either by unequal distribution or deprivation and locating untouchables in the outskirts far from the main habitat are the main factors which handicap them to utilize the resources. The deprivation of access to agricultural lands is due to the continuation of historical restrictions imposed by the caste system.¹⁵¹ They were forbidden to possess lands.¹⁵² Consequently, they are hired as agricultural labourers by the dominant higher castes in the villages who own the majority of lands.

The concentration of lands is one of the main reasons for the preservation of the caste system and some even consider that “*untouchability is a problem of land ownership.*”¹⁵³ Land reform legislations enacted for equitable distribution of the lands failed to achieve its purpose.¹⁵⁴ And the inequality still remains. Land distribution is a question of social justice. Though the traditional agrarian relationships have been changed, the rural economy is still characterized by “considerable, possibly growing inequality, and by social exclusions relating to caste.”¹⁵⁵

¹⁴⁸ *Socio-Economic and Caste Census 2011*, <http://secc.gov.in/categorywiseIncomeSourceReport?reportType=SC%20Category#> (last visited on Mar 26, 2018).

¹⁴⁹ *Id.*

¹⁵⁰ Sandeep Chachra et al., *Exclusion and Expulsion in Agriculture* in INDIA EXCLUSION REPORT 2016 97, (1st ed. 2017).

¹⁵¹ Bakshi, *supra* note 144, at 1-2.

¹⁵² Dr. S. Kavita, *Land Distribution and Status of Dalits*, 21 IOSR-JHSS 16, 17 (2016).

¹⁵³ Rina Chandran, *India's unequal land ownership at root of caste violence - Dalit writer*, REUTERS (Aug 4, 2017, 8:17 PM), <https://in.reuters.com/Article/india-women-books/indias-unequal-land-ownership-at-root-of-caste-violence-dalit-writer-idINKBN1AK1RO>.

¹⁵⁴ Kavita, *supra* note 152.; Jayaraman, *supra* note 145.

¹⁵⁵ John Harris, *Does 'Landlordism' Still Matter? Reflections on Agrarian Change in India*, 13 *Journal of Agrarian Change* 351, (2013).

10.1 Denial of Access to Water

The SCs in India are not only dispossessed of lands but are also disabled to utilize the common goods. The UNHRC's *Report of the Special Rapporteur on the human right to safe drinking water and sanitation*,¹⁵⁶ clearly emphasizes the disabilities imposed upon low caste groups with regard to access to water and sanitation. It calls the caste system as a striking example of stigmatization which discriminates people by dehumanizing, degrading, discrediting and devaluing. The report observed as follows:

*“Dalits have been unable to collect water from shared wells or have been fined for drinking from a common water tap, and Dalit women have reportedly had to wait in a separate queue until non-Dalits have fetched water. Large-scale violence and physical attacks by members of the dominant caste have been reported where Dalits attempted to access facilities in areas inhabited by the dominant caste.”*¹⁵⁷

A Study conducted in 565 villages in 11 states revealed that 48.4% of the untouchables are denied to access to water sources.¹⁵⁸ Another empirical study conducted in 1589 Gujarat villages reveal that in 71% of villages there is no water tap in Dalit areas of the villages. In 29% of villages, untouchables are denied access to drinking water from common wells or taps. And in 53% of villages, untouchables' children have to go home to drink water. In 97.6% of villages, untouchables are not allowed to touch the water pots of non-Dalits.¹⁵⁹

Water and food are the main area of practice of untouchability. And these very essentials for human survival are being denied to the untouchables in India. The intensity of this problem was felt by Dr. Ambedkar, who himself was a victim of this cruelty. He led the *Mahad Satyagraha*, the first Environmental Justice movement of the untouchables, in 1927 shattering the traditional restrictions on access to water. He viewed this iniquitous access of natural resources of different social groups as an environmental

¹⁵⁶ U.N. Doc. A/HRC/21/42, (2 Jul 2012).

¹⁵⁷ *Id.* at Para. 36.

¹⁵⁸ Pradeep. B. Kadun & Ors., *Social Exclusion –Its types and impact on Dalits in India*, 19 IOSR-JHSS 81, (2014).

¹⁵⁹ Navsarjan Trust & Robert F. Kennedy Centre for Justice and Human Rights, *Understanding Untouchability: A Comprehensive Study of Practices and Conditions in 1589 villages* (2010).

problem.¹⁶⁰ It is said, “Dr. Ambedkar’s conception of human beings and nature was not simply a romantic and nostalgic alienation of man from nature which was widely prevalent in the ecological discourse of nineteenth and early twentieth centuries, rather it depicted alienation of man by man from nature.”¹⁶¹ Article 15(2)(b) of the Indian Constitution is considered as a reflection of the aspiration to eradicate untouchability in access to water.¹⁶²

10.1.1 Unequal Protection from Health Hazards

Though there are other areas in which the right to health of untouchables has not been secured, the paper is confined only to the problem of manual scavenging. Other areas include, for example, less access to sanitation, denial of treatment to untouchables by doctors, low access to health care, a large number of undernourished children belonging to the untouchables etc.¹⁶³ The untouchables in India are forced to do manual scavenging, an inhumane work which exposes them to several health hazards. There are approximately 1.3 million untouchables in India who are being forced to do manual scavenging.¹⁶⁴

As untouchables are regarded ‘dirty’ within the Hindu fold, they are forced to do ‘dirty’ jobs which have adverse impacts on their health. The Conscience of the Hindu society has no sympathy towards these people carrying out such hazardous jobs. Among the socially degrading jobs performed by the untouchable community, manual scavenging tops the list for its potentiality in injuring the health. UNHRC observed that “*Dalits are regularly forced into the most menial, socially degrading, dirty and hazardous jobs.*”¹⁶⁵ Some scholars consider that these dirty jobs are taken up voluntarily by the low castes¹⁶⁶ ignoring the imperative role of caste inherent in the allocation of occupation.¹⁶⁷ Dr. Ambedkar asserted “*Under Hinduism scavenging was not a matter of choice: it was a matter of*

¹⁶⁰ V.M. Ravi Kumar, *History of Indian Environmental Movement; A Study of Dr. B.R. Ambedkar from the perspective of Access to Water*, 8 Contemporary Voice of Dalit 1, (2016).

¹⁶¹ *Id.* at 5.

¹⁶² *Id.*

¹⁶³ NHRC, *Report on Prevention of Atrocities Against SCs & STs (2000)*, <http://nhrc.nic.in/Documents/Publications/reportKBSaxena.pdf>. The NHRC report further revealed that only 9.84% of Scheduled Castes households had access to sanitation. And 57.5% of Scheduled Castes children under 4-years of age were reported undernourished in 1992.

¹⁶⁴ Bezwada Wilson & Bhasha Singh, *The Long March to Eliminate Manual Scavenging in INDIA EXCLUSION REPORT 2016 298*, (1st ed. 2017).

¹⁶⁵ UNHRC, *supra* note 156, at Para 33.

¹⁶⁶ M.P. Jain, *supra* note 77, at 1446.

¹⁶⁷ Wilson, *supra* note 164.

*force.*¹⁶⁸

This degrading job of manual scavenging is also institutionalized through state practice where local governments and municipalities employ them.¹⁶⁹ The National Human Rights Commissions (NHRC) report reveals that nearly 65.57% of the total posts of sweepers (Group D post in the Central government) are occupied by Scheduled Castes.¹⁷⁰ Here, it is also pertinent to mention the statistics cited by the Supreme Court of India,¹⁷¹

1. 95% of manual scavengers are Women from the Dalit community.
2. This practice is rooted in the caste system and untouchability.
3. The number of dry latrines has increased from 72.05 lakhs to 96 lakhs and such latrines are being cleaned manually.
4. The 1993 Act was inoperative for the first three years and was not implemented effectively from then.
5. Manual scavengers are also being employed in the military engineering works, the army, public sector undertakings, Indian Railways etc.
6. The earlier schemes enacted for rehabilitation of scavengers failed to achieve its objectives.
7. Article 17 of the Constitution and PCR Act were inadequate in addressing the problem of manual scavenging.

Cleaning human faeces without any adequate safety equipment and carrying it on their head made them vulnerable to severe health impacts. Exposure to harmful gases, cardiovascular degeneration, musculoskeletal disorders, infections, skin problems and respiratory ailments are some of the health hazards manual scavengers are affected with.¹⁷² They also suffer from diarrheal disease and dysentery.¹⁷³ Approximately 100 workers die every

¹⁶⁸ Quoted in Satya Shri, 2 *Demystifying Brahminism and Re-Inventing Hinduism*, (Notion Press 2017).

¹⁶⁹ Wilson, *supra* note 164.

¹⁷⁰ NHRC, *supra* note 163.

¹⁷¹ Safai Karamchhari Andolan and Ors vs Union of India and Ors. on 27 Mar 2014, 1 W.P. (CIVIL) NO. 583 OF 2003.

¹⁷² Rajnarayan R. Tiwari, *Occupational health hazards in sewage and sanitary workers*, 12 *Indian J Occup Environ Med.* 112, (2008).

¹⁷³ UNHRC, A/HRC/15/55 at Para 75.

year due to inhalation of harmful gases.¹⁷⁴ And the government usually underreport the actual number of deaths.¹⁷⁵

*The Indian Exclusion Report 2016*¹⁷⁶ clearly demonstrates the inadequacy of schemes and laws enacted to abolish manual scavenging. It criticizes the 1993 Act as loosely formulated law and exposes the reluctance on the part of the administration to implement the same. The 2013 Act which recognized the historical injustice and indignity, excluded from its ambit those scavengers who were provided with protective gear. The report calls for an amendment of such provision to abolish the practice altogether. The money allotted for the rehabilitation of manual scavengers was largely unspent.¹⁷⁷ The misrepresentations of State Governments on the actual number of manual scavengers in their reports were also exposed. Finally, the report criticizes the Swachh Bharat Mission as an ‘extension of purity and pollution theory’ which perpetuates manual scavenging from shifting the focus from toilet cleaners to users by glorifying broom with a casteist mind-set.

Failure to punish those who employ untouchables in manual scavenging, institutionalization through state practice and a reluctance or lack of interest on the part of the State to abolish such inhumane practice clearly reveal the unequal protection from health hazards which makes them to disproportionately share the burden of hazards. The efforts taken by the government are nothing but mere tokenism. The underreporting of scavengers and their death, unspent money allocated for their rehabilitation, etc., clearly shows unwillingness of the State to eradicate the inhumane practice. Enacting laws alone will not lead to a social change when there is no commitment to implementation. Generally, two things can be done to reduce the impacts and number of deaths due to manual scavenging: First, to effectively implement those measures which penalize the offenders and rehabilitate the scavengers. Second, to underreport the actual deaths by ignoring the inhumane practice and claim it has been abolished. The

¹⁷⁴ *Hidden Apartheid: Caste Discrimination against India's "Untouchables"*, HUMAN RIGHTS WATCH (Feb 12, 2007), <https://www.hrw.org/news/2007/02/13/india-hidden-apartheid-discrimination-against-dalits>.

¹⁷⁵ Sana Shakil, *Deaths of manual scavengers raise a sinking stink*, NEW INDIAN EXPRESS (13th Aug 2017 08:50 AM), <http://www.newindianexpress.com/thesundaystandard/2017/aug/13/deaths-of-manualscavenger-s-raise-a-sinking-stink-1642371.html>.

¹⁷⁶ Wilson, *supra* note 164.

¹⁷⁷ The budgeted amount for The Self Employment Scheme for Rehabilitation of Manual Scavengers was 470.19 crores and the actual expenditure was nil.

Governments in India chose the latter as it was easier than the former.

12. 'Other(S)' Environmental Injustices

There are also many other environmental injustices imposed upon the untouchables which received less attention. For example,

1. SC/STs constitute a large number of Indian slum population. Out of the 65.4 million slum population in India, nearly 13.4 million were SCs and 2.2 million were STs. The proportion of SCs was found to be higher in slum areas compared to the population of SCs in non-slum areas and urban areas.¹⁷⁸ The fact that one cannot find the word 'caste' in the Law Commission of India's 138th report '*Legislative Protection For Slum and Pavement Dwellers*' published in 1990 clearly shows the understanding and attitude of the state institutions towards the problem.¹⁷⁹
2. The lack of access to lands makes them solely depend on, as seen above, manual casual labour. Consequently, untouchables constitute the majority of the bonded labours, migrant workers and unfree labour¹⁸⁰ and they are forced to work in unhygienic environmental conditions.¹⁸¹ Nearly 83.2% of the bonded labourers belong to SC/STs.¹⁸² Long working hours in Brick kilns, rice drying field affect their health. It was found that due to worse sanitary and hygienic conditions in rice drying area, there are frequent cases of tuberculosis.¹⁸³
3. A recent study revealed that the hazardous waste generating industries are more likely to be located in areas which are more urbanized, densely populated districts with a higher proportion of Scheduled Castes and BPL card holders. It was found that the chance of being a hazardous waste generating district increases by 5.1% for every 1% increase in the

¹⁷⁸ Ministry of Housing and Urban Poverty Alleviation, *Slums in India: A Statistical Compendium 2015*, 26-30

http://nbo.nic.in/Images/PDF/SLUMS_IN_INDIA_Slum_Compendium_2015_English.pdf.

The compendium identified the following as attributes of slums, lack of basic services, substandard housing or illegal and inadequate building structures, overcrowding and high density, unhealthy living conditions and hazardous locations, insecure tenure, irregular or informal settlements, poverty and social exclusion and minimum settlement size.; Also See Section 3 of The Slum Areas (Improvement and Clearance) Act, 1956.

¹⁷⁹ The report acknowledged that the problem of slums has been prevalent for a long time in India.

¹⁸⁰ UNHRC, A/HRC/12/21 (2009).

¹⁸¹ Isabelle Guerin, *Bonded Labour, Agrarian Changes and Capitalism: Emerging Patterns in South India*, 13 *Journal of Agrarian Change* 405, (2013).

¹⁸² NHRC, *supra* note 163.

¹⁸³ Isabelle, *supra* note 181, at 415.

SC population.¹⁸⁴ The study emphasized the absence of previous studies conducted at the national level related to the distribution of environmental harm from Environmental Justice Perspective.

4. Tribals and Dalits constitute the majority of the displaced population in the country. Nearly 73% of the displaced people are yet to be rehabilitated.¹⁸⁵ 'Caste' also plays a significant factor in locating sites for development projects.
5. Access to judicial remedy is not effectively secured to the disadvantaged groups. The Dalits, Adivasis and Muslims are the most excluded communities from access to legal justice due to bias against them by the police authorities.¹⁸⁶ The IUCN empirical study identified certain barriers to accessing justice like unfamiliarity with the legal system, lack of confidence, language barriers and psychological barriers and revealed that Dalits in the rural communities prefer extra-legal gateways to government institutions to settle their disputes.¹⁸⁷

13. Conclusion

The intellectual environmental orbit of India is more concerned with the conservation of nature and gives less attention to the issues raised in this paper. The Supreme Court's observation that "Environmental Justice could be achieved only if we drift away from the principle of anthropocentric to eco-centric" shows that the term 'Environmental Justice' is employed only in the context of conservation of nature.¹⁸⁸ The Supreme Court also equated the destruction of the environment with matricide.¹⁸⁹ This attitude led to attributing personality to rivers.¹⁹⁰ This eco-centric approach, in general, overlooks the environmental discriminations against marginalized sections of the community. This approach will not hold any water since it can only poeticize an issue but

¹⁸⁴ Pratyusha Basu and Jayajit Chakraborty, *Environmental Justice implications of hazardous waste generation in India: a national scale analysis*, 11 Environ. Res. Lett. (2016).

¹⁸⁵ Vinod Kumar, *Development Induced Displacement: A Neoliberal Paradigm*, 3 J. Nat'l L. U. Delhi 71 (2015-2016).

¹⁸⁶ Gitanjali Prasad & Mrinal Satish, *Exclusion from Access to Legal Justice in INDIA EXCLUSION REPORT 2016 127-160*, (1st ed. 2017).

¹⁸⁷ M. S. Vani, *supra* note 66.

¹⁸⁸ T.N. Godavarman Thirumulpad vs Union of India & Ors on 13 February, 2012, W.P. (C) NO. 202 OF 1995.

¹⁸⁹ K.M. Chinnappa, T.N. Godavarman Thirumulpad vs Union of India and Ors. W.P. (civil) 202 of 1995.

¹⁹⁰ Apoorva Mandhani, *SC Stays Uttarakhand HC's Order Declaring Ganga and Yamuna Rivers As Living Legal Entities*, LIVE LAW (Jul 8, 2017, 11:24 AM), <http://www.livelaw.in/sc-stays-uttarakhand-hcs-order-declaring-ganga-yamuna-rivers-living-legal-entities-read-order/>.

not politicize it. Emission of greenhouse gases to the atmosphere due to a forest fire or extinction of species etc. is not an issue at all if the earth is uninhabited by humans. Arguing that anthropocentrism would destroy the environment whereas adhering to the laws of nature would be beneficial to it is illogical. Because, both the anthropocentric approach and the laws of nature (eco-centric approach) as perceived by humans are one and the same. They both reflect 'might is right'.

The environmental problems have to be approached only from a perspective which would benefit 'all' and not few or the majority. Overlooking the environmental discriminations or romanticizing ancient texts would lead to an environmental philosophy which would, as *David Harvey* claims, fail to "address the justice question of who gets help and who does not; who can afford help who does not;...why industries poison some communities and not others; why some contaminated communities get cleaned up but others does not; why some communities are protected and others are not protected,..."¹⁹¹

Environmental Justice in India is fundamentally a problem of caste. The Dalit perspective of environmental problems is said to be missing in environmental studies because they are merged in the general definitions of the poor, marginal, vulnerable, etc.¹⁹² There is a need to approach these issues from an Environmental Justice perspective mainly for the following interrelated reasons. First, most of the issues are generalized as noted above. An Environmental Justice perspective concretizes the issue and it will not get lost in the usual 'Dalit Rhetoric' (used in a non-derogatory sense).

Second, unfortunately, the language of 'caste' and 'caste-based discrimination' is not *so popular* among the international community as compared to the other forms of discrimination. Hence, there is a need to formulate the problems in a 'universal' language like 'Human Rights', 'Environmental Justice' etc. The 'universality' of those concepts might be challenged by some as 'western concept' to further hidden colonial agendas.¹⁹³ Even if those accusations are

¹⁹¹ David Harvey, *The Environment of Justice* in JUSTICE, NATURE AND THE GEOGRAPHY OF DIFFERENCE 366 (Malden, MA: Blackwell 1996).

¹⁹² Mukul Sharma, *supra* note 64.

¹⁹³ 'Universality' of Human Rights is challenged on two grounds, namely, as a western concept to further hidden agendas and such concepts should not be the basis of criticizing or evaluating non-western societies which are culturally diverse. See SUSAN MARKS & ANDREW CLAPHAM, INTERNATIONAL HUMAN RIGHTS LEXICON 385-398 (OUP, 2005).; "Even international human rights discourse is being manipulated to further and legitimize neo-liberal goals." See B.S. Chimni, *Third World Approaches to International Law: A Manifesto*, 8 International Community Law Review 3, (2006).

true there would still be a considerable number of untouchables welcoming it. Because they prefer colonialism over upper caste aristocracy! Every year untouchables celebrate the defeat of Peshwas by the British.¹⁹⁴ And Periyar E.V. Ramasamy, a significant social reformer, denounced the Independence day of India as a ‘day of mourning for Dravidians.’¹⁹⁵ He viewed the end of British colonialism as ‘subjugation of the Dravidians to the Aryans.’¹⁹⁶

Third, ‘Environmental Justice’ is a transnational concept. It has the capability to trigger the conscience and seek the attraction of the international community. The environmental issues are considered to be capable of producing a ‘boomerang effect’, where the internationalization of an issue through global environmental networks will revert back and strengthen the domestic environmental movements and pressurize the opposition.¹⁹⁷

Fourth, Environmental Justice possesses ‘*militant particularism*’, to attack the inequities and to secure Social Justice.¹⁹⁸ “Politics’ Militant particularism” means a militant idea starting from a local place gets translated into a global political movement like living wage movements, anti-sweatshop movements, environmental movements.¹⁹⁹ Environmental Justice is not a problem of a single community within a territory but of the ‘marginalized of the world’. Realizing this will mobilize those marginalized resulting in their mutual empowerment.

To conclude, one honourable member of Constituent Assembly *Shri Jadubans Sahaya*, while discussing Article 39 (b) hoped,

“...in the future years the natural resources of the community may belong not to the privileged few but to the poor people of the country, for the good and benefit of all.”²⁰⁰

¹⁹⁴ Every year the Koregaon memorial is gathered by the people to celebrate the victory of British-Mahar (untouchables) coalition over Peshwas, the upper caste rulers who supported casteism and indulged in atrocities against untouchables. Hence, the Britishers are considered as the ‘saviours’ of untouchables. See Shraddha kumbhojkar, ‘Contesting Power, Contesting Memories: The History of the Koregaon Memorial’ XLVII EPW103, (2012).

¹⁹⁵ Y.M. Marican, *The Genesis of the DMK*, 9 Asian Studies 357, (1971).

¹⁹⁶ *Id.*

¹⁹⁷ Jennifer S. Schiff, *Silencing the Opposition: The State V. Civil Society in India’s Ganges River Basin*, 15 Int’l Studies perspectives 229.

¹⁹⁸ Harvey, *supra* note 191.

¹⁹⁹ Harry Kreisler, *A Geographer’s perspective on the New American Imperialism: Conversation with David Harvey*, (Mar. 2, 2004), <http://globetrotter.berkeley.edu/people4/Harvey/harvey-con3.html>.

²⁰⁰ Constituent Assembly Debates, *supra* note 105.

And it is saddening to note that the hope is yet to be realized. “*Coupling the search for empowerment and personal self-respect on one hand and environmental goals on the other*” is said to be one of the main issues involved in Environmental Justice.²⁰¹This approach would strengthen the Dalit movements in India to empower and regain the self-respect of a *de facto* minority group.

²⁰¹ Harvey, *supra* note 191.

AN ECONOMIC ANALYSIS OF CORPORATE SOCIAL RESPONSIBILITY

*Sneha Dey**

“The economy is a wholly owned subsidiary of the environment, not the reverse.”

-Herman E. Daly

Anything and everything that ordains the existence of life on the Earth and provides us with a life to live, is the bountiful gift of Nature – The Environment. However, time and again the sanctity of this environment has been threatened. Realizing the importance of environment, various conventions and conferences have been held in this accord. With the passage of time and need for sustainable growth, the focus is being shifted to the methods or the techniques by which the environment can be retracted back from the clutches of destruction. And all of this can happen only when there exists a harmonious cooperation of both flora and fauna and human beings towards protection of the environment. In such a situation the focus shifts towards the CSR as one of the means to protect the environment. CSR plays a great role in preserving the environment by doing good to the society in return of damage caused. Corporate Social Responsibility or CSR is basically a management concept whereby industries and companies integrate the social and the environmental concerns and plan of action with the stakeholders of the company and they give back to the nature for the protection and sustenance of the environment. Thus this paper focuses on the meaning and the basic understanding of CSR, the policy framework along with the economic aspect of CSR and attempts to answer questions ranging from What to Why to How with respect to CSR.

Keywords-

Corporations, Corporate Social Responsibility, Environment, Externalities, Profit After Tax. Non-Voluntary Guidelines.

1. Introduction

India is a country of diverse cultures and traditions, accompanied with myriad differences. While the country has in due course of time turned out to be one of the major growing economies of the World, major population of the country still remains illiterate. Hundreds of children and people deal with the problem of poverty and malnutrition. As per the data of the World Bank, India has

* *Sneha Dey, B.A.LL.B. (Hons.) [Pursuing], School of Law, Christ University, Bangalore.*

world's highest demographics of children suffering from malnutrition. This number is double the people and children suffering in Sub – Saharan Africa. India's ranking on Global Hunger Index is 67 out of the 80 nations. This ranking of hunger situation places us even below North Korea and Sudan. 44% of children under the age of 5 are underweight, while 72% of the infants have anaemia.

While a plethora of companies that exist in India, these Companies are usually involved in profit maximization and cater to the individual needs of the Company. Thus, there arises a disparity between the haves and the have nots.

India being a is a mixed economy. Economic development is as important as social development. Therefore, they both should complement and supplement each other rather than being at loggerheads with each other. The country has adopted a socialistic approach.¹ Under this, the government is to fill the gaps between the rich (haves) and the poor (have nots). Thus, abiding by this approach, the government has mandated companies with a specified amount of turnover to contribute in the process of the social and economic development of the weaker sections of the society by means of 'Corporate Social Responsibility' ("CSR"). But then, there are questions like what is CSR, how CSR is going to help the weaker sections of the society, what is the economic rationale behind CSR, and more importantly, why should companies care to spend their money for the benefit of some section of the society.

To understand and come up with answers for all of these questions, we should understand the meaning and implications of CSR along with understanding through Indian perspective.

2. Meaning and Importance of CSR

Corporate Social Responsibility refers to the philanthropic nature of business houses and corporations, wherein they are involved in improving and providing a better means of livelihood to the weaker and disadvantaged sections of the society; such that these people can have a basic standard of living and are not perturbed solely on the grounds of being poor. CSR doesn't have any exhaustive generalized particular watertight definition and, on that accord, has been defined variedly by different organizations and other academicians. The EU has been instrumental in providing us with a widely significant information for both social and developmental aspects. The EU

¹ INDIA CONST., Preamble, *amended by* The Constitution (42nd Amendment) Act, 1976.

describes CSR as:

*“the concept that an enterprise is accountable for its impact on all relevant stakeholders. It is the continuing commitment by business to behave fairly and responsibly, and contribute to economic development while improving the quality of life of the work force and their families as well as of the local community and society at large...”*²

In other words, The United Nations Industrial Development Organization states that CSR is a way through which a company achieves a balance of economic, environmental and social imperatives (“Triple-Bottom-Line- Approach”), while at the same time addressing the expectations of shareholders and stakeholders.³ Thus, CSR is one of the philanthropic aspect of certain companies where in they try to pay back or do some good to the society in return to the usage of resources of the environment .

In the present times, when the environment has been subjected to the evils of pollution and other human and animal disasters, sustainable growth of the environment with regard to the future becomes highly effective for the society. CSR tries to foster the need for the protection and the sustainable and ethical growth of the environment. That is to say, it strives for achievement of a positive impact on society as a whole while maximising the creation of shared value for the owners of the business, its employees, shareholders and other stakeholders. It inculcates a sense of responsibility on the part of the corporations.

The 2015 Cone Communications/ Ebiquity Global CSR study found that a staggering **91%** of global consumers expect businesses to operate responsibly to address social and environmental issues. Furthermore, **84%** say they seek out responsible products wherever possible.⁴ Thus consumers have become increasingly aware of the need for the protection of the environment. By this accord, they usually support those businesses that aim towards protecting the environment. It attracts consumers towards itself and boosts up its profit margin, thereby, providing an edge over the competitors in the market.

² A renewed EU strategy 2011-14 for Corporate Social Responsibility, European Commission press release, (2011) http://ec.europa.eu/enterprise/newsroom/cf/_getdocument.cfm?doc_id=7010.

³ What is CSR?, United Nations Industrial Development Organisation, <https://www.unido.org/our-focus/advancing-economic-competitiveness/competitive-trade-capacities-and-corporate-responsibility/corporate-social-responsibility-market-integration/what-csr>.

⁴ Ellie Collier, The Importance of Corporate Social Responsibility for Your Business, Hub High Speed Training (Jan. 26, 2018), <https://hub.highspeedtraining.co.uk/importance-of-corporate-social-responsibility/>.

3. Major Players of CSR in the Indian Market

The concept of CSR can be effective in protecting and preserving the society only when a significant number of players or companies play their parts, mutually coordinate with each other in ensuring sustainable development of the environment. During the current year- 2018-it has been observed that 22 companies have committed to a higher CSR budget outlay as compared to 10 companies during 2014-15. The total CSR budget outlay of these 22 companies is INR 2424.95 cr.⁵ In addition to this the average spending per company has increased by 25%, to INR 73.6 cr. from INR 58.8 cr. during 2014-15. It is also remarkable to note that the total amount unspent has been reduced by INR 666 cr. (i.e. from INR 1738 cr. in 2014-15 to INR 1072 cr. during 2016-17).⁶

While 2016- 17 saw an increased expenditure towards CSR, the major players that aided and ensured this positive change included different types of companies. Be it Public Sector Undertaking (PSU) and Non Public Sector Undertakings Companies of Indian (INR 7019.7) and Non- Indian Origin (INR 196.2 cr.), companies in Energy and Power Sector (INR 2524.9 cr.), customer Products (INR 586.8 cr.) , IT Consulting and Software (INR 959 cr.) and Mining & Metal (INR 566 cr.), Telecom sector companies(400 per cent) followed by pharmaceutical companies (234 per cent) or automobile companies (230 per cent).⁷

Some of the top 10 Companies that are engaged in CSR are – Tata Group, Ultratech Cement, Mahindra & Mahindra, ITC Group, L&T, Gail, Bharat Petroleum, etc.

4. Policy Aspect of CSR in India

In India, evolution of CSR can be credited to the progressive changes time to time, regarding the social standards, estimations of companies' commitment and the way in which organizations offered approach to positive effects on networks, societies, social orders and condition. In the recent five years, the Government has ascribed quite a bit of its attention on guaranteeing that the business companies spend and add to CSR (not by virtue of their social responsibility but by contributing a portion of their income for the aid and development of society).

⁵ India's CSR reporting survey 2017, KPMG (Jan. 2018), <https://assets.kpmg.com/content/dam/kpmg/in/pdf/2018/02/CSR-Survey-Report.pdf>.

⁶ Id.

⁷ Id.

In accordance to this, the Department of Public Enterprises had issued guidelines regarding expenditure on CSR activities for Central Public Sector Enterprises. As per these guidelines, each Central Public Sector Enterprises would with the approval of its Board of Directors make a budgetary allocation for CSR and Sustainability activities/ projects for the year and the budgetary allocation is to be determined by the “ Profit after Tax ”(PAT) of the company in the previous year.⁸ In addition to this, the National Voluntary Guidelines (NVGs) on Social, Environmental and Economic Responsibilities of Business, are laid down by the Ministry of Corporate Affairs to aid and guide the companies in dealing with the expectations of inclusive growth and imperatives of climate change, while working closely within the framework of national aspirations and policies. These are applicable to all businesses irrespective of size, sector or location. These nine principles⁹ that constituted NVGs are –

- i. Businesses to conduct and govern themselves with ethics, transparency and accountability.
- ii. Businesses to provide goods and services that are safe and contribute to sustainability throughout their life cycle.
- iii. Businesses to promote the wellbeing of all employees.
- iv. Businesses to respect the interests of, and be responsive toward all stakeholders, especially those who are disadvantaged, vulnerable and marginalized.
- v. Businesses to respect and promote human rights.
- vi. Business to respect, protect, and make efforts to restore the environment.
- vii. Businesses when engaged in influencing public and regulatory policy, shall do so in a reasonable power.
- viii. Businesses to support inclusive growth and equitable development.
- ix. Businesses to engage with and provide value to their customers and consumers in a responsible manner.

The increased danger to the environment and to the social and economic development of the nation has led to the inclusion of CSR related provisions in the Companies Bill 2012. India is now the first country to make CSR mandatory

⁸ Corporate Social Responsibility in India, EY (Jul. 9 3013), [https://www.ey.com/Publication/vwLUAssets/EY-Government-and-Public-Sector-Corporate-Social-Responsibility-in-India/\\$File/EY-Corporate-Social-Responsibility-in-India.pdf](https://www.ey.com/Publication/vwLUAssets/EY-Government-and-Public-Sector-Corporate-Social-Responsibility-in-India/$File/EY-Corporate-Social-Responsibility-in-India.pdf).

⁹ National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business, Ministry of Corporate Affairs, Government of India (Jul. 2011), http://www.mca.gov.in/Ministry/latestnews/National_Voluntary_Guidelines_2011_12jul2011.pdf.

for the Companies. In accordance to this Clause 135 of the Companies Bill 2012, it aims at motivating companies to spend 2% of the companies' Profit After Tax (PAT). While this clause on spending is not compulsory, the companies failing will need to furnish reasons for their inability to spend the specified amount.

Clause 135 of Companies Act states the following:

- “(1) Every company having net worth of rupees five hundred crore or more, or turnover of rupees one thousand crore or more or a net profit of rupees five crore or more during any financial year shall constitute a Corporate Social Responsibility Committee of the Board consisting of three or more directors, out of which at least one director shall be an independent director.*
- (2) The Board's report under sub-section (3) of section 134 shall disclose the composition of the Corporate Social Responsibility Committee.*
- (3) The Corporate Social Responsibility Committee shall—*
- (a) formulate and recommend to the Board, a Corporate Social Responsibility Policy which shall indicate the activities to be undertaken by the company as specified in Schedule VII;*
 - (b) recommend the amount of expenditure to be incurred on the activities referred to in clause (a); and*
 - (c) monitor the Corporate Social Responsibility Policy of the company from time to time.*
- (4) The Board of every company referred to in sub-section (1) shall,—*
- (a) after taking into account the recommendations made by the Corporate Social Responsibility Committee, approve the Corporate Social Responsibility Policy for the company and disclose contents of such Policy in its report and also place it on the company's website, if any, in such manner as may be prescribed; and*
 - (b) ensure that the activities as are included in Corporate Social Responsibility Policy of the company are undertaken by the company.*
- (5) The Board of every company referred to in sub-section (1), shall ensure that the company spends, in every financial year, at least two per cent. of*

the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy:

Provided that the company shall give preference to the local area and areas around it where it operates, for spending the amount earmarked for Corporate Social Responsibility activities:

Provided further that if the company fails to spend such amount, the Board shall, in its report made under clause (o) of sub-section (3) of section 134, specify the reasons for not spending the amount.

Explanation — *For the purposes of this section “average net profit” shall be calculated in accordance with the provisions of section 198.”*

In addition to making CSR mandatory for specific Companies, it also provides for the establishment of Corporate Social Responsibility Committee. The entire process must begin by formulating a CSR Policy and providing for the activities that are to be pursued by the Company. In addition to this, the Committee shall make recommendation to the Board regarding the estimated budget for the conduct of activities. Based on the recommendations suggested by the Committee, the Board would agree upon the expenditure for the activity as per the policy. The Committee is entrusted with supervisory function to monitor the implementation of the policy and ensure that the fund allocated is used for the activities of CSR only.

5. Economic Aspect of CSR Trends

Corporate Social Responsibility has turned out in the present situation to be a business activity where firms have started investing to a great extent in providing public goods and reducing the negative externalities that are attached to a business activity. The need of the hour for the protection of the environment has been felt not only by the individuals and environmentalists but also by the various Corporations who have been trying to contribute in some way or the other to do good for the loss and threats caused to the environment (including flora and fauna).

Friedman (1970) argued that the only responsibility of firms is profit maximization and that public preferences combined with democratic empowerment implied that governments, and not firms, should manage externalities and provide public goods. However, this division of corporate and

government responsibility vis-a-vis society became generally known as the classical dichotomy. In contrast to Friedman (1970), early business and society scholars argued that firms ought to consider the implications of their actions for all constituencies even if such considerations reduced share holder wealth.¹⁰ However, in recent times, the businesses have undergone a paradigm change from their goal of profit maximization to the social, ecological and economic development of the society. CSR has been attributed to a variety of economic aspects, some of them discussed below.

5.1 Negative Externalities

As the name suggests, it implies a negative cost or a negative effect of a particular transaction/ business over an unrelated 3rd party. In case of negative externalities, the decisions of the producers of a good or service have direct costs on others who are not involved in the transaction, thereby causing damage. The negative externalities increase the burden over the society and costs society a lot than costing a consumer. These costs are usually in terms of the damage and degradation to the environment.

In an unregulated market, where the Government doesn't regulate the activities of the producers, negative externalities express themselves as a significant damage to the well being and development of the society. The operation of industries for their economic and profit maximization causes significant damage to the environment which cannot in anyway be replaced. Such operation gives rise to negative externality wherein the environment, which is a 3rd party, is made to bear the costs of destruction.

For example- when a factory is set up, it gives rise to dangerous smoke and fumes which persist in the environment and cause harm. Now the costs that are incurred by the environment in dealing with the smoke and fumes are neither taken care by the factory nor by the residents. Though none of the parties bear the cost of the harm caused, it doesn't, in anyway, reduce the harm that is being done to the environment. This results in the damage and destruction to the environment in the form of negative externality.

However, in recent times, due to the development of CSR, where the companies are made accountable to the damage caused by them, the issue of negative externalities is being resolved. The companies either by means of reducing the

¹⁰ Markus Kitzmueller and Jay Shimshack, Economic Perspectives on Corporate Social Responsibility, *Journal of Economic Literature* 50-52 (2012).

smoke emitted through use of the technology or by paying taxes for the removal of pollutants and purifying the dangerous fumes, by reducing their production level to limits that are safe for the environment, have helped in the protection and preservation of the environment at large.

5.2 HICKS – KALDOR Efficiency

CSR is primarily based on the notion of HICKS – KALDOR efficiency wherein the businesses try to do good to the harm caused to the environment for the development of the environment at large. As per the criterion of HICKS-KALDOR efficiency, an outcome will be efficient only when those that are made better off. Benefit from an outcome can compensate the ones who are worse off without losing or being affected by the compensation.

According to Kaldor's welfare criterion, if change in policy or economic organization will make some individuals better off and others individuals worse off, the change will increase the social welfare of those who gain from the restructuring. Even if it could provide for compensation for the losses, it still can be better off than before. Hicks expressed that, 'A could compensate B for his loss and still have something left over; if A is made better with the change, then the reorganization is an of unequivocal improvement'.

While Hick has given his criterion from the loser's point of view, Kaldor had formulated his criterion from the gainer's point of view. Though the two criteria are exposed differently, but they really are the same. Thus, the two criteria are generally called by a single name, 'Kaldor- Hicks Criterion'.

This is one of the rationales on which Corporate social Responsibility is based on where in the businesses who earn huge amount of profits contribute and compensate for the harm they are causing to the environment and the economically backward sections of the society by investing in public goods or sponsoring various welfare programmes to aid and promote the development of their economy along with that of the citizens.

5.3 Polluters – Pay Principle

This is one of the fundamental norms that has been adopted and applied to guide the development of environmental jurisprudence. The Polluter Pays principle, which is a part of the basic environmental law of the land, requires that a polluter bear the remedial or clean up costs as well as the amounts payable to compensate

the victims of pollution.¹¹ The modern concept of Corporate Social responsibility is based on these lines where in the businesses that earn huge amount of profits at the cost of using the natural resources and the elements of the environment must pay for the purpose of compensating the damage incurred.

Pollution tax or the Pigouvian tax owes its basis to the Polluters Pay principle where in the business or the producers that cause pollution to the environment are made to pay taxes to the government to such amounts for the purpose of doing good to the damage caused. The concept arose as a preventive mechanism to prevent the industries to cause pollution up to a safe limit where no harm is meted out to the environment and the industries are made to bear the costs of damage. This mechanism has thereby helped in the prevention of degradation of the environment and has in due course of time acted as an inhibiting factor in the growth of pollution.

6. INSTANCES OF CSR IN INDIA

CSR was started as a business activity where the companies were made to provide a significant share of their profits toward the development of society and environment. It has played a significant role in a lot of developmental projects and initiatives that have been taken up by the companies for the furtherance of the vision and the mission of CSR. It looks after the development of society along with the environment at large. Some of the instances of CSR in India are –

6.1 ITC Limited Corporate Citizenship

ITC has innovatively crafted a plethora of business models that synergise long-term shareholder value creation while enhancing societal capital. This has not only helped in the augmentation of financial but social capital of the nation as well. As a corporate citizen, with enduring relationships in rural India, ITC has time and again collaborated with communities and government institutions to enhance farm productivity and the rural resource base. In addition to it they have played a significant role in agricultural Research and Development and knowledge sharing in ensuring efficient farm practices, soil and water management.

6.2 ONGC Project HEAT

Oil and Natural Gas Corporation Limited (ONGC), a State-owned Oil and

¹¹ Shyam Divan and Armin Rosencranz, *Environmental Law and Policy in India* 41-42 (2nd ed., 2001).

Natural Gas company founded on 14 Aug 1956, has in collaboration with Haemophilia Federation (India) (HFI), launched a project- Project HEAT. Under the Haemophiliacs Education and Transformation (HEAT) project, NGOs would identify 1000 Children with Haemophilia from across the country who are schooling, between 5 and 18 years of age, and living below the poverty line. They would provide those children with education and provide financial assistance to these children such that they can then lead a better life. This project would benefit 1000 children with Haemophilia in its 1st year of operation itself.

6.3 *Hyundai Hope on Wheels*

Hyundai Hope on Wheels is partnership of Hyundai dealers across the U.S. and Hyundai Motor America. They have launched a nationwide initiative to raise funds to fight childhood cancer, wherein a total of \$3 million dollars is to be donated to children's hospitals and other non-profit organizations across the country in the form of "Hyundai Hope Grants." As a part of the project, these Hope Grants would aid in the funding childhood cancer research projects as well as survivorship programs and other resources designed to improve quality of life for children suffering from cancer.

6.4 *TATA Power 'Act for Mahseer'*

Tata Power back in 2015, had launched 'Act for Mahseer', a sustainable programme focused at conservation of the Mahseer, an endangered species of fish at the national level. The programme had been launched with a three-pronged approach to educate, engage and empower Mahseer lovers. Under each approach, various activities would be undertaken in accordance for the fulfilment of the ulterior objective of the programme. In addition to it, a microsite was launched on Mahseer conservation, and a Mahseer travelogue series, that focused on educational aspect of the programme. Furthermore, interactive activities, such as a gaming app and Mahseer Conservation Day was observed as a part of the empower and engage stage to focus on the core conservation initiatives such as donation drives, volunteering for habitat adoption, awareness drivers and many others.¹²

7. Conclusion

CSR has in the recent times fostered and ensured the promotion as well as protection of the environment for the multifarious development; of both the

¹² Tata Power launches 'Act for Mahseer' nationally, TATA Group (May 13, 2015), <http://www.tata.com/article/inside/Tata-Power-launches-Act-for-Mahseer-nationally>.

society as well as the country as a whole. There lies no doubt that a significant number of companies in India have played their parts in this regard and has been instrumental in the promotion and conservation of the environment. The economic aspect of CSR has helped and profited both the companies and the environment at large, thereby, ensuring growth and development of the Indian Economy and the society at large. However, there are a lot of lacunas associated to the concept, but the benefits derived out of it exceeds the costs. In due course of time it would contribute to a positive and a progressive step in ensuring a sustainable and ecological development of the country.

A HISTORY OF NEGLECT: THE NORTH-SOUTH DIVIDE IN CLIMATE CHANGE TECHNOLOGY TRANSFER

Vivek Mukherjee*

The call for attention at the cause of Climate Change is not a recent event. However, the measures taken to combat the same has not yet shown results as expected. Not only the lack of implementation of the ideas, there are various other reasons that have contributed towards the slow progress in events. Due to mounting international pressure, it was realized that mitigation and adaptation be given equal importance for enhancement of the existing framework. Parties agreed that there be institutions established at highest as well as lowest level to approach the problems in multi-level system. However, with this also arises a need to delve deeper into the existing scenarios to understand reasons for neglect for adaptations, on the cost of which mitigation used to be preferred. Not only the differences between developed and developing nations, differences in approaches between the global North as well as global South need to be understood. The issue of climate change puts India in a vulnerable situation. The first part of the paper discusses about the history of neglect of one important pillar of climate change laws i.e. adaptation while the second part focuses on hurdles that the third World is facing, mainly the framework problem and the IPR problem.

1. Introduction

India is a climate change vulnerable nation.¹ Inter-Government Panel on Climate change (IPCC), the supreme scientific body under the auspices of United Nation had predicted in 2007 that extreme events will be more frequent in the near future in India.² Due to a high vulnerability to climate change, agriculture sector in India will be the worst victim of the direct impacts of climate change.³{Figure 1} Scientists in the Global South have indicated that managing crops has become increasingly challenging for farmers as a result of frequent extreme events like droughts or floods caused by climate change.⁴ For instance, increase in average

* Mr. Vivek Mukherjee is an Assistant Professor at NALSAR University of Law. He teaches Environmental Laws, Climate Change Laws and Politics and Public International Law.

¹ Intergovernmental Panel on Climate change, 2014. *Climate change 2014–Impacts, Adaptation and Vulnerability: Regional Aspects*. Cambridge University Press.

² *Supra* note 1.

³ Aggarwal, P.K., 2008. Global climate change and Indian agriculture: impacts, adaptation and mitigation. *Indian Journal of Agricultural Sciences*, 78(11), p.911.

⁴ In the 5th assessment report of IPCC submitted by Working Group II, it has been observed that- “Agricultural production, including access to food, in many African countries and regions is projected to be severely compromised by climate variability and change. The area suitable for agriculture, the length of growing season and yield potential, particularly along the margins of semi-arid and arid areas, are expected to decrease. This would further adversely affect food

temperature has led to creation of a favorable environment for crop-destroying tropical insects. Crops were destroyed by such insects on a recurrent basis in Punjab, thereby leading to more than 15 farmer suicides.⁵

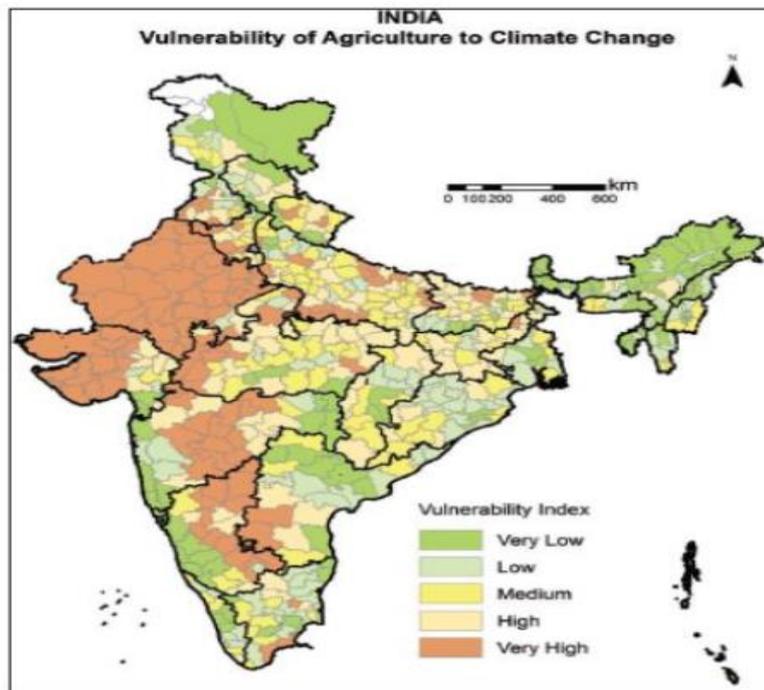


Figure 1 (Source: ORF)

In a highly vulnerable⁶ nation like India {Figure 1}, climate change adaptation⁷

security and exacerbate malnutrition in the continent. In some countries, yields from rain-fed agriculture could be reduced by upto 50% by 2020.

⁵ Bahar Dutt, 'Why farmer suicides in Punjab is a climate story', Live Mint (16 October 2015) <<http://www.livemint.com/Opinion/7EGr4LSba8Jk9ox6u623DN/Why-farmer-suicides-in-punjab-is-a-climate-story.html>> accessed 22 July 2018.

⁶ Vulnerable countries have been recognized in the UNFCCC as low-lying and other small island countries, countries with low-lying coastal, arid and semi-arid areas or areas liable to floods, drought and desertification, and developing countries with fragile mountainous ecosystems are particularly vulnerable to the adverse effects of climate change.

⁷ The UNFCCC defines adaptation as actions taken to help communities and ecosystems cope with changing climate condition. The IPCC describes it as adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. The UN Development Program calls it a process by which strategies to moderate, cope with and take advantage of the consequences of climatic events are enhanced, developed, and implemented.

has more relevance than mitigation⁸ (not to undermine the importance of mitigation).⁹ In the recent times, cost-effectiveness of adaptation is also well known. Goklany (2005) argues that, through the 2080s at least, efforts to reduce vulnerability would be far more cost-effective in reducing problems than would any mitigation scheme.¹⁰ However, in practice, climate change adaptation has always taken a back-seat when contrasted with climate change mitigation in international negotiations including Conference of Parties (COP's) which regularly takes place under the auspices of United Nations Framework Convention on Climate change (UNFCCC).¹¹ {Figure 2} Craft (2014) has done an important study where he arrives at the same conclusion. Whereas, on one hand 107 adaptation technology transfer projects received US\$464 million, US\$938 million went toward funding the 93 mitigation projects conducted in the LDCs.¹² This mismatch reflects the history of preference for mitigation rather than adaptation activities under the UNFCCC.

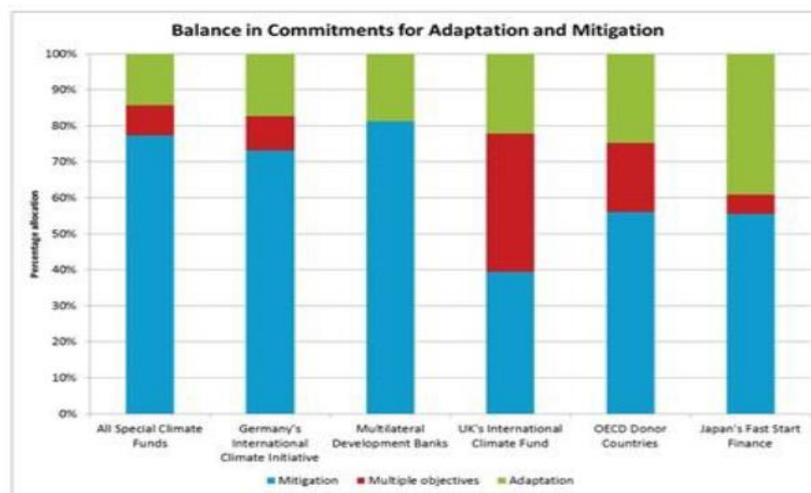


Figure 2: Balance in commitment of adaptation and mitigation
(Source: WRI's Open Climate Network)

⁸ An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases (IPCC, 2001).

⁹ Lobell, D.B., Burke, M.B., Tebaldi, C., Mastrandrea, M.D., Falcon, W.P. and Naylor, R.L., 2008. Prioritizing climate change adaptation needs for food security in 2030. *Science*, 319(5863), pp.607-610.

¹⁰ Goklany, I.M., 2005. A climate policy for the short and medium term: stabilization or adaptation?. *Energy & Environment*, 16(3), pp.667-680.

¹¹ Pielke, R., Prins, G., Rayner, S. and Sarewitz, D., 2007. Climate change 2007: lifting the taboo on adaptation. *Nature*, 445(7128), pp.597-598.

¹² Craft, B., 2014. Technology transfer for least developed countries. IIED background. See <http://pubs.iied.org/17256IIED.html>

The neglect of adaptation and adaptation technology is writ large in the progression of COP's which have taken place since the first COP in 1995. Adaptation does not feature in the objective clause of UNFCCC.¹³ Adaptation was only discussed under relevant funding and technological agenda items on an ad-hoc basis and there was no independent adaptation agenda item until 1998. Assessment of adaptation was done under the procedure established for National Communication. In the Buenos Aires Plan of Action and later, action related to adverse impact of climate change and finance, funding and technology transfer to meet the needs developing countries was emphasized. The 3rd assessment report of IPCC¹⁴ played an important role in gathering consensus among nations that adaptation can no more be neglected in the policy space. This was a result of constant contestation by Developing Countries, in particular Least Developed Countries (LDCs) and Small Island Developing States (SIDS) to include adaptation and vulnerability in the mainstream climate change negotiations. In Marrakesh (2001) the Developing Countries, LDCs and SIDS countries urged for emphasis on technology transfer and financing which bore fruits in the form of the initiation of adaption funds: Least Developed Countries Fund (LDCF) to support the preparation and implementation of National Adaptation Programme of Action (NAPAs); the Special Climate change Fund (SCCF), with specific windows for adaptation and technology transfer; and the Adaptation Fund (AF) under the Kyoto Protocol to fund concrete adaptation activities. Unfortunately, the decisions mentioned above failed to deliver because of dim response from developed countries.¹⁵

The mounting pressure on the international community to take adaptation action got a considerable push after the 4th assessment report of IPCC.¹⁶ Consequently, the Bali Action Plan and the Cancun Adaptation Framework emphasized on enhancement of adaptation action and affirmed that mitigation and adaptation should be treated equally without prioritizing mitigation over adaptation. For this, it was agreed that parties need to work

¹³ Article 2 of UNFCCC, reads 'to achieve, in accordance with the relevant provisions of the Convention, stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system'.

¹⁴ Houghton, J.T., Ding, Y., Groggs, D.J., Noguer, M., Van der Linden, P.J., Dai, X., Maskell, K. and Johnson, C.A., 2001. Climate change: the scientific basis, contribution of WG I to the 3rd assessment report of the IPCC. Cambridge, Univ. Press, Cambridge, UK.

¹⁵ Dessai, S. and Schipper, E.L., 2003. The Marrakech Accords to the Kyoto Protocol: analysis and future prospects. *Global Environmental Change*, 13(2), pp.149-153.

¹⁶ WGII, I., 2007. Climate change 2007: impacts, adaptation and vulnerability. Working Group II, IPCC 4th Assessment Report, <http://www.ipcc.ch>.

on establishing new institutions at global (adaptation committee), regional and local level for adaptation and to strengthen the existing ones. It also mandated the implementation of National Adaptation Programme of Action. (NAPAs).

More recently, Loss and Damage which simply aims to establish a liability/reparation regime to deal with the adverse impact of climate change especially in Developing, LDC and SIDS countries was recognized to be a separate pillar of Climate Change Laws. It goes a step further than the mitigation and adaptation approaches. In Paris (COP 21, 2015), loss and damage emerged as one of the important pillars to address vulnerability.¹⁷ This idea of loss and damages reflects a growing recognition that not all impact of climate change could be avoided through mitigation and adaptation alone.¹⁸

Part I

Practical Reasons for the Neglect of Adaptation

The practical reasons behind the prioritization of mitigation over adaptation by the Global North may be threefold. Firstly, Climate change- a purely global issue, a perfect moral storm is unfathomable in the Westphalian International Legal System. The Westphalian version of International Law is driven by 'National' or 'Vital' interest of states. On one hand, the direct impact of Climate change is experienced in the Third World first. Therefore, Global South will be interested in adaptation action because they are highly vulnerable to the impact of climate change.¹⁹ On the other hand, agriculture in the Global North benefits from rising global average temperature. Although, scientists have shown that the impact of Climate change will also affect the Global North, politicians in these developed nations are reluctant to come on board. Some scholars have reflected upon the limitations of the Westphalian System and proposed better frameworks to deal with twisted problems like climate change. Ronald Dworkin in proposing a New Philosophy of International Law (basing his arguments on morality rather

¹⁷ Rajamani, L., 2015. Addressing loss and damage from climate change impacts. *Economic and Political Weekly*, 50(30), pp.17-21.

¹⁸ See Kauser Husain, 2018. A Case For A Tenacious Loss and Damage Regime In International, unpublished LL.M. dissertation, NALSAR University (on file with author).

¹⁹ Tom Osborn, 'Why Developing Countries are Disproportionately Affected by Climate change — and What Can They Do About it' *Huffpost* (20 January 2015) <https://www.huffingtonpost.com/tom-osborn/why-developing-countries-_b_6511346.html> accessed 29 July 2018.

than voluntarism) highlights the inability of the Westphalian system to deal with purely global issues like climate change. He says:

“...a time may come, sooner than we suppose, when the need for an effective international law is more obvious to more politicians in more nations than it is now. Climate change, for example, may provoke that shift in opinion. It would be a shame if lawyers and philosophers had not improved the jurisprudential discussion of international law before that day arrived. If the standing theories of international law are radically defective, as I have suggested they are, we have at least an intellectual responsibility to propose a better one.”²⁰

Secondly, the Global North which is currently facing economic slowdown is not interested in developing technologies for the Global South as a matter of charity.²¹ Adaptation technologies for agriculture needs to be highly localized, which demands large pre & post development investments.²² It is not preferred by investors/decision makers in the Global North due to barriers like high information and adjustment costs, market failures and externalities (like incentives given to public sector), behavioral obstacles (social & cultural resistance of the community towards non-traditional adaptation methods), involvement of ethical and equity issues, coordination issues (most adaptation measures require high coordination between different governance levels) and most importantly uncertainty due to insufficient attention to research in this field.

Thirdly, investment in adaptation technology is avoidable for the northern countries by showing equivalent or enhanced climate action in mitigation which has higher returns and requires less investment. Co-opting mitigation project as having adaptation benefits, is a time-tested trick.²³

Thus, unless investment in adaptation technology is demanded by the Global South as a matter of right rather than charity, the wheels of adaptation are unlikely to move forward. This demand will be better appreciated if it is backed by authentic adaptation research not only indicating the economic

²⁰ Dworkin, R., 2013. A new philosophy for international law. *Philosophy & Public Affairs*, 41(1), pp.2-30.

²¹ Lerato Maragele, ‘Climate change: A matter of justice, not charity!’ *ActionAid* (27 November 2015) <<http://www.actionaid.org/south-africa/news/climate-change-matter-justice-not-charity>> accessed 29 July 2018.

²² Sovacool, B.K., 2011. Hard and soft paths for climate change adaptation. *Climate Policy*, 11(4), pp.1177-1183.

²³ Lobell, D.B., Baldos, U.L.C. and Hertel, T.W., 2013. Climate adaptation as mitigation: the case of agricultural investments. *Environmental Research Letters*, 8(1), p.015012.

benefits of adapting to climate change but also its inevitability from a right based, socio-cultural standpoint.

2. Neo-Colonial Hegemony

Apart from the practical hurdles in balancing mitigation and adaptation within the climate change regime, this problem also has a host of neo-colonial angles to it. Neo-colonial logic bases itself on the idea that hegemony is maintained not by use of brute force but by convincing the subjects of oppression that the worldview of the oppressor is the 'right' worldview. Law naturally becomes an instrument of oppression. Prof. Chimni's observation in his pivotal piece "Third World Approaches to International Law: A Manifesto" becomes extremely relevant here:

*"International law, in other words, represents a culture that constitutes the matrix in which global problems are approached, analyzed and resolved. This culture is shaped and framed by the dominant ideas of the time. Today, these ideas include a particular understanding of the idea of "global governance" and accompanying conceptions of state, development (or non-development) and rights."*²⁴

Prof. Chimni also warns us against hegemony practiced by international lawyers and international institutions. He says:

*"Academic institutions of the North, with their prestige and power, play a key role in it. These institutions, in association with State agencies, greatly influence the global agenda of research... Progressive scholars in particular need to be careful. For, 'cultural imperialism (American or otherwise) never imposes itself better than when it is served by progressive intellectuals (or by 'intellectuals of color' in the case of racial inequality) who would appear to be above suspicion of promoting the hegemonic interests of a country [and one may add system] against which they wield the weapons of social criticism'... International institutions also play an important role in sustaining a particular culture of international law. These institutions 'ideologically legitimate the norms of the world order', co-opt the elite from peripheral countries, and absorb counter-hegemonic ideas. International institutions also actively frame issues for collective debate in manner which brings the normative framework into alignment with the interests of dominant States. This is also done through the exercise of authority to evaluate the policies of member States."*²⁵

The neglect of adaptation to fulfill the vital interest of the Global North (comprising both states and corporations) which is clear from the figure

²⁴ Chimni, B.S., 2006. Third World approaches to international law: a manifesto. *Int'l Comm. L. Rev.*, 8, p.3.

²⁵ *Ibid*

above (who are interested in mitigating climate change) is a typical example of the hegemonic approach of the Global North towards International law in general and International Environmental Law in particular. The Third World narrative has generally been suppressed in a much subtler way in climate change politics.²⁶ Some have referred to climate change negotiations as slow imperial violence against small powerless nations.²⁷ Even where the Global North has shown interest in climate change adaptation, it has overtaken and hegemonized the whole narrative around it in Third World countries like Nepal.²⁸

There might be several reasons why neo-colonial hegemonizing (by prioritizing mitigation over adaptation) of the climate change narrative is practiced by the Global North. Firstly, climate change is a highly controversial issue which is intrinsically entangled with the question of development. In an unbelievably interconnected and competitive neo-liberal economic order, any challenge to the development goals of nations is bound to attract criticism by states. The narrative of climate change was hijacked by the First World which saw an opportunity to stunt the progress of the Third World. This point related to hijacking of the narrative by the Global North can be explained from similar developments in the International Economic Order i.e. the demurring of the New International Economic Order (NIEO) by the Global North. While NIEO proponents were pushing for a future of global sovereign equality, the leaders of the capitalist economies in Frankfurt, London, and New York were making other plans. Reactions in the north to the NIEO ranged from incremental accommodation (led by social democrats like Willy Brandt, Jan Tinbergen, Olaf Palme, Bruno Kreisky, and Jan Pronk), to Machiavellian inversion (led by conservative geopolitical realists like Henry Kissinger), to unrelenting and direct opposition (led by an emergent cadre of American neo-conservatives like William Simon, Daniel Patrick Moynihan, and Irving Kristol, the last of whom characterized the NIEO as “maumaung” the north).²⁹

²⁶ See generally Bailey, S. and Bryant, R., 2005. *Third World political ecology: an introduction*. Routledge.

²⁷ Nixon, R., 2011. *Slow Violence and the Environmentalism of the Poor*. Harvard University Press.

²⁸ Ojha, H.R., Ghimire, S., Pain, A., Nightingale, A., Khatri, D.B. and Dhungana, H., 2016. Policy without politics: technocratic control of climate change adaptation policy making in Nepal. *Climate Policy*, 16(4), pp.415-433.

²⁹ Gilman, N., 2015. The new international economic order: A reintroduction. *Humanity: An International Journal of Human Rights, Humanitarianism, and Development*, 6(1), pp.1-16.

Secondly, the Global North was not directly threatened by climate change. Unless the Global North feels directly threatened by climate change, it is unlikely that their focus will be on questions of global justice. Rather they would attend to questions of profit maximization. This problem is in fact a challenge which nature throws towards southern nations. The impact of climate change is not evenly distributed among the northern and southern nations. This point will be illustrated below in the context of agriculture. Dreadful impacts of climate change on agriculture features frequently in regional reports of Africa, Latin America and Asia. However, it is evident from an IPCC report that climate change will hardly pose any immediate threat to sectors like agriculture in the Global North.³⁰ The impact of climate change hardly features in regional reports (IPCC) of Europe, North America, Australia and the Polar Regions. As a matter of fact, the report highlights the initial benefits of climate change to agriculture in New Zealand due to longer growing seasons, less frost and increased rainfall. Similar observations are made for the polar regions.³¹ This trend may be generalized at a Global North-South level, where the global agricultural productivity systems of the Global North could benefit from climate change.³²

Thirdly, only a few southern nations have raised their voices against the bias towards mitigation technologies at the cost of adaptation technologies needed in highly vulnerable nations. An excerpt from a report of the Ministry of Natural Resource and Environment of Thailand³³, prepared as a response to its commitment to UNFCCC, amply contextualizes the issue in hand. It states:

“The report found that the trend of climate change technology transfer cannot be clearly observed, and foreign investment is important factor for technology transfer. The case studies reviewed also indicated that technology transfer had been bias [sic] towards GHG mitigation technologies. Technologies related to adaptation to climate change impact had been neglected.” [emphasis added]

³⁰ Generally, definitions of the Global North include the United States, Canada, Western Europe, and developed parts of Asia, as well as Australia and New Zealand, which are not actually located in the geographical North but share similar economic and cultural characteristics as other northern countries.

³¹ Parry, M., Parry, M.L., Canziani, O., Palutikof, J., Van der Linden, P. and Hanson, C. eds., 2007. *Climate change 2007-impacts, adaptation and vulnerability: Working group II contribution to the fourth assessment report of the IPCC* (Vol. 4). Cambridge University Press. *Ibid*, pp.73.

³² *Ibid*, pp.73.

³³ Available at: http://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/TNR_CRE/e9067c6e3b97459989b2196f12155ad5/bf9c1057f7e348a29f68ae1d466ce1ff.pdf.

Such observations are clear indication of the insensitivity of the developed countries towards the needs of the Developing and Least Developed Countries. However, the fact that such observations are only sprinkled here and there in the overall climate change narrative, dilutes the demand of southern countries to obtain more adaptation technology. The southern nations need to concertedly demand adaptation technologies from the developed countries and the developed countries should be obliged to co-operate. South- South co-operation is of utmost importance, however, the larger picture of mitigating and adapting to climate change demands all blocs to share platforms and to co-operate. Any effort by southern nations to address the issue of climate change is futile if their efforts are overshadowed by the inaction or reluctance by the northern nations. This may be highlighted through the observations made by Working Group II of IPCC (Impacts, Adaptation and Vulnerability) where on one hand it is highlighted that some countries in Latin America (of the Global South)³⁴ had made efforts to adapt through risk management in agriculture, strategies for flood, drought among other efforts, however, the effectiveness of these efforts was outweighed by: lack of basic information, observation and monitoring systems, lack of capacity building and appropriate political, institutional and technological frameworks, all of which may have been supported by the Global North. The above exposition clearly points out the importance of co-ordination in any climate action. However, as mentioned in the first point above, the harsh truth of the matter is that co-ordination in any act which affects the developmental goals of nations is a rarity.³⁵ This makes climate change a wicked problem, a problem which is extremely difficult to solve.³⁶

Fourthly, due to lack of interest of the Global North in adaptation action, there is lack of research and data on the overall benefits of adaptation technologies dealing with climate change. However, some recent studies have clearly indicated the benefit of investment in adaptation technologies. The mitigation potential of adaptation technology is not a mystery anymore. If the state-of-the-art adaptation technology available in the world today is used at an optimum level, it is predicted that there is a possibility to cut emission by half.³⁷ Therefore, focusing on adaptation technology, will ultimately lead to mitigating climate

³⁴ The Global South is made up of Africa, Latin America, and developing Asia including the Middle East.

³⁵ Sandler, T., 1997. *Global challenges: an approach to environmental, political, and economic problems*. Cambridge University Press.

³⁶ Gardiner, S.M., 2017. Climate Ethics in a Dark and Dangerous time. *Ethics*, 127(2), pp.433.

³⁷ Sustainable future framework for climate change, 2004, Tokyo: Industrial Structure Council, Environment Committee, Global Environment Sub-Committee.

change. If the Global North realizes this fact, they might be motivated to invest in adaptation. It is high time that research supporting the cause of the farmers situated in the Global South is conducted. The 2007 IPCC report highlights that comprehensive multi- sectoral estimates of global costs and benefits of adaptation is currently lagging.³⁸ Therefore, the first step towards dealing with the issue of climate change and its impact on agriculture sector in southern nations like India, is to recognize that by not studying the trend of climate change technology transfers in agriculture sector, we have been walking on a blinded path all this while.

The objective of the above exposition was to show that the skewed north-centric focus on climate change mitigation technology transfers³⁹ in agriculture sector in India aggravates the farmers plight within an agrarian crisis that India is currently facing.⁴⁰ Although I concede that the usual blame game, where developed nations hold lack of robust legal institutions in developing nations responsible for the failure of technology transfer mechanism; and developing nations blame developed nations for non-adherence to UNFCCC obligations (especially tech-transfer and financial obligations), will lead us nowhere. Nevertheless, the southern countries need to make a collective demand for a better-informed technology transfer regime as a matter of right. In order to make such claims, the Third World nations need to focus on two major issues- one an international governance issue (I call it the ‘Framework Problem’) and the other a domestic IPR issue. I intend to briefly discuss these two issues in Part II of this paper.

Part II

Although there are multiple factors which act as hurdles in furthering the Third World narrative in climate change technology transfer, I will be focusing on two issues related to availability of sufficient technologies to aid farmers in adapting to an unpredictable, crop-destroying climate: The Framework Problem and the IPR Problem.

³⁸ *Supra* note 31, pp.69.

³⁹ A comprehensive definition of technology transfer involves not only the purchase and acquisition of equipment but also the transfer of skills and know-how to use operate, maintain as well as to understand the technology hardware so that further independent innovation is possible by recipient firms. It also includes the ability to make the technology through “imitation” or reverse engineering; to adapt it to local conditions; and eventually to design and manufacture original products. The process of technology transfer involves progressively climbing through all these aspects.

⁴⁰ Biagini, B., Kuhl, L., Gallagher, K.S. and Ortiz, C., 2014. Technology transfer for adaptation. *Nature Climate change*, 4(9), p.828.

3. The Framework Problem

Adaptation technology transfers are not properly streamlined in the UNFCCC. It has remained out of focus for the longest period of time until the LDCs and SIDSs started insisting on a stronger adaptation technology transfer mechanism. From a Third World perspective, the adaptation technology transfer agreements between northern and southern nations are not the best reflection of the needs of the southern people. There is lack of deliberative democracy in the decision-making process pre and post technology transfers, especially in the agriculture sector. In this part of the paper, I will be focusing on the question of democratic values in the process of technology transfer within the existing UNFCCC technology mechanism by doing a Third World analysis of the concept of Technology Needs Assessment (TNAs).

Recognizing that the critical first step to facilitating technology transfer involves identifying and communicating what the needs of the receiving country is, the COP asked developing country Parties to conduct Technology Needs Assessment (TNAs), beginning in 2001 with the Marrakesh Technology Framework.⁴¹ Developing countries thus submit TNAs that report on country-driven activities to identify and determine their mitigation and adaptation technology needs. Due to lack of interest of the Global North in the technology process the Technology Needs Assessment process has not sufficiently evolved. The TNA process began in 2001 when it was suggested under the Marrakesh Technology Framework. Developing countries are required to involve various stakeholders in the TNA process. Due to lack of training and sufficient funding, the developing countries were finding it difficult to conduct TNAs. The COP finally decided to fully fund the TNA process for Least Developed Countries. As a result, the TNA process entered the second stage based on guidelines prepared by UNDP and Climate Technology Initiative. During this stage, the stakeholder's involvement was enhanced and Technology Action Plans (TAPs) were integrated to the TNA process. This helped nations to identify barriers towards transfer and development of technology. However, after the upscaling of the TNA process, it has become cumbersome for the Least Developed Nations to prepare their drafts and therefore implementation was affected. Moreover, it

⁴¹ Tadege, A (ed.) (2007) Climate change technology needs assessment report of Ethiopia. The Federal Democratic Republic of Ethiopia's Ministry of Water Resources National Meteorological Agency.

takes longer period of time to prepare such drafts and since technology develops at a very fast pace, the whole process becomes futile.

Another opportunity for LDC's to obtain technologies from the developed nation was the Clean Development Mechanism under the Kyoto Protocol. Around 30 percent of the CDM projects involved technology transfer. The experience so far has been that CDM projects involving adaptation technology transfers have not been accessible to developing countries.⁴² The CDMs lacked penetration in the LDCs because of its market-based approach and neglect of adaptation technology.⁴³ LDCs have always been skeptical about market-based approaches since they depend on foreign private investments that look for highest return and lowest political/economic risks without any motive of social upliftment. LDCs do not enjoy such privileges. Multi-National Companies in the climate change business generally produce mitigation technologies, since it is profitable. As has been argued above, LDCs urgently need adaptation technology to deal with the impact of climate change. Therefore, in order to ensure sufficient flow of adaptation technology to the Global South, non-market-based North-South and South-South co-operation shall be prioritized. It is well documented with empirical evidence that the UNFCCC framework so far has failed to meet the needs of southern nations.⁴⁴

Three suggestions are made here to rectify this failure: First, improving the capacity of LDCs to conduct TNA's in a more informed fashion. Second, full funding of the TNA process including the TAPs etc. shall be ensured by developed nations. Third, in order to ensure that farmers and other stakeholders have access to the decision making process involved in technology transfer and diffusion, local Nationally Designated Entities shall be established (or strengthened wherever existing) whose core role is to coordinate the translation of the technology needs of each respective country into requests, and to submit them to the Climate Technology Center and Network (CTCN is the operational arm of the UNFCCC Technology

⁴² De Lopez, T., Tin, P., Iyadomi, K., Santos, S. and McIntosh, B., 2009. Clean development mechanism and least developed countries: Changing the rules for greater participation. *The Journal of Environment & Development*, 18(4), pp.436-452.

⁴³ Available at: <https://ldclimate.files.wordpress.com/2012/05/tech-development-and-transfer-and-the-future-climate-regime.pdf>.

⁴⁴ Craft, B (2013) The least developed countries and technology transfer under the United Nations Framework Convention on Climate change: Has the Convention addressed the stated needs of the vulnerable? Brown University Master's Thesis. See <https://envstudies.brown.edu/theses/archiver20122013/CraftThesis.pdf>.

Mechanism) for appropriate responses, through the established members of the technology networks. In essence, the recommendation made under Poznan Strategic Program on Technology Transfer (COP 14, 2008) and the recent “Draft paper on aligning technology needs assessments process with the national adaptation plans process”⁴⁵ published by Technology Executive Committee between 13-16 March 2018 at Bonn needs to be taken seriously by developed nations. A feasibility study of the TEC paper mentioned above, and a performance study of the Poznan Strategic Program could be areas for further research.

4. The IPR Problem

Lack of a robust IPR regime which does not sufficiently protect the economic rights of foreign innovators is traditionally considered to be a huge barrier in the climate change technology transfer regime. However, from a Third World perspective, such formulation of the IPR problem is questionable. It is a well-known fact that during the cold war, the socialist bloc was against the protection of property rights of the owners of means of production. The capitalist bloc on the other hand pushed for protection of property rights including IPR of innovators. After USSR disintegrated and neo-liberal forces took over, the TRIPS regime was established to protect the interest of innovators and investors when they make investments in different parts of the world. Further, most of the developed nations that believed in the merits of the free market argued for patents in agricultural products like seeds. However, after vociferous bargaining by Third World nations, these developed nations agreed to promote a *sui generis* system for the protection of IPR in Plant Varieties. Due to express exclusion of plant varieties from the scope of patentable subject matter, India was obliged to protect these under a *sui generis* system as per the mandates of Article 27.3(b) of TRIPS. As a result, the Plant Varieties Act was passed in India in the year 2001.

The Indian Protection of Plant Varieties and Farmers’ Rights Act, 2001 is unique because it seeks to balance two objectives set out in the Act: (i) To recognize and protect the rights of farmers in respect of their contribution towards conserving, improving and making available plant genetic resources for the development of new plant varieties; (ii) To protect plant breeders rights to accelerate agricultural development in the country. The Act also

⁴⁵ Available at:
http://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/tn_meetings/05803fb30c1d401699448b3e4b3fcc10/9b948766dfaf4cfbbcc8170808b58f7c.pdf.

lays down other objectives like: stimulating Research & Development in new varieties from both public and private sector and facilitating the growth of the seed industry. Statistics on the distribution of plant variety registrations till 2011 show that farmers have barely benefited from the Plant Varieties Act. The public sector has the highest number of registration and the private sector is catching up. {Table1}.

Table 4—Extant varieties granted in India as on March 2011	
Grantee	Number of plant variety titles granted
Public Sector	
Indian Council of Agricultural Research	186
Orissa University of Agricultural & Technology	7
Birsa Agricultural University	2
Dr. Panjabrao Deshmukh Krishi Vidyapeeth	3
Private Seed Companies	
New Nandi Seeds Crop	7
JK Agri genetics	4
Maharashtra Hybrid Seeds Co Ltd.	2
Ajeet Seeds Ltd.	2
Vikram Seeds Ltd	1
Farmers	
Individuals	3
Total	217
Source: S Kochar, 2011	

Table 1: Distribution of Plant Variety Registrations Till 2011

Similar trend may be observed in other Southern Countries like Thailand where 68% varieties are registered by private entities 15% by the government sector, 11% by farmers, and 6% by educational institutions under a similar *sui generis* IPR regime.⁴⁶ Since the advent and explosive growth of biotechnology, the international cooperation model is being replaced by private proprietary

⁴⁶ See <https://www.bakermckenzie.com/en/insight/publications/2018/01/first-draft-amendment-plant-varieties>.

models.⁴⁷ Resultantly, the impact can be seen in terms of either increment or decrement in the cost of pesticides and seeds, trying to match the demands of market forces. This might be detrimental to fulfillment of the requirements of food security in countries like India. It will also aggravate the situation of farmers. Government intervention in the form of regulation is required, as private market forces are inclined towards enhancing Research & Development in cash crops at the cost of food crops (which will not be able to feed the ever-expanding population).

In the 1980s, even before the Plant Variety Act was in force and patents were not allowed for Plant Varieties, India witnessed robust growth of its private sector seed industry. This was mostly because of luring of private investment in the seed sector through policy intervention. Technology transfer from public to private sector is significant in the agriculture sector in India. MNCs acquiring Indian seed companies has become the new normal.

A burgeoning concern in agriculture is the registration of patent application by huge seed and agro- chemical companies in order to be able to gain greater control over the sequences of plant gene. A huge number of patents of the “climate friendly” order of crop genes has been applied for by MNCs. These are genetically engineered crops that are capable of withstanding environmental ills such as floods or droughts, heat or cold to name a few. Around 261 categories of patents (incorporating the 1663 patent documents) published during the period between June 2008 and June 2010 claimed “abiotic stress tolerance” in plants against flood, drought, salt, heat or cold.

This sudden rush in the application for patent would lead to the emergence of a few mega corporations dominating the genes, crops and seeds containing them. As of now, six gene- related establishments along with their two biotech allies control about 77% or 201 of the total 261 patent categories referred to.⁴⁸ Concerns have been raised by the Action Group on Erosion, Technology and Concentration over the restriction in access to seeds and germplasm that this would soon result in. A call for adequately reviewing the environmental and social implications of the new variations, besides the reviewing of the IPR laws concerning the approval of “climate related genes” has been given.⁴⁹

⁴⁷ Kumar, V. and Sinha, K., 2015. Status and Challenges of Intellectual Property Rights in Agriculture Innovation in India.

⁴⁸ Khor, M., 2012. Climate change, technology and intellectual property rights: Context and recent negotiations. South Centre.

⁴⁹ ETC Group, 2010. Capturing 'Climate Genes'.

There are myriad ways using which a strong IPR regime can cause hindrance in the developing countries' access to technology and its transfer to them. Firstly, a stringent IPR regime would discourage innovation and research by the locals of these developing countries. In a situation where a major chunk of the country's patents falls under the control of foreign corporations, it is quite easy to stifle the local R&D, as the monopoly rights availed by patents would obstruct the research by local parties.

Secondly, a stringent IPR regime would make it problematic to the individual researchers or local firms to make use of or even to develop patented technology, where prohibition under the patent law or patenting process being expensive is cited as the reason.

Thirdly, in case a local firm wishes to gain access to the patented technology, it would be required to pay a heavy sum as royalty or license fees. TRIPS has increased the importance of technology suppliers, as a much higher price would be charged for the availability of technology. Firms situated in developing countries may not be able to afford such high rates. Considering they are able to afford it somehow, the supernumerary charge would render the product unviable.

Fourthly, even in a case where the local firm expresses willingness to pay the high commercial rate for using the patented technology, the patent holder might levy onerous conditions or withhold permission to the local firm. This would make it next to impossible for the firm to gain access to technology.

Fifthly, the royalties that the developing countries would be required to pay would amount to be a drain on foreign exchange and national resources. This may be an issue of acute concern to countries already undergoing balance-of-payments constraints. The licence fees and net royalties that India paid in 2010 accounted to a sum of \$2,309 million, whereas it was around \$325 for the year 2002 and \$997 for the year 2007. The payments show an increment from \$6.8 billion in 1995 to \$50.6 billion in 2009 for the developing countries put together (South Korea included).⁵⁰ Thus, the IPR regime in general and the *sui generis* Plant Variety Protection regime in particular in the Third World countries have done more harm than is generally conceived in popular media or academia. It has been observed that academia is also party to such biases and often Third World progressive scholars succumb to

⁵⁰ See *supra* note 44.

the dominant drift towards glorifying a strong IPR regime as a means to remove hurdles for smooth technology transfer.

5. Conclusion

The issue of climate change puts India in a vulnerable situation on account of its geographic locale directly altering its economy, agriculture holding a prime position here. The protection of crops from being destroyed due to climate change is an issue of growing concern to India. To resolve the problem, India needs to come up with a holistic approach that takes into equal account the methods of both mitigation and adaptation. Historically, it is mitigation that has successfully sought attention of the Global North. It was only towards the end of the century that this inherently biased approach was put to question by the LDCs, and the SIDSs. Soon, it was also realized that a measure beyond the methods of mitigation and adaptation was urgently required and hence Loss and Damage came into picture. This third method of resolving the issue of climate change is yet to develop and to be put into practice. At present, the tussle still remains to be between mitigation and adaptation.

What needs to be observed here is that the bias between mitigation and adaptation is not simply analogous with the differences between the developed and the developing nations respectively. It is also strikingly analogous with the divide between the Global North and the Global South. At the end of the day the adaptation issue stands to be a matter of charity to the Global North. The root cause of such biases has been identified in the voluntarist approach of the Westphalian System of International Law. Therefore, it is important to shift the locus from the paradigm of voluntarism to that of morality. This also encompasses the history of discrimination stretched across centuries which the Global North had inflicted upon the Global South. Taking a detour towards morality would lead to the interrogation of the neo-colonial hegemony strongly functioning in the garb of a 'global' or of an 'international' world, with hidden 'Eurocentric' overtones to it. Such a world is premised on a proxy availability of equality where equality exists as a mere illusion to the LDC and the SIDSs. If successfully adhered to, this would also put a check on the matter of fair technology transfer facilitated by the developed countries to the LDCs and SIDSs, considering the quintessential position that technology transfer holds in the matter of adaptation.

The first part of the paper sets a general tone about the history of neglect of one important pillar of climate change laws i.e. adaptation, the practical reasons for such neglect by the Global North and the theoretical underpinnings of establishing a neo-colonial hegemony by soft power. Four reasons have been identified in this part as to why such hegemony became possible: the entanglement of climate change with the problem of development making it highly controversial, lack of threat posed by climate change to northern nations, lack of unity among southern nations to highlight the unfair prioritization of mitigation technologies by Global North and finally, dearth of research and data highlighting the overall benefits of adaptation.

The second part of the paper focuses on two hurdles to the furthering of Third World narratives to climate change technology transfer: The Framework Problem and the IPR problem. In the Framework Problem I have argued that there is lack of deliberative democracy in the decision-making process pre and post technology transfers, especially in the agriculture sector. In this part of the paper, I have done a Third World analysis of the concept of Technology Needs Assessment (TNAs). In the IPR problem I challenge the dominant notions which dictate that lack of a robust IPR regime which does not sufficiently protect the economic rights of foreign innovators is a huge barrier in the climate change technology transfer regime. Here an analysis of the *sui generis* Indian Protection of Plant Varieties and Farmers' Rights Act, 2001 is done. Statistics on the distribution of plant variety registrations till 2011 show that Farmers have barely benefited from the Plant Varieties Act. The public sector has the highest number of registration and the private sector is catching up. A huge number of patents of the "climate friendly" order of crop genes has been applied for by MNCs. Going against the dominant narrative of the merits of a strong IPR regime for smoother technology transfer, four reasons have been identified in the article which cause hindrance to the developing countries' access to technology and its transfer to them.

The theoretical mapping of the approach towards climate change is easier than materializing it in the tangible global world. On the one hand the Global North is yet to pay adequate heed to the issue, which can happen only once it realizes its obligation towards the Global South. On the other, the Global South needs to assertively shape up. The voices and concerns raised by the southern countries remain largely scattered and spread out. A unified

refutation from the countries that come under the Global South is missing. This in turn needs greater awareness amongst these countries to make the matter as urgent as it should be. This is especially true in the case of climate change since the Third World narrative has generally been suppressed in a much subtler way in climate change politics.

**THE CONCEPT OF ENVIRONMENTAL IMPACT ASSESSMENT:
PROCESS AND PRACTICE AT THE GLOBAL LEVEL**

*Dr. Ivneet Kaur Walia**

Abstract

The central idea animating Environmental Impact Assessment (EIA) is that decisions affecting the environment should be made through a comprehensive evaluation of predicted impacts. Notwithstanding their evaluative mandate, Environmental Impact Assessment processes do not impose specific environmental standards, but rely on the creation of open, participatory and information-rich decision-making settings to bring about environmentally benign outcomes. In light of this tension between process and substance, the article assesses whether Environmental Impact Assessment, as a method of implementing international environmental law, is a sound policy strategy, and how international Environmental Impact Assessment commitments structure transnational interactions in order to influence decisions affecting the international environment.

1. Introduction

Government officials, when required to make a decision that has potential consequences for the natural environment, are faced with the daunting task of having to integrate political, scientific and normative considerations into a unified decision-making process. Where the decision in question has the potential to impact the environment of another state, or where the possible impact is to a resource of global common concern, decision-makers may have to account for the political, scientific and normative views of affected states, affected persons within other states, and the wider international community, including international organizations and nongovernmental actors¹.

The central idea that animates the Environmental Impact Assessment process, that decisions affecting the environment should be made in light of a comprehensive understanding of their effects, is straightforward enough. Yet, when Environmental Impact Assessment was introduced in the United States in 1969, it was considered a significant innovation to the domestic policy-making

* Assistant Professor of Law, Rajiv Gandhi National University of Law, Punjab.

¹ Gunther Handl, "Environmental Security and Global Change: The Challenge to International Law", *YBIEL*, 1990, p. 21.

landscape. Not only did Environmental Impact Assessment commitments require the *ex ante* consideration of the environmental consequences of proposed activities, but they opened up decision-making processes to affected members of the public, environmental interest groups and interested government agencies by providing for an information-rich and participatory environment for agency decision-making. Despite its evaluative mandate, domestic Environmental Impact Assessment legislation does not impose specific environmental standards on the decision-making process. Moreover, even where an Environmental Impact Assessment discloses that a proposed activity is likely to have a significant adverse impact on the natural environment, the proponent of that activity is not necessarily required to abandon the activity or mitigate its adverse environmental effects. It is this absence of required substantive outcomes that has led Environmental Impact Assessment supporters to herald it as creative and efficient, but has similarly led to critiques of the process as being costly, ineffective and hopelessly naive².

Environment Impact Assessment as a distinct form of public decision-making was first developed under US federal law as part of the *National Environmental Policy Act* (NEPA)³. Subsequently, Environment Impact Assessment processes were developed by a number of US states, and in the mid-1970s countries such as Canada, France, Australia and New Zealand developed their own Environment Impact Assessment processes. Since the 1970s, the adoption of Environment Impact Assessment legislation has grown steadily throughout the world, and it is now estimated that over 100 countries have Environment Impact Assessment legislation.⁴

Environment Impact Assessment norms have not only spread horizontally to other states, but they have also spread vertically, influencing the development of Environment Impact Assessment norms in international law and within international organizations. The globalization of Environment Impact Assessment commitments has not, however, been a one-way projection of domestic environmental policy into a transnational setting. The reception and development of Environment Impact Assessment commitments by other states in

² R. V. Bartlett, *Policy Through Impact Assessment: Institutionalized Analysis as a Policy Strategy*, Greenwood Press, Westport, CT 1986, p. 1.

³ Nicholas Robinson, "International Trends in Environmental Impact Assessment" Boston College Environmental Affairs L. Rev. 591, 1991, p. 597.

⁴ B. Sadler, *Environmental Assessment in a Changing World: Final Report of the International Study of the Effectiveness of Environmental Assessment*, Canadian Environmental Assessment Agency, Ottawa, 1996 § 2.2.2.

both their domestic and international decision-making processes has also been influenced by general principles of international environmental law, such as the principle of non discrimination, the duty to prevent transboundary harm and the duty to cooperate with other states to preserve and protect the natural environment. Latterly, the constellation of principles surrounding sustainable development that has become embedded in transnational environmental governance structures has also influenced the development of Environment Impact Assessment processes in transnational legal settings.⁵

2. Elements of Domestic Environment Impact Assessment Processes

The formation of Environment Impact Assessment processes within domestic settings may best be understood as fulfilling the need for policy-makers to understand the environmental consequences of their decisions. Given the intuitive and fundamental nature of that need, the global diffusion of Environment Impact Assessment norms. reflects this increasingly shared starting point. In order for environmental information to be useful within decision-making processes, two basic components are required. First, policymakers need to know what environmental objectives they should take into account, and, secondly, there is a need for a mechanism through which information that is responsive to those objectives can enter into decision-making processes.⁶

The Environment Impact Assessment consists of the following components: (1) Screening; (2) Scoping; (3) Impact Analysis and Report Preparation; (4) Public and Agency Participation; (5) Final Decision; and (6) Follow up.

Screening: The threshold consideration for any Environment Impact Assessment system is the extent of its application. The initial range of activities that is captured by Environment Impact Assessment requirements has tended to be defined in extremely broad terms. A second coverage issue upon which Environment Impact Assessment systems differ is whether Environment Impact Assessment processes will apply to physical undertakings only or whether they will apply to decisions respecting policies, plans and programs. Historically, Environment Impact Assessment's were restricted to the former in practice, but in the last ten years there has been a trend toward requiring the assessment of the impacts of policies, plans and programs often under separate legislation and

⁵ Steven Bernstein, *The Compromise of Liberal Environmentalism*, Columbia University Press, New York, 2002, p. 52.

⁶ Michael Herz, "Parallel Universes: NEPA Lessons for the New Property", *Columbia L. Rev.* 1668, 1993, p. 1677-1678.

through a process, distinguished from Environment Impact Assessment, referred to as Strategic Environmental Assessment (SEA). While there are some signs of Strategic Environmental Assessment gaining greater policy traction at the international level, the focus of the majority of international Environment Impact Assessment commitments remains on project-level assessments.

Because the broad *prima facie* application of Environment Impact Assessment legislation will capture a wide range of activities that have little potential to impact the environment, there is a further need to narrow the application of Environment Impact Assessment to those activities that are likely to have some possible adverse consequences for the environment. As a result, it is only those projects that may potentially cause a “significant environmental effect” that are subject to the requirements of preparing an environmental impact analysis⁷.

Scoping. As a result of the open-ended nature of the Environment Impact Assessment process, the tendency for agencies to produce excessively long, expensive and time consuming studies has been an ongoing criticism of the Environment Impact Assessment process since its inception. This tendency is amplified in some cases by the threat of litigation challenging the validity of Environment Impact Assessment documents on the basis of a failure to consider some aspect of potential environmental harm. Scoping seeks to address this problem by focusing the study as much as possible on the environmental issues that are truly likely to have a significant impact on the environment in order to enhance the efficiency of the process. The ideal sought in all scoping procedures is to match the level of study with the potential for harm and to focus the study process on those issues which are most likely to cause harm and are of the greatest concern. Again, the ideal is that the process is iterative and reflexive, which suggests that scoping is an ongoing, consultative exercise that leads to a narrowing of issues, as unfounded concerns are taken off the table, while issues that suggest greater potential for harm are given greater attention. The ideal is rarely, if ever achieved, because determining “significance” is highly subjective and environmental groups are often reluctant to eliminate issues.⁸

Impact analysis and report preparation. Once the scope of the Environment Impact Assessment is determined, the focus of the process is the preparation of a detailed report outlining the substance of the assessment itself. In addition to

⁷ Jane Holder, *Environmental Assessment: The Regulation of Decision-Making*, New York, Oxford University Press, 2004, p. 12.

⁸ Alan Gilpin, *Environmental Impact Assessment: Cutting Edge for the Twenty-First Century*, Cambridge University Press, Cambridge, 1995, p. 19.

identifying alternatives, an EIS should include a description of the purpose and need for the action, a description of the affected environment and a thorough examination of the environmental consequences of its action and of the alternatives to the action, including any mitigation measures. Because the responsibility for preparing the report may be delegated to the project proponent, which will often be a private entity, specifying the minimum content for inclusion in the report is particularly important, as is public review over the scope of the report. In limited instances, a coordinating agency may play a role in reviewing assessment reports.

The rationale behind the alternatives requirement is that placing alternatives side by side and examining the environmental impacts of each most clearly exposes the relative environmental, economic and social burdens and benefits of proceeding with an action, a process that is all the more important in the absence of explicit standards. The requirement to look at alternatives provides an evaluative substitute for quantitative standards in the sense that the acceptability of impacts can be measured against the potential impacts of alternative ways to carrying out the undertaking.

Public participation. If the identification of alternatives is the heart of the Environment Impact Assessment process, then public participation is its soul. Almost every Environment Impact Assessment system includes some form of public participation and consultation. There are, however, significant differences in terms of when consultation must occur in the process and the form of that consultation. For example, notwithstanding the importance of the screening and scoping processes in determining the substance of the final Environment Impact Assessment, participation is rarely mandated in these stages. Instead, consultation tends to be voluntary until the completion of the Environment Impact Assessment report, at which stage formal consultation with the public and with other affected agencies occurs.

The form of consultation varies between jurisdictions and may depend upon the severity of the potential impacts, with potentially more harmful activities warranting more extensive and legalistic forms of consultation, such as hearings. After the consultation is complete, the responsible authority may prepare the final EIS, in which it must respond to all of the comments received. In this regard, the courts have imposed a so-called “rule of reason” whereby the agency’s obligation to respond is related to the salience of the comments received. The intended result is to promote a reasoned justification of the

decision in light of the input received from other agencies and the public⁹.

Final decision. The extent of integration of the Environment Impact Assessment into the decision-making process also varies across domestic Environment Impact Assessment systems. However, one consistent principle is that a formal decision respecting the project should not be made until the Environment Impact Assessment process has been completed. The Environment Impact Assessment process is self-regulatory in that the responsible authority retains the discretion to move ahead with projects notwithstanding the results of the Environment Impact Assessment and the results of the public participation. Instead, the bringing forth of information regarding environmental impacts and broad public and agency involvement is relied upon to influence decisions in favor of more environmentally benign outcomes. The premise of Environment Impact Assessments is that more and better information respecting the environment will, if subject to public scrutiny, result in better decisions. However, Environment Impact Assessment processes themselves do not as a matter of law require that an agency adopt the most environmentally desirable alternative or that decision-makers avoid activities that are found to have a significant environmental impact, nor are lead agencies required to adopt any particular measures mitigating environmental impacts. Environment Impact Assessments mandate adherence to procedural requirements, but do not require outcomes to reflect substantive environmental norms or objectives. Fundamentally, the results of the Environment Impact Assessment are meant to inform, even mold, the decision-making process, but there is always room for the exercise of political discretion.

Follow up. An element of emerging importance is the requirement for the project proponent to engage in post-construction environmental monitoring of impacts and other follow-up actions. The inclusion of monitoring is somewhat at odds with the traditional understanding of Environment Impact Assessment processes as *ex ante* planning tools, but it responds to the criticism that Environment Impact Assessment processes naively rely on the notion that impacts can be accurately predicted. In support of this argument, critics have put forward a number of convincing examples where *ex post* audits of impact predictions found in Environment Impact Assessments indicated poor predictive performance, resulting in some cases in dire environmental consequences. In a similar vein, the Council on Environmental Quality (CEQ) notes, “our improved understanding of the functioning of ecosystems makes it clear that we often cannot

⁹ W. M. Tabb, “Environmental Impact Assessment in the European Community: Shaping International Norms”, *Tulane L. Rev.*, 1991, p. 959

predict with precision how components of an ecosystem will react to disturbance and stress over time. What little monitoring information exists seems to bear this out. The criticism leveled against Environment Impact Assessment in this regard is not so much that it relies on scientific knowledge that is often uncertain, a state of affairs that, for the most part, applies to all environmental regulation, but that in the face of this uncertainty Environment Impact Assessment processes remain almost entirely *ex ante* in their posture. Monitoring, which is a much more dynamic process, suggests that the Environment Impact Assessment process may be used as a regulatory tool by which actual environmental impacts are determined after project completion and compared with predicted impacts. Where the approval is subject to terms and conditions, proponents may be required to make ongoing adjustments in their project in order to minimize unpredicted environmental impacts.

3. Environment Impact Assessment and Developing Countries

The relevance of this generalized form of Environment Impact Assessment is that it has served as a template for the development of international Environment Impact Assessment commitments. But each element may raise unique issues in its adoption in an international context. The lack of capacity to undertake detailed and open Environment Impact Assessments on a full range of projects is a key limitation. For example, developing states often have few experts trained in Environment Impact Assessment techniques and related scientific disciplines, environment ministries or other institutions responsible for implementing Environment Impact Assessment requirements lack financial resources, and there is often a lack of baseline environmental data. Improving the technical capacity of developing countries to undertake Environment Impact Assessments has been emphasized by development funding agencies and should continue to improve. The lack of capacity in developing countries extends beyond technical issues and includes more structurally oriented difficulties relating to the ability of states to disseminate the results of Environment Impact Assessment studies and to effectively consult with affected populations. Some of these difficulties relate to larger issues, such as literacy rates and inadequate communication and transportation infrastructure, but they also relate to questions respecting the openness of the government decision-making process in highly centralized political cultures¹⁰.

¹⁰ XueHanqin, *Transboundary Damage in International Law*, Cambridge University Press, Cambridge, 2003, ch. 5.

Domestic Environment Impact Assessment requirements have had a more direct influence on the regulation of environmental impacts beyond the state by requiring the assessment of extraterritorial impacts independently of international obligations to perform Environment Impact Assessments. In the event that domestic Environment Impact Assessment processes on their own are sufficient to provide decision-makers with adequate information respecting extraterritorial impacts and to ensure that the interests of affected persons outside the state of origin are accounted for, then there may be less need for the development of distinct international Environment Impact Assessment obligations. An approach that minimizes formal international legal processes is viewed with favor by Peter Sand who notes in relation to transboundary environmental issues: “Instead of internationalizing a local issue (via an enormous detour to the respective national capitals), a more economic solution in most cases would be to adapt local decision-making processes so that they can handle transfrontier problems like ordinary local ones of comparable size. In other words, where environmental issues can be successfully addressed unilaterally, there is less justification for the development of international rules. Conversely, legal and political limitations to the extension of domestic EIA requirements beyond the state inform our understanding of the need for, and the form of, international rules governing Environment Impact Assessment¹¹.

The need for the examination of trans boundary impacts was recognized in a number of domestic Environment Impact Assessment systems both in practice and more explicitly through implementing instruments. A number of early US court decisions concerning NEPA treated the application of Environment Impact Assessment processes to transboundary effects as uncontroversial. For example, in *Wilderness Society v. Morton*¹², it was assumed that the EIS requirements for a proposed oil pipeline located in Alaska included an assessment of the impacts on the natural environment in Canada. A similar assumption was made in *Swinomish Tribal Community v. Federal Energy Regulation Commission*¹³, where the court considered the impacts of a Washington state dam project on Canadian environmental interests. In both of these cases, Canadian intervenors were granted standing before the courts to challenge the adequacy of EISs affecting Canadian environmental resources¹⁴.

¹¹ Michael Trebilcock and Robert Howse, *The Regulation of International Trade*, Routledge, New York, 2005, pp. 28-30.

¹² 463 F 2d 1261 (DC Cir. 1972).

¹³ 627 F 2d 499 (DC Cir. 1980).

¹⁴ John Knox, “The Myth and Reality of Transboundary Environmental Impact Assessment”,

In 1997, the Council on Environmental Quality (CEQ) issued a “Guidance” document addressing what it refers to as “practical considerations” regarding the assessment of transboundary impacts. The CEQ Guidance indicates that a determination of whether transboundary impacts are present should be made during the scoping process. In the event that the potential for trans-boundary impacts is identified, it is suggested that the agencies in the affected country with relevant expertise be notified, although the guidance does not give any indication of how those agencies may be identified. In most cases, the scoping and screening of projects is undertaken by agency personnel and consultants who may have difficulty in identifying the relevant foreign agency on an *ad hoc* basis. The Guidance is also silent on the question of notification in the event that a likelihood of significant trans-boundary impact is found to exist. The CEQ’s approach suggests that notice should take place not by reference to jurisdictional boundaries, but rather on the basis of who is affected. But, again, this requires that the agencies have the capacity to identify the relevant foreign agencies and public institutions to ensure notice is effective. It also leaves unaddressed the question whether notice should extend to affected individuals or just to state agencies. Finally, because the adequacy of an EIS will depend upon knowledge of both the project and the receiving environment, transboundary assessment is further complicated by difficulties in source state agencies accessing baseline environmental information in another jurisdiction and assessing the adequacy of that information. The Guidance document suggests that agencies are under the same obligation to use a “rule of reason” in determining the adequacy of information and to identify gaps in information where they exist¹⁵.

The discretionary nature of applying the transboundary provisions underscores the lack of reciprocity that may exist between states in the transboundary application of their domestic Environment Impact Assessment processes. A state has wide-ranging authority to impose Environment Impact Assessment requirements over activities within its own territory or in connection with its own agencies, but what a state very clearly cannot do is require that a project that is undertaken in another state with impacts in its own territory be subject to its own or the source state’s Environment Impact Assessment processes. Consequently, states affected by activities outside their jurisdiction can only rely on the domestic Environment Impact Assessment regime of the source state to provide notice, assess impacts and provide for avenues of participation. One

AJIL, 2002, p. 291.

¹⁵ David Boyd, *Unnatural Law: Rethinking Canadian Environmental Law and Policy*, UBC Press, Vancouver, 2003, p. 154.

immediate concern that arises is that a state will apply its domestic Environment Impact Assessment laws in such a way as to protect its own environment and to involve its own citizenry, but will be reluctant to extend these protections to areas and persons outside the state and outside its own polity. While the foregoing discussion suggests that domestic Environment Impact Assessment requirements are not purposely structured so as to privilege the domestic environment, the different levels of coverage of Environment Impact Assessment processes between countries and the broad discretion granted to agencies and officials over whether and how to apply Environment Impact Assessment processes point to the need for coordination of Environment Impact Assessment processes between states¹⁶.

4. Conclusion

As an example of a globalized norm of environmental law, Environment Impact Assessment appears to be highly successful. Over a period of less than forty years, Environment Impact Assessment has gone from a requirement to provide a detailed statement of environmental effects consequent on governmental activities to a highly elaborate scientific, legal and political tool used in virtually every corner of the globe. Environment Impact Assessments have been adopted in a variety of regime types and across all levels of development, suggesting a high degree of universality. However, despite the wide-ranging adoption of Environment Impact Assessment requirements in domestic settings, there remain questions about the role that Environment Impact Assessment plays within domestic environmental governance structures and its effectiveness in influencing environmental outcomes. The adoption of Environment Impact Assessment in international settings appears to be intuitively attractive, particularly where Environment Impact Assessment is conceived of as an admonition for decision-makers to account for the environmental consequences of their proposed activities in a systematic and transparent way. But it is also clear that the ability of Environment Impact Assessment processes to impact environmental outcomes depends on the presence of institutional and political factors that will vary across different settings.

¹⁶ Stuart Bell and Donald McGillivray, *Environmental Law*, Blackstone Press, London, 2000, p. 369.

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RAJIV GANDHI NATIONAL UNIVERSITY OF LAW, PUNJAB
Sidhuwal, Bhadson Road, Patiala - 147 006 (Punjab)
Ph. No.: 0175-2391600, 2391601, 2391602, 2391603 Telefax: 0175-2391690, 0175-2391692
e-mail: info@rgnul.ac.in, website www.rgnul.ac.in