JOURNAL ON ENVIRONMENTAL LAW POLICY AND DEVELOPMENT

2022-23

Vol. 9

ARTICLES

- 1. India's Stand on Clean Tech Mechanism for Climate Change Mitigation Prof. (Dr.) Arup Poddar
- 2. Delhi Air Pollution: A Threat to Fundamental Rights Dr. Narendra Kumar
- 3. Increasing Incidence of Environmental Crime in India: Need to Adopt Effective Strategic Steps Alpi Gupta
- 4. The Herculean Fifth Labour Just, Prompt and Consumer-Centric Energy Transition Karthikeyan Murugan
- 5. Corporate Greenwashing in India: Assessing the Sufficiency of the Current Legal Framework Jaibatruka Mohanta & Anushka Ps
- 6. Climate Change Litigation: An Overview Soumya Bhattar



NATIONAL LAW SCHOOL OF INDIA UNIVERSITY

Centre for Environmental Law, Education, Research and Advocacy (CEERA) Bengaluru, India



JOURNAL ON ENVIRONMENTAL LAW POLICY AND DEVELOPMENT

Vol. 9

ISSN (0) 2348-7046

Centre for Environmental Law, Education, Research and Advocacy (CEERA), NLSIU, Bengaluru Phone: 080 23160527 Email: ceera@nls.ac.in Websites: enlaw.nls.ac.in, abs.nls.ac.in, ceerapub.nls.ac.in



ISSN: 2348-7046

2022-23

Vol. 9

Journal on Environmental Law, Policy and Development

9 JELPD (2022-23)

Centre for Environmental Law, Education, Research and Advocacy (CEERA) For Subscription contact:

Centre for Environmental Law, Education, Research and Advocacy (CEERA) National Law School of India University, Gnana Bharathi Main Rd, Opp. NAAC, Teachers Colony, Nagarbhavi, Bengaluru -560072 Ph: 080-23160527 Email: ceera@nls.ac.in

Access Online at: https://ceerapub.nls.ac.in/journal-on-environmental-law-policy-and-development/

ISSN: 2348-7046

Copyright © CEERA-NLSIU, 2023.

Mode of Citation: 9 JELPD (2022-23)

Disclaimer: The views expressed by the author(s) in the journal are their personal and do not reflect the views of the Centre for Environmental Law, Education, Research and Advocacy or the National Law School of India University.

Check our websites: www.ceerapub.nls.ac.in | www.enlaw.nls.ac.in | www.abs.nls.ac.in

JOURNAL ON ENVIRONMENTAL LAW POLICY AND DEVELOPMENT

Vol. 9

ISSN: 2348-7046

2022-23

Patrons

PROF. (DR.) SUDHIR KRISHNASWAMY

Vice Chancellor, National Law School of India University, Bengaluru

PROF. (DR.) MK RAMESH

Former Vice Chancellor(I/C), National Law School of India University, Bengaluru

Editor-in-Chief

PROF. (DR.) SAIRAM BHAT

Professor of Law and Coordinator, Centre for Environmental Law, Education, Research and Advocacy, National Law School of India University

Editorial Board

SHRI SHYAM DIVAN

Senior Advocate, Supreme Court of India

PROF. (DR.) S. SHANTHAKUMAR

Director, Gujarat National Law University

PROF. (DR.) KIRK W. JUNKER

Professor of Law, University of Cologne

PROF. (DR.) JOLYON FORD

Associate Professor, ANU College of Law, The Australian National University

Deputy Editors

Dr. Madhubanti Sadhya, Assistant Professor, National Law School of India University Dr. Manjeri Subin Sunder Raj, Assistant Professor, Christ (Deemed to be University) Dr. Vidya Ann Jacob, Assistant Professor, Christ (Deemed to be University) Mr. Harsha N, Assistant Professor, National Law School of India University

Assistant Editors

Mr. Rohith Kamath, Consultant, CEERA-NLSIU Mr. Vikas Gahlot, Teaching Associate, CEERA-NLSIU

Editorial Committee

Ms. Aparna Sojan, Research Fellow, CEERA-NLSIU Mr. Jaibatruka Mohanta, Research Fellow, CEERA-NLSIU Ms. Gayathri KK, Research Fellow, CEERA-NLSIU Ms. Gayatrhi Gireesh, Advocate, Bengaluru

CONTENTS

ditorialvii

ARTICLES

1. India's Stand on Clean Tech Mechanism for Climate Change Mitigation
Prof. (Dr.) Arup Poddar1
2 Delhi Air Pollution: A Threat to Eundemental Rights
2. Denn An Fondton. A Threat to Fundamental Rights
Dr. Narendra Kumar17
3. Increasing Incidence of Environmental Crime in India: Need to Adopt
Effective Strategic Steps
Alpi Gupta
4. The Herculean Fifth Labour - Just, Prompt and Consumer-Centric
Energy Transition
Karthikeyan Murugan
5. Corporate Greenwashing in India: Assessing the Sufficiency of the
Current Legal Framework
Jaibatruka Mohanta & Anushka PS75
6. Climate Change Litigation: An Overview
Soumya Bhattar

EDITORIAL

We are at the crossroads of significant environmental changes. In the face of unprecedented environmental challenges, the role of law, policy, and development in shaping our collective future has never been more critical. As we navigate the contemporary environmental problematique it is essential to foster a robust dialogue that brings together scholars, policymakers, and practitioners to explore innovative approaches to environmental sustainability. The world is experiencing an array of environmental crises, from climate change and deforestation to pollution and loss of biodiversity. These challenges transcend national boundaries, demanding coordinated and holistic responses. Environmental law plays a pivotal role in defining the legal frameworks necessary to address these issues. By exploring the dynamic interplay between law, policy, and development, we can better understand how to navigate this complex landscape and shape a future that balances ecological integrity, social justice, and economic prosperity. Further, development is an essential aspect of societal progress, but it must be pursued in a manner that respects environmental limits and promotes sustainability. By examining case studies, policy analyses, and theoretical frameworks, we can explore innovative approaches that foster economic growth while minimizing environmental harm. It is crucial to engage with stakeholders from diverse sectors, including government, business, academia, and civil society, to ensure that development pathways align with long-term sustainability goals.

The Journal on Environmental Law, Policy and Development (JELPD) is the flagship journal of the Centre for Environmental Law, Education, Research and Advocacy (CEERA), National Law School of India University (NLSIU), Bengaluru. It aims to highlight the significance of environmental law, policy, and development in addressing pressing global issues and promoting a sustainable future for all and emphasizes the need to strike a balance between development imperatives and environmental concerns. It is a UGC CARE listed, double-blind peer-reviewed journal. Over the years, the journal has featured articles on a plethora of contemporary legal and policy issues related to environmental

9 JELPD (2022-23)

protection ranging from governing principles of environmental law, adjudicatory authorities, their roles in dispensing environmental justice, waste management, and climate change etc.

We are delighted to release the ninth volume of the Journal on Environmental Law Policy and Development (JELPD). The call for papers for ninth volume also received an overwhelming response with invaluable contributions from scholars, researchers, practitioners, professors, and students. We thank all the authors who considered our journal as a venue for the publication of their academic research. Given the high volume of submissions we received, we had to make some difficult decisions. The Editorial Team have invested significant time and effort towards carefully shortlisting and finalizing six contributions by conducting a thorough double-blind peer-review process to ensure academic rigor and informative intellectual discourse. The selected articles shed light on an array of pressing environmental issues such as clean technology, climate change litigation and mitigation, air pollution in Delhi, environmental crimes, consumer-centric energy transitions and corporate greenwashing. With this edition, it is my sincere hope that JELPD will enlighten the readers and act as a catalyst in igniting thoughtful discourse on the selected legal issues.

Furthermore, on behalf of the Editorial Board, I express my gratitude to our Vice Chancellor, Prof. (Dr.) Sudhir Krishnaswamy for his encouragement and administrative support and sincerely thank him for the same. Further, I would like to personally thank every member of the Editorial Board, Deputy Editors, Assistant Editors, Editorial Committee members, and the NLSIU administration for extending their cooperation and providing their insightful suggestions and precious inputs in bringing out the current issue. With this let us go through the pages that hold some intricate ideas on the aspect of the evolving domain of environmental law and policy.

At the outset, we have the article by Prof. (Dr.) Arup Poddar on *India's* stand on clean tech mechanism for climate change mitigation' which focuses on the intersection of technology and sustainable development goals. Prof. Poddar delves into clean technology mechanics and its transformative potential in driving sustainable innovation. He sets the premise by using the data provided by *Global Clean Technology Innovation Index (GCII)* and *Global Clean Tech Program (GCIP)* to point out the discriminatory access to clean tech between countries based on their per capita income while highlighting how India suffers from this lack of access

due to the lackluster approach by relevant international authorities such as UNFCC. The article further explores the different nuances of this issue such as the lack of technology sharing, and cooperation between international bodies and local governments while providing innovative solutions to the same.

In the second article titled, *Delhi Air Pollution: A Threat to Fundamental Rights'*, Dr. Narendra Kumar presents a critical and comprehensive approach to a burning issue of national importance. He critically analyses the air pollution in Delhi while linking it to the violation of the constitutional guarantees as provided under part three of the Constitution of India. Dr. Narendra divides his analyses into three parts viz the linkage of air pollution and Fundamental rights, the inefficiency of government policies, and the critical role of judicial attempts to understand, interpret and mitigate the situation. He uses the data provided by CPCB to point out the hazardous state of affairs and to throw light on how governmental policies have borne no fruit. He aims to provide valuable insights to policymakers and stakeholders, working towards cleaner and healthier urban environments, by analyzing landmark judicial pronouncements which link air pollution to a violation of fundamental rights.

In the third article, Alpi Gupta through her research sheds light on the theme of environmental crimes which lies at the intersection of Criminal and Environmental law. Her article titled *Increasing incidence of Environmental Crime in India: Need to Adopt Effective Strategic Strategies'* examines the existing enforcement mechanisms and emphasizes the urgent need to strengthen legal frameworks and enhance enforcement capabilities of the authorities as well the citizenry at large. In her article, she raises crucial questions on the role of the legislation, adjudicatory authorities, and the executive to tackle the growing menace of environmental crimes are on the rise while pointing out their slow and often invisible long-term effects on the marginalized and at times the whole population of a region. She discusses various nuances of Environmental Crimes, their types, mechanisms, and authorities while offering solutions for better and more efficient strategies to curb this growing socio-legal hazard.

The fourth article 'The Herculean Fifth Labour - Just, Prompt and Consumer-Centric Energy Transition' by Karthikeyan Murugan explores the role of consumers in driving the energy transition towards sustainability. The author advocates for a technologically driven sustainable future that balances consumers' needs with environmentally friendly practices. The article revolves around public policy, current global pressures, consumer interests, and a common shared goal while pointing out the different fault lines in them which lead to compounding of discrimination as against the idea of inclusive development. Mr. Murugun also explores the role of different stakeholders, analyses the fear around the use of nuclear energy while strongly pointing out its advantage, and advocates for an all-inclusive technology-driven sustainable future.

The fifth article by Jaibatruka Mohanta and Anushka P S titled 'Corporate Greenwashing in India: Assessing the Sufficiency of the Current Legal Framework' critically examines the issue of corporate greenwashing. The authors in this article point out the issue of misleading and unethical practices adopted by body corporates when it comes to legally mandated environmental compliances. The authors explore the detrimental effects that greenwashing has on transparency, accountability and reliability. They highlight the rampant greenwashing done by Corporates in the name of ESG, its enabling factors, and potential solutions. The authors set the tone of the discussion with the twin objectives viz (i) indicating the performative role of the government to curb greenwashing; (ii) providing insights into the limitation of steps taken so far that provides an opportunity for the exploitation of the loopholes sans any accountability. In the end, the authors recommend changes in corporate governance among many other things to tackle the issue of greenwashing in a more effective manner.

Lastly, Soumya Bhattar through her article 'Climate Change Litigation: An Overview' explores the upcoming area of practice revolving around Climate Change and its interactions with legal sciences. The author delves into this emerging field of practice used to hold government and private bodies accountable for their contribution to climate change. The author demarcates the different types of climate litigation and differentiates them from environmental litigation. The author also explores India's position and the future development of this field of litigation in India and the challenges thereto. In the end, the author provides some solutions to the challenges and ways to make it an effective legal remedy while also pointing out its tremendous potential.

Through this careful compilation of diverse articles, it is hoped that volume nine of the Journal on Environmental Law, Policy and Development will stimulate dialogue, foster collaboration, and inspire action towards a more sustainable and equitable future. We hope that the thought-provoking research and recommendations of the authors will inform policy makers, legal professionals, researchers, and practitioners in their effort to address the complex challenges that environment is facing today. Lastly, I would like to thank the CEERA Team for their diligent efforts in bringing forth this edition of the journal.

Prof. (Dr.) Sairam Bhat Chief Editor, JELPD, Professor of Law & Coordinator, CEERA-NLSIU.

INDIA'S STAND ON CLEAN TECH MECHANISM FOR CLIMATE CHANGE MITIGATION

-Prof. (Dr.) Arup Poddar*

Abstract

To support the process of sustainable development clean technology or clean tech innovation system is very important which can also address climate change mitigation. From the year 1972 the developed and developing countries involved in voluntary transfer of clean technology. In the beginning the transfer was made possible between the developed Nations only. At the local level there should be development of clean technology to address the climate mitigation and reduce the greenhouse gas emission was required under the domestic plan of clean tech innovation system. With the help of innovative technology, the UNFCCC also made commitments through the contracting part is to reduce the greenhouse gas emissions. Transfer of technology and with the international financial fund the contracting parties can help those countries who request for reduction of greenhouse gas emission with the help of clean tech innovation. India has already developed solar energy sector as an example of clean technology. India as developing country has a good flat form for adopting foreign technology to promote clean tech innovation systems. Every country will have to play creative role for climate change mitigation since this is a global phenomenon.

Keywords: Climate Adaptation, Developing Countries, Climate Change, GHG, UNFCCC, Clean Technology

^{*} Professor, The WB National University of Juridical Sciences (NUJS), Kolkata [arup.poddar@nujs.edu].

INTRODUCTION

The term 'clean tech' is known by various synonyms for example, environment friendly technology,¹ green technology,² climate change technology,³ environmentally sound technology,⁴ climate technology,⁵ etc. Therefore, any technology which has capacity to mitigate and adapt climate change issues can be considered as clean tech or green technology or climate change technology.⁶ Clean tech innovation system can be considered with the help of any such technique, equipment, machine, or practice which can assist the reduction of greenhouse gas emission.⁷ Under the generation of clean electricity, the wind, solar, geothermal, biomass, hydroelectric energy can be considered.⁸ They are also the example of renewal energy under the scope of Climate Change mitigation technology.⁹ Any technology under the clean tech innovation system that is capable to improve the energy efficiency from the burning of fossil fuel can reduce the greenhouse gas emission at the maximum extent.¹⁰ The climate change adaptation technology¹¹ means any technology which can produce seeds that will have flood and drought resistance¹² or any technology which may provide early warning of extreme

¹ Jiang Jiani, Can the System Promote Climate-Friendly Technology Transfer?, 44 ENVTL. POL'Y & L. 422 (2014).

² Green Technology: Legal, Ethical, and Moral Considerations, 27 NOTRE DAME J.L. ETHICS & PUB. POL'Y 1 (2013).

³ Dalindyebo Shabalala, An Introduction to This Issue: Climate Change and Technology Transfer, 9 SUSTAINABLE DEV. L. & POL'Y 4 (2009).

⁴ Adebayo Majekolagbe, The Evolution of the UNFCC Environmentally Sound Technology Development and Transfer Framework, 16 LAW ENV'T & DEV. J. 112 (2020).

⁵ Karen Sullivan, Technology Transfer and Climate Change: Additional Considerations for Implementation under the UNFCCC, 7 LAW ENV'T & DEV. J. 1 (2011).

⁶ Geoffrey Imende, *Adapt or Die: The Science, Politics and Economics of Climate Change*, 2004 E. AFR. L.J. 145 (2004).

⁷ Mingde Cao, Greenhouse Gas Emission Reduction Climate Change Legislation, 43 ENVTL. POL'Y & L. 52 (2013).

⁸ Subhes C. Bhattacharyya, *Climate Change and Power: Economic Instruments for European Electricity*, 30 J. ENERGY & DEV. 150 (2004).

⁹ Elizabeth Burleson, Multilateral Climate Change Mitigation, 41 U.S.F. L. REV. 373 (2007).

¹⁰ Josh Zaharoff, The Efficiency of Energy Efficiency: Improving Pre-emption of Local Energy Conservation Programs, 37 N.Y.U. REV. L. & SOC. CHANGE 783 (2013).

¹¹ Brenda Heelan Powell & Rebecca Kauffman, *Climate Change Mitigation and Adaptation*, 44 LAW NOW 7 (2020).

¹² Anne Saab, *Climate-Resilient Crops and International Climate Change Adaptation Law*, 29 LJIL 503 (2016).

weather¹³ or excessive water crisis and solutions to agriculture practices.¹⁴ The management of environmental resources can be done through the information technology practice as a part of clean tech innovation system.¹⁵

The term 'innovation' can be understood under three categories.¹⁶ First, the variety of the innovation will propose for of a new product or process to be implemented or there could be proposal for minor improvement in the existing process or product.¹⁷ Second, the practice of a new idea or commercialisation of the same in a new way to be understood as innovation.¹⁸ And third, there should be new organisational setup and new marketing method of any significant product or process in relation to goods or services that to be implemented as a part of innovation.¹⁹

GLOBAL CLEAN TECHNOLOGY INNOVATION INDEX

A different innovation matrix on clean technology has been adopted by global clean technology innovation index (GCII).²⁰ For developing the domestic clean tech innovation system, a survey has been made by GCII to understand that how the industries are taking steps in this regard.²¹ The domestic clean tech innovations, as per the survey made, in developing countries are up to the mark for encouraging the entrepreneur industries to come in this field.²² Collecting the

¹³ Benoit Mayer, Climate Change Adaptation and the Law, 39 VA. ENV'T L.J. 141 (2021).

¹⁴ Andrea M. Keesen, *Adaptation to Climate Change in European Water Law and Policy*, 8 UTRECHT L. REV. 38 (2012).

¹⁵ Ross Gittell & Josh Stilwagon, *The Effects of US State-Level Energy and Environmental Policies on Clean Tech Innovation and Employment*, 6 J. MGMT. & SUSTAINABILITY 1 (2016).

¹⁶ Zachary Liscow & Quentin Karpilow, *Innovation Snowballing and Climate Law*, 95 WASH. U. L. REV. 387 (2017).

¹⁷ Deborah Behles, *The New Race: Speeding up Climate Change Innovation*, 11 N.C. J.L. & TECH. 1 (2009).

¹⁸ Jonathan H. Adler, *Eyes on a Climate Prize: Rewarding Energy Innovation to Achieve Climate Stabilization*, 35 HARV. ENVIL. L. REV. 1 (2011).

¹⁹ Thomas S. Ulen, *Disruptive Technology, Work, and Innovation*, 29 KAN. J.L. & PUB. POL'Y 339 (2020).

²⁰ Joshua D. Sarnoff, *Clean Tech Intellectual Property: Eco-Marks, Green Patents, and Green Innovation*, 3 IP L. BOOK REV. 8 (2012).

²¹ Joy Y. Xiang, *Addressing Climate Change: Domestic Innovation, International Aid and Collaboration*, 5 NYU J. INTELL. PROP. & ENT. L. 196 (2015).

²² Michael J. Baks, *Technology Transfers and Developing Countries*, 7 GEO. INT'L ENVTL. L. REV. 901 (1995).

India's Stand on Clean Tech Mechanism for Climate Change Mitigation

data in easy form, the GCII selected G20 countries and made the study.²³ GCII also selected 20 countries from the geography of G20 countries to make holistic study on the clean tech innovation system.²⁴ To make a comparative study 10 countries with low-income group will be selected out of 20.²⁵ There will be all together 40 countries to make a study by GCII on the adoption of clean tech innovation system.²⁶ These countries will be known as GCII countries.²⁷ Subsequently, the selection of 10 countries with low-income group got discouraged because of unavailability of data to make a comparative study.²⁸ If a survey is conducted in low-income countries on the adoption of clean tech innovation system that will be too much to expect by the management of GCII.²⁹

GLOBAL CLEAN TECH INNOVATION PROGRAM

On the global clean tech innovation program (GCIP) a survey was conducted by GCII in the year 2017 to the 8 developing countries.³⁰ GCII conducted the survey in year 2017 and GCIP made supplemental study.³¹ The 3 developing countries for example, Turkey, South Africa, and India out of 8 developing countries are covered by GCII.³² Maximum importance to the developing country like India has been mentioned in this article.³³ The countries like Thailand, Morocco, Malaysia,

²³ Ankit Patel, The Use of Technology Transfers to Promote Domestic Innovation of Climate Change Technologies in China, 5 CASE W. RES. J.L. TECH. & INTERNET 259 (2014).

²⁴ Michael Hasper, Green Technology in Developing Countries: Creating Accessibility through a Global Exchange Forum, 7 DUKE L. & TECH. REV. 1 (2008-2009).

²⁵ Angelina Liang, Shedding Light: The Role of Public Utility Commissions in Encouraging Adoption of Energy Efficient Lighting by Low-Income Households, 38 COLUM. J. ENVTL. L. 333 (2013).

²⁶ Michael Mattioli, *Communities of Innovation*, 106 Nw. U. L. REV. 103 (2012).

²⁷ Michael Shellenberger, et al., , Fast, Clean, & Cheap: Cutting Global Warming's Gordian Knot, 2 HARV. L. & POL'Y REV. 93 (2008).

²⁸ David Orozco, Administrative Patent Levers in the Software, Biotechnology, and Clean Technology Industries, 9 J.L. ECON. & POL'Y 615 (2013).

²⁹ Mei Gechlik, *Making Transfer of Clean Technology Work: Lessons of the Clean Development Mechanism*, 11 SAN DIEGO INT'L L.J. 227 (2009).

³⁰ Hari M. Osofsky, *Envisioning Legal and Policy Pathways for Energy Innovation*, 15 MINN. J.L. SCI. & TECH. 287 (2014).

³¹ Ivan Morales, Balancing Intellectual Property Rights and Clean Technology Development: Encouraging Cooperation, 17 HOUS. J. HEALTH L. & POL'Y 405 (2017).

³² Anandajit Goswami, et al., Impact of Clean Energy Interventions on Development in India: A Techno-Economic Analysis, 45 J. ENERGY & DEV. 133 (2019).

³³ Mark Olsthoorn, et al., Barriers to Energy Efficiency in Developing Countries' Industry Sectors: Empirical Evidence from Clean Development Mechanism (CDM) Projects, 42 J. ENERGY & DEV. 189 (2016).

Pakistan, and Armenia are the example of few countries for making study on the domestic clean tech innovation system added by GCIP.³⁴ The survey conducted by GCII and GCIP in the year 2017 are now available from 15 countries.³⁵ Eight countries where the GCIP has conducted survey are more in details than the survey conducted by GCII.³⁶ The upper middle-income countries are Brazil, Hungary, China, Malaysia, South Africa, Mexico, Turkey, Thailand, Bulgaria, and Argentina as classified by the World bank for further clarification.³⁷ The example of lower middle-income countries are Morocco, Pakistan, Indonesia, Armenia, and India.³⁸

INDIA ON CLEAN TECH

A case study on India as a part of developing country will be helpful to understand that how the performance is made by developing country in the domestic clean tech innovation system.³⁹ Because of the ranking on status of financial development as available in GCII and GCIP 2017, India has been selected with another reason to have easy access of data on the domestic clean tech innovation system.⁴⁰

The capacity building on clean tech is low in India as an example of developing nation.⁴¹ After checking the data on India's clean tech, it is shown that the input on clean tech specification is very high, but output of such innovation is

³⁴ Noah M. Sachs, *Climate Change Triage*, 44 ENVTL. L. 993 (2014).

³⁵ Todd M. Lopez, A Look at Climate Change and the Evolution of the Kyoto Protocol, 43 NAT. RESOURCES J. 285 (2003).

³⁶ J. B. Ruhl & James Salzman, *What Happens When the Green New Deal Meets the Old Green Laws?*, 44 VT. L. REV. 693 (2020).

 ³⁷ Jan-Erik Lane, *The Beginning of the End of the Climate Drama*, 6 INT'L J. SOC. SCI. STUD. 32 (2018).
³⁸ Armin Rosencranz, Dilpreet Singh & Jahnavi G. Pais, *Climate Change Adaptation, Policies, and Measures in India*, 22 GEO. INT'L ENVIL. L. REV. 575 (2010).

³⁹ Joy Y. Xiang, *Addressing Climate Change: Domestic Innovation, International Aid and Collaboration*, 5 NYU J. INTELL. PROP. & ENT. L. 196 (2015).

⁴⁰ Felix Mormann, *Constitutional Challenges and Regulatory Opportunities for State Climate Policy Innovation*, 41 HARV. ENVTL. L. REV. 189 (2017).

⁴¹ Patrick Bayer, Johannes Urpelainen & Alice Xu, *Explaining Differences in Sub-National Patterns of Clean Technology Transfer to China and India*, 16 INT'L ENV'T AGREEMENTS: POL. L. & ECONS. 261 (2016).

low.⁴² In all measures relating to clean tech, India scores low as per the GCIP 2017 survey report with an exception that India is also specific driver of innovation system on clean tech.⁴³

BRICS countries are the example of emerging economies and India among them scores low on general innovation drivers and exception status being given to country like Brazil.⁴⁴ Regarding promotion of entrepreneurship and opportunities on domestic clean tech innovation system there is positive approach available in Indian societies.⁴⁵ India scores high on the entrepreneurship activities took place in early stages.⁴⁶

India can perform very well on clean tech specific innovation because in the West it is considered that India has potency for good investment on renewal energy.⁴⁷ There are five policies out of 8 which the India promotes as proposed by GCII on clean tech innovation system.⁴⁸ The five policies are tariff friendly renewable energy,⁴⁹ certification for renewable energy,⁵⁰ renewable energy installation target,⁵¹ financial support to renewable energy,⁵² and installation of renewable energy.⁵³ The advanced countries have supported this scheme of

⁴² Margaret McInerney, *Tacit Knowledge Transfer with Patent Law: Exploring Clean Technology Transfers*, 21 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 449 (2011).

⁴³ Eric Lane, Clean Tech Reality Check: Nine International Green Technology Transfer Deals Unhindered by Intellectual Property Rights, 26 SANTA CLARA COMPUTER & HIGH TECH. L.J. 533 (2009).

⁴⁴ Daniel Ling Tien Chong, *Climate Change and the Role of Emerging Economies*, 50 ENVTL. L. REP. 10125 (2020).

⁴⁵ Robert C. Bird & Daniel R. Cahoy, *The Emerging BRIC Economies: Lessons from Intellectual Property Negotiation and Enforcement*, 5 NW. J. TECH. & INTELL. PROP. 400 (2007).

⁴⁶ Lawrence A. Kogan, *Commercial High Technology Innovations Face Uncertain Future Amid Emerging* BRICS Compulsory Licensing and IT Interoperability Frameworks, 13 SAN DIEGO INT'L L.J. 201 (2011).

⁴⁷ Debashis Chakraboty, Julien Chaisse & Jaydeep Mukherjee, *Deconstructing Service and Investment Negotiating Stance: A Case Study of India at WTO GATS and Investment Fora*, 14 J. WORLD INVESTMENT & TRADE 44 (2013).

 ⁴⁸ Lisa Larrimore Ouellette, Nanotechnology and Innovation Policy, 29 HARV. J. L. & TECH. 33 (2015).
⁴⁹ Ridoan Karim, Farahdilah Ghazali & Abdul Haseeb Ansari, Renewable Energy Regulations in Indonesia and India: A Comparative Study on Legal Framework, 5 JILS 361 (2020).

⁵⁰ Richard L. Ottinger & Rebecca Williams, *Renewable Energy Sources for Development*, 32 ENVTL. L. 331 (2002).

⁵¹ Richard L. Ottinger & John Bowie, *Innovative Financing for Renewable Energy*, 32 PACE ENVIL. L. REV. 701 (2015).

⁵² Ana Penha, Oil Companies' Approach to Renewable Energy, 6 ENVTL. & ENERGY L. & POL'Y J. 1 (2011).

⁵³ Joanna I. Lewis, Leading the Renewable Energy Revolution, 7 GEO. J. INT'L AFF. 147 (2006).

financial aid on clean tech innovation system by India and therefore, the investors in India have established funds on clean tech.⁵⁴ There is budget established by India on research and development applicable for promotion to clean tech innovation system however, no proper information to the public available.⁵⁵ Therefore, there is a huge drop in understanding the India's public clean tech research and development budget.⁵⁶

In India the promotion of clean tech innovation system can be done appropriately with the help of early-stage small investment capital.⁵⁷ India is scoring low on the promotion of clean tech innovation system among other developing countries because of the small investment capital.⁵⁸ Factors such as low job opportunities even if having good work force in the renewal energy sector, there is no standard export policy and the involvement of private sectors investment on the clean tech not considered seriously are few other factors for which India scores low.⁵⁹ As per GCIP report the countries like Pakistan and Morocco even scores lower than India.⁶⁰ The developing countries must establish general and clean tech innovation capabilities to do good job in the sector of promotion of clean tech innovation system.⁶¹ To improve the clean tech innovation system the developing countries should get international cooperation and financial aid from them.⁶² For getting this cooperation and financial aid the international forum and should clear their vision that how they are committed for

⁵⁴ Courtney Lauren Anderson, *Climate Change and Infrastructure*, 18 HOUS. J. HEALTH L. & POL'Y 1 (2018).

⁵⁵ Frank Princiotta, *The Role of Power Generation Technology in Mitigating Global Climate Change*, 18 DUKE ENVTL. L. & POL'Y F. 251 (2008).

⁵⁶ Myanna Dellinger, Localizing Climate Change Action, 14 MINN. J.L. SCI. & TECH. 603 (2013).

⁵⁷ Mei Gechlik, *Making Transfer of Clean Technology Work: Lessons of the Clean Development Mechanism*, 11 SAN DIEGO INT'L L.J. 227 (2009).

⁵⁸ Michael Bennett & Sophie Smyth, *How Capital Markets Can Help Developing Countries Manage Climate Risk*, 43 B.C. ENVTL. AFF. L. REV. 251 (2016).

⁵⁹ Michael Hasper, Green Technology in Developing Countries: Creating Accessibility through a Global Exchange Forum, 7 DUKE L. & TECH. REV. 1 (2008-2009).

⁶⁰ Christopher E. Paine, The Nuclear Fuel Cycle, Global Security, and Climate Change: Weighing the Costs and Benefits of Nuclear Power Expansion, 44 U. RICH. L. REV. 1047 (2010).

⁶¹ Leonard Nurse & Rawleston Moore, *Adaptation to Global Climate Change: An Urgent Requirement for Small Island Developing States*, 14 REV. EUR. COMP. & INT'L ENVIL. L. 100 (2005).

⁶² Peter Usher, Climate Change and the Developing World, 14 S. ILL. U. L.J. 257 (1990).

promotion of clean tech innovation system.⁶³ The international forum should also know that how the developing countries are promoting various tools and public to come and join this field of clean tech innovation system.⁶⁴ For example, incentivising or providing prizes to the common people who developed the tools for clean tech innovation system including protecting the intellectual property rights of the innovators.⁶⁵ This type of initiation and policy adopted by the developing countries will encourage for further promotion of clean tech innovation system.⁶⁶

When a country is developing towards and advanced form of economic condition in the per capita income of the individuals that country under the status of developing country will be considered as an example of emerging economy.⁶⁷ As an example of emerging economy, the status is given by the international financial institution as per the data available in their hand.⁶⁸ The countries like Thailand, Turkey, Russia, South Africa, Philippines, Poland, Mexico, Peru, India, Malaysia, Indonesia, Columbia, Hungary, Chile, China, and Brazil are the examples considered by the international institutions as emerging economies.⁶⁹

The obligation to reduce the greenhouse gas (GHG) emission will be mounting on these emerging economies as a form of pressure from the international community.⁷⁰ And to achieve this emission reduction, these economies will have to allot budget for promotion of domestic clean tech innovation system.⁷¹ The promotion of domestic clean tech innovation system to

⁶³ Jamie Alvarez Soberanis, *The Changing Legal Climate for Multinational Investments in Developing Countries*, 10 LAW. AM. 365 (1978).

⁶⁴ Michael Bennett & Sophie Smyth, *How Capital Markets Can Help Developing Countries Manage Climate Risk*, 43 B.C. ENVTL. AFF. L. REV. 251 (2016).

⁶⁵ Paul H. Brjetzke & Carl Adrianopoli, *Climate Change in Cities of the Developing World*, 25 J. ENVTL. L. & LITIG. 85 (2010).

⁶⁶ Dan E. Arvizu, *Advanced Energy Technology and Climate Change Policy Implications*, 2 FLA. COASTAL L.J. 435 (2001).

⁶⁷ Daniel Ling Tien Chong, *Climate Change and the Role of Emerging Economies*, 50 ENVTL. L. REP. 10125 (2020).

⁶⁸ Nathan E. Hultman, *Emerging Carbon Markets and the Future of Climate Policy*, 5 GEO. J. INT'L AFF. 123 (2004).

⁶⁹ Mark Wu & James Salzman, *The Next Generation of Trade and Environment Conflicts: The Rise of Green Industrial Policy*, 108 NW. U. L. REV. 401 (2014).

⁷⁰ Gary C. Marfin, *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy*, 31 J. ENERGY & DEV. 141 (2005).

⁷¹ Elizabeth Burleson, *Climate Change Consensus: Emerging International Law*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 543 (2010).

reduce the greenhouse gas emission shall also be considered by India being the emerging economy.⁷² There will be compromise with the economic development along with political instability of a country, if the GHG emission having direct adverse impact to public health is not controlled.⁷³ India should promote local level domestic clean tech innovation system rather than importing with high price the foreign clean tech innovation system.⁷⁴

UNFCCC AND CLEAN TECH

The developing countries should come out with clean technology program is one of the mandates of United Nations Framework convention on climate change (UNFCCC).⁷⁵ The international mandate on financial aid of the UNFCCC has mentioned that the financial support shall be provided to the developing countries parties.⁷⁶ UNFCCC has also provided a balance between adaptation and mitigation by bringing cooperation action on transfer of technology at various cycles and technology development.⁷⁷ To encourage the financial assistance to the developing countries UNFCCC has established green Climate fund⁷⁸ (GCF) and global environment facility⁷⁹ (GEF). The funds like special climate change fund,⁸⁰ adaptation fund,⁸¹ and least development countries fund,⁸² are regulated by the

⁷² Art von Lehe, Climate Change and South Carolina's Economy, 16 SE. ENVTL. L.J. 359 (2008).

⁷³ Alan Carlin, *Global Climate Change Control: Is There a Better Strategy than Reducing Greenhouse Gas Emissions*, 155 U. PA. L. REV. 1401 (2007).

⁷⁴ David M. Driesen, *Does Emissions Trading Encourage Innovation*, 33 ENVTL. L. REP. NEWS & ANALYSIS 10094 (2003).

⁷⁵ Addie Haughey, *The World Bank Clean Technology Fund: Friend or Foe to the UNFCCC*, 9 SUSTAINABLE DEV. L. & POL'Y 57 (2009).

⁷⁶ Anita M. Halvorssen, *The Kyoto Protocol and Developing Countries - The Clean Development Mechanism*, 16 COLO. J. INT'L ENVTL. L. & POL'Y 353 (2005).

⁷⁷ Ujjwal Kacker, Technology Transfer and Financing: Issues for Long Term Climate Policy in Developing Countries, 2009 CARBON & CLIMATE L. REV. 292 (2009).

⁷⁸ Laura Drummond, *UNFCCC Green Climate Fund Created*, 11 SUSTAINABLE DEV. L. & POL'Y 69 (2011).

⁷⁹ Laurence Boisson de Chazournes, *The Global Environment Facility (GEF): A Unique and Crucial Institution*, 14 REV. EUR. COMP. & INT'L ENVIL. L. 193 (2005).

⁸⁰ Remi Moncel & Harro van Asselt, *All Hands on Deck: Mobilizing Climate Change Action beyond the UNFCCC*, 21 REV. EUR. COMP. & INT'L ENVTL. L. 163 (2012).

⁸¹ E. Lisa F. Schipper, *Conceptual History of Adaptation in the UNFCCC Process*, 15 REV. EUR. COMP. & INT'L ENVTL. L. 82 (2006).

⁸² Maureen F. Irish, Least Developed Countries, Climate Change and Trade, 5 LAW & DEV. REV. 2 (2012).

GEF which got established in the 1992 by UNFCCC.⁸³ To fulfil the commitment as taken by developed countries to provide approximately 100 billion dollar every year for addressing climate action to the developing countries UNFCCC established GCF in the year 2010.⁸⁴ Up to 2020 remarkable financial assistance and commitments got realised by the developed countries and this assistance shall be extended to developing countries to the end of the year 2025.⁸⁵ The developed countries and the emerging economies both have claimed the contribution of financial assistance to the GCF.⁸⁶ By January 2019 the GCF raised 10.3 billion dollars as a part of fulfilling the commitment from 48 international donors.⁸⁷ Various climate action projects undertaken while utilising this fund in the developing countries.⁸⁸

The matter is significant that on the production of clean tech innovation there is no uniformity at the global level.⁸⁹ The mechanism of patent is one of the tools to determine the successful production of clean tech innovation in a country.⁹⁰ This mechanism helps the developer to protect its own technology on clean tech.⁹¹ As the developed Nations captured the maximum number of patents on clean tech innovation systems, therefore, the current market on transfer of clean tech innovation systems is dominated by the developed Nations only.⁹² The maximum number of patents on the clean energy technology are owned by the republic of Korea, United Kingdom, France, Germany, Japan and the United

⁸³ Sophie Smyth, A Practical Guide to Creating a Collective Financing Effort to Save the World: The Global Environment Facility Experience, 22 GEO. INT'L ENVTL. L. REV. 29 (2009).

⁸⁴ Sylvestre-Jose-Tidiane Manga, Post-Paris Climate Agreement UNFCCC COP-21: Perspectives on International Environmental Governance, 26 AFR. J. INT'L & COMP. L. 309 (2018).

⁸⁵ M. J. Mace, Funding for Adaptation to Climate Change: UNFCCC and GEF Developments since COP-7, 14 REV. EUR. COMP. & INT'L ENVIL. L. 225 (2005).

⁸⁶ Jennifer Huang, *Exploring Climate Framework Laws and the Future of Climate Action*, 38 PACE ENVTL. L. REV. 285 (2021).

⁸⁷ Yuichiro Tsuji, *Climate Change Action and Adaptation in Tokyo*, 11 WASH. J. ENV'T L. & POL'Y 89 (2020).

⁸⁸ Ambuj D. Sagar, Hongyan H. Oliver & Ananth P. Chikkatur, *Climate Change, Energy, and Developing Countries*, 7 VT. J. ENVTL. L. 71 (2006).

⁸⁹ Kevin Perron, 'Zoning out' Climate Change: Local Land Use Power, Fossil Fuel Infrastructure, and the Fight against Climate Change, 45 COLUM. J. ENVTL. L. 573 (2020).

⁹⁰ Joshua D. Sarnoff, The Patent System and Climate Change, 16 VA. J.L. & TECH. 301 (2011).

⁹¹ Andrea Nocito, Innovators Beat the Climate Change Heat with Humanitarian Licensing Patent Tools, 17 CHL-KENT J. INTELL. PROP. 164 (2017).

⁹² Estelle Derclaye, Not Only Innovation but also Collaboration, Funding, Goodwill and Commitment: Which Role for Patent Laws in Post-Copenhagen Climate Change Action, 9 J. MARSHALL REV. INTELL. PROP. L., at (i) (2010).

States.⁹³ With a survey made in the year 1998 almost 95% of the patent on clean tech innovation system was with the above-mentioned countries and now after 2020 still the market with these countries is almost 85%.⁹⁴ This study clearly shows the unevenness or there is no uniformity of the development of clean tech innovation systems between the developing and the developed Nations.⁹⁵

There should be deployment and development of clean tech at the platform belonging to developing nation and will include diffusion, application, and transfer.96 Therefore, mere transfer of clean tech innovation system at the international level between the developing and the developed nation will not be sufficient as found under UNFCCC.97 The adaptation of the climate actions should be done under the workable situation of the adopting nation for the purpose of addressing climate change mitigation.98 The member Nations under UNFCCC will have to promote the cooperation in application, development, and diffusion of such clean technology apart from commitments made for transfer of clean technology, processes and practices relating to such technology.⁹⁹ To address the climate change and workout on mitigation policies along with reduction of GHG emissions, the contracting parties are under obligation to share a long-term vision on the importance and realisation of clean technology development and its transfer and can be found under Paris agreement 2015 post UNFCCC.100 The deployment and development of clean tech innovation system at the platform of developing countries as per their ambience and need have been suggested under

⁹³ David E. Adelman & Kirsten H. Engel, *Reorienting State Climate Change Policies to Induce Technological Change*, 50 ARIZ. L. REV. 835 (2008).

⁹⁴ Maureen K. Ohlhausen, *Patent Rights in a Climate of Intellectual Property Rights Scepticism*, 30 HARV. J. L. & TECH. 103 (2016).

⁹⁵ Jennifer M. Drogula, Developed and Developing Countries: Sharing the Burden of Protecting the Atmosphere, 4 GEO. INT'L ENVIL. L. REV. 257 (1992).

⁹⁶ Ivan Morales, Balancing Intellectual Property Rights and Clean Technology Development: Encouraging Cooperation, 17 HOUS. J. HEALTH L. & POL'Y 405 (2017).

⁹⁷ Bronwyn H. Hall & Christian Helmers, *The Role of Patent Protection in (Clean/Green) Technology Transfer*, 26 SANTA CLARA COMPUTER & HIGH TECH. L.J. 487 (2009).

⁹⁸ M. J. Mace, *Funding for Adaptation to Climate Change:* UNFCCC and GEF Developments since COP-7, 14 Rev. Eur. COMP. & INT'L ENVIL. L. 225 (2005).

⁹⁹ Adebayo Majekolagbe, The Evolution of the UNFCC Environmentally Sound Technology Development and Transfer Framework, 16 LAW ENV'T & DEV. J. 112 (2020).

¹⁰⁰ Michael A. Mehling, Gilbert E. Metcalf & Robert N. Stavins, *Linking Heterogeneous Climate Policies (Consistent with the Paris Agreement)*, 48 ENVTL. L. 647 (2018).

the commitments made by the UNFCCC as a part of international transfer policy on green technology.¹⁰¹

The World Bank classifies the examples of developing countries, least developed countries and developed countries based on the high income, low income, middle income based on per capita National gross income.¹⁰² As per this classification the developed country means that high income applicable to per capita income and similarly, for developing countries per capita National gross income should be between middle income to low income.¹⁰³

CLIMATE MITIGATION ACTION AND SUSTAINABLE DEVELOPMENT

Under the climate mitigation action and sustainable development there are requirement of domestic clean tech innovation system and therefore, there is a need that the developing countries should also create their own clean technology.¹⁰⁴ Climate induced sustainable development to be adopted through the climate mitigation action for the purpose of providing stable and healthy planet.¹⁰⁵ To reduce the risk of adverse impact of climate change there should be extensive reduction of GHG emissions as shown under the study of sustainable development.¹⁰⁶ For the least developed countries there will be aggravation of

¹⁰¹ Justin D. Macinante, Operationalizing Cooperative Approaches under the Paris Agreement by Valuing Mitigation Outcomes, 2018 CCLR 258 (2018).

¹⁰² Michelle Balaklaw, Helping Haiti: Incorporating NGO Technology Transfer into the TRIPS Agreement Framework to Aid Least Developed Countries in the Adoption of Clean Technologies, 8 KY. J. EQUINE AGRIC. & NAT. RESOURCES L. 137 (2015).

¹⁰³ David M. Fox, *Technology Transfer and the TRIPS Agreement Are Developed Countries Meeting Their End of the Bargain*, 10 HASTINGS SCI. & TECH. L.J. 1 (2019).

¹⁰⁴ Alexander Condon, The Odd Couple: Uniting Climate Change Mitigation and Sustainable Development under the Clean Development Mechanism, 9 LAW & DEV. REV. 153 (2016).

¹⁰⁵ Climate Change, Sustainable Development, and Ecosystems, 2010 ENV'T. ENERGY & RESOURCES L. YEAR REV. 30 (2010).

¹⁰⁶ Christina Voigt, Is the Clean Development Mechanism Sustainable - Some Critical Aspects, 8 SUSTAINABLE DEV. L. & POL'Y 15 (2008).

poverty including endangering the national security if the adverse impact of climate change is not controlled with the help of sustainable development.¹⁰⁷

The deployment and development of clean tech is required under both climate action mitigation and under the sustainable development.¹⁰⁸ Under agenda 2030 there are total 17 goals fixed to achieve sustainable development.¹⁰⁹ The goal number 7 provides a statement to the contracting parties to have access to clean and sustainable energy for all.¹¹⁰ And the goal number 9 clearly makes a provision for providing dynamic infrastructure sustainable in innovation and industrialisation.¹¹¹ Once the development and deployment of global clean tech innovation systems are in place than the above-mentioned factors can easily be achieved.¹¹²

The clean tech innovation will be of immense help to address climate change and its adverse impact under the climate action scheme.¹¹³ The clean tech innovation system is the best technology and can be used for achieving sustainable development-oriented climate change mitigation.¹¹⁴ Under the agenda 2030 the global sustainable development was adopted by the United Nations in the year 2015.¹¹⁵ Under this scheme the needs of both present as well as future generations will be considered.¹¹⁶ Under agenda 2030 there are 17 sustainable development

¹⁰⁷ Pravesh Aggarwal & Rupesh Aggarwal, *Examining Perspectives and Dimensions of Clean Development Mechanism: A Critical Assessment vis-a-vis Developing and Least Developed Countries*, 59 INT⁴L J.L. & MGMT. 82 (2017).

¹⁰⁸ Laura H. Kosloff, *Linking Climate Mitigation with Sustainable Economic Development: A Status Report*, 3 WIDENER L. SYMP. J. 351 (1998).

¹⁰⁹ Tim Stephens & Ed Couzens, *The 2030 Agenda for Sustainable Development*, 19 ASIA PAC. J. ENVTL. L. 1 (2016).

¹¹⁰ Elena Pribytkova, *Global Obligations for Sustainable Development: Harmonizing the 2030 Agenda for Sustainable Development and International Human Rights Law*, 41 U. PA. J. INT'L L. 1031 (2020).

¹¹¹ Ioan Voicu & Florina Voicu, *Education for Sustainable Development and the 2030 Agenda*, 2015 DREPTURILE OMULUI 7 (2015).

¹¹² Irene Khan, *Shifting the Paradigm: Rule of Law and the 2030 Agenda for Sustainable Development*, 7 WORLD BANK LEGAL REV. 221 (2016).

¹¹³ Deborah Behles, *The New Race: Speeding up Climate Change Innovation*, 11 N.C. J.L. & TECH. 1 (2009).

¹¹⁴ Gary Cox, The Clean Development Mechanism as a Vehicle for Technology Transfer and Sustainable Development - Myth of Reality, 6 LAW ENV'T & DEV. J. 179 (2010).

¹¹⁵ Voicu &. Voicu, *supra* note 111.

¹¹⁶ Maureen Papas, *The 2030 Sustainable Development Agenda and Paris Climate Agreement - Taking Urgent Action to Combat Climate Change: How Is Australia Likely to Fare*, 20 ASIA PAC. J. ENVTL. L. 94 (2017).

goals which are voluntary in nature to be achieved by the country parties by the year 2030.¹¹⁷ The interface between sustainable development goals and climate change actions can be clearly visible, in particular, goal number 13 clearly States the specific states that sustainable development to be adopted to address climate change and its adverse impact.¹¹⁸ The climate change issues will be taken care as soon as there will be progress of the working of a nation under the scheme of sustainable development.¹¹⁹ By the working of the climate actions pact with sustainability, it is predicted under agenda 2030 that this practice of climate action will also bring sustainable development of the nation.¹²⁰

SIGNIFICANCE OF LOCAL LEVEL CLIMATE MITIGATION ACTION

For adaptation and implementation of clean tech at the local level one of the important features is that the technology should be appropriate for the local condition.¹²¹ It means that the clean tech should be low cost and can be managed locally and will function in environment friendly manner.¹²² The local level domestic clean tech innovation process involves the adaptation of clean technology at the local level with proper orientation to deal with flood, drought, or wildfire, etc.¹²³

¹¹⁷ Ana Garcia Juanatey, Reconciling Human Rights and the Environment: A Proposal to Integrate the Right to Food with Sustainable Development in the 2030 Development Agenda, 9 J. SUSTAINABLE DEV. L. & POL'Y 1 (2018).

¹¹⁸ Larissa Jane Houston, *Climate Change and Sustainable Development: Selected Elements of a Sustainable Development Model Law*, 2021 ALJ 285 (2021).

¹¹⁹ Pamela S. Chasek, et al., *Getting to 2030: Negotiating the Post-2015 Sustainable Development Agenda*, 25 REV. EUR. COMP. & INT'L ENVTL. L. 5 (2016).

¹²⁰ Matheus Felipe de Castro & Marco Aurelio Rodrigues da Cunha e Cruz, *The 2030 Agenda for Sustainable Development, of United Nations, and the Brazilian Case*, 38 DIREITOS FUNDAMENTAIS & JUSTICA 165 (2018).

¹²¹ Thomas M. Gremellion, *Setting the Foundation: Climate Change Adaptation at the Local Level*, 41 ENVTL. L. 1221 (2011).

¹²² Stephanie Chuffart-Finsterwald, *Environmental Technology Transfer and Dissemination under the* UNFCCC: Achievements and New Perspectives, 26 ENVTL. CL. J. 238 (2014).

¹²³ Margret J. Kim & Robert E. Jones, *China: Climate Change Superpower and the Clean Technology Revolution*, 22 NAT. RESOURCES & ENV'T 9 (2008).

The local climatic condition of the area should be incorporated in the clean tech innovation system for best result.¹²⁴ For example, the clean technology which is applicable in India for extremely humid climatic condition may not be appropriate for climate change mitigation process in the USA because of its dry climatic condition.¹²⁵ The operation of clean technology will not be possible for long time in developing countries if the technology process provided in the clean tech system is not matching with the capabilities of the local level.¹²⁶ For example, the capabilities to run the smart grid technology or advanced agriculture technology in the US or in France cannot have competition with such capabilities available in India.127 Therefore, the local label capacities and capabilities should be inculcated before the transfer of clean tech innovation system to the developing countries, so that local level need can be fulfilled, and they can participate in climate change mitigation process.¹²⁸ The clean tech innovation process failed to climate change mitigation process as the technology transferred to African countries did not match with the capabilities of the local people who will run such technology.129

The local ecological knowledge and indigenous practices should be inculcated to the clean tech innovation system which will be transferred from developed nation to developing nation for its best result.¹³⁰ There should not be any interference of the already initiated climate mitigation process adopted by local communities at the domestic level by the new clean take innovation system.¹³¹ For effective climate mitigation process there should be combination between modern climate measures and traditional adaptation of Climate Change mitigation.¹³² One

¹²⁴ Benoit Mayer, Migration in the UNFCCC Workstream on Loss and Damage: An Assessment of Alternative Framings and Conceivable Responses, 6 TEL 107 (2017).

¹²⁵ Bayer, Urpelainen & Xu, *supra* note 41.

¹²⁶ William Gardner, The Fight for Clean Technology Funds: Who Should Control the Future of Low-Carbon Technology in the Developing World, 18 IND. J. GLOBAL LEGAL STUD. 481 (2011).

¹²⁷ Ronald E. Minsk, Sam P. Ori & Sabrina Howell, *Plugging Cars into the Grid: Why the Government Should Make a Choice*, 30 ENERGY L.J. 317 (2009).

¹²⁸ Matthew Burns, *A Sustainable Framework for International Green Technology Transfer*, 23 COLO. J. INT'L ENVTL. L. & POL'Y 405 (2012).

¹²⁹ David Silverstein, Sharing United States Energy Technology with Less-Developed Countries: A Model for International Technology Transfer, 12 J. INT'L L. & ECON. 363 (1978).

¹³⁰ Laura Berglan, Blaine Miller-McFeeley & Andrea Folds, *The Clean Energy Dilemma: How the Push for Clean Energy Could Threaten Indigenous Communities and an Exploration of Potential Alternatives*, 33 COLO. ENV'T L.J. 285 (2022).

¹³¹ Felix Mormann, Clean Energy Equity, 2019 UTAH L. REV. 335 (2019).

¹³² Howard A. Latin, Climate Change Mitigation and Decarborization, 25 VILL. ENVTL. L.J. 1 (2014).

can take the best example from the country like Mexico where the combination of traditional and modern adaptation policy has given birth of biofuel.¹³³ With the help of local agriculture product for example, coconut, jatropha and sugarcane, the African countries like Mozambique also produced biofuel.¹³⁴ In the climate adaptation process, this type of local clean tech innovation systems is cheaper and extremely efficient.¹³⁵

CONCLUSION

To achieve effective climate adaptation process, the green and clean technology is the answer for developed and developing countries along with least developed countries. Because of scientific advancement, the developed countries bring new clean tech every year and their cooperation is of utmost important for transfer of technology to the developing Nations. The developing Nations also should encourage the local scientist and the community to bring the existing and new ideas for clean tech innovation system which will be cheaper and compatible to the local climatic condition. The commitments made by the contracting parties under UNFCCC have developed various technological advancements in bringing clean and green technology at the international level and the adoption of such technology by the domestic and local level are also equally important. The successful financial aid and transfer of technology will be possible through the mechanism of international cooperation between the developed and developing Nations, which will ultimately result in effective climate action mitigation process. To encourage the sustainable development in the process of climate mitigation the weightage to the local clean tech innovation system should also be considered by the developing Nations. Even though climate change is the global issue but mitigation to be successful when adaptation of the climate action is implemented at the local and domestic level.

¹³³ Linda M. Fernandez, NAFTA and Climate Change, 11 WORLD TRADE REV. 652 (2012).

¹³⁴ Omolola S. Olarinde & Damilola S. Olawuyi, *Setting Sustainable Standards for Biofuel Production: Legal and Institutional Imperatives*, 2 J. SUSTAINABLE DEV. L. & POL'Y 224 (2013).

¹³⁵ Daniel H. Cole, *Climate Change, Adaptation, and Development*, 26 UCLA J. ENVTL. L. & POL'Y 1 (2008).

2

DELHI AIR POLLUTION: A THREAT TO FUNDAMENTAL RIGHTS

-Dr. Narendra Kumar*

Abstract

The right to a healthy environment is an essential component of the right to life, as it is impossible to preserve an adequate quality of life or even life itself without a healthy environment. A healthy environment is essential to human existence because it helps a person develop physically, psychologically, and intellectually. Around the world, the right to live in a healthy environment has quickly earned constitutional protection. The present study critically examines the measures taken by the Government of the NCT of Delhi for controlling air pollution, with special reference to the protection of the basic fundamental right, i.e., the right to a clean environment under article 21 of the Indian Constitution. It also explores the fundamental causes of air pollution and the reasons for the failure of government schemes. The author divides the whole study into four parts. Part I begins with an introduction to air pollution and the concept of basic human rights. It further examines the constitutional background of having a healthy environment as a basic fundamental right in India. Part II deals with air pollution in the NCT of Delhi and a critical analysis of the schemes and measures initiated by the government. Part III reveals the judicial perspective on air pollution and basic human rights to ensure a healthy environment. The result of the study reveals that the air quality in the NCT of Delhi is at high risk to the basic human rights under article 21, and the schemes of the government have proved ineffective in their protection. In the end, the author recommends some important suggestions for policy-making and their implementation to ensure a clean and healthy environment.

^{*} Assistant Professor, Vivekananda Institute of Professional Studies - Technical Campus (VIPS-TC) (Affiliated to GGSIP University), New Delhi.

Keywords: Air Quality Index (AQI), Constitutional Right, Healthy Environment, Judicial Activism, Right to Life, Odd-Even Rule, Public Health Emergency.

PART- I: AIR POLLUTION AS A BASIC HUMAN RIGHT

INTRODUCTION

Air pollution mainly refers to the condition caused by toxic substances in the atmosphere produced by human beings and natural activities that result in the deterioration of the quality of air and quality of life.¹ As discussed here, this is a very grave problem that is not easy to treat due to the nature of flying particles. Further, as per World Health Organization (hereinafter WHO), outside air toxic waste is divided into four key categories: Particulate Substance, Ozone, Nitrogen Dioxide, and Sulfur Dioxide. Moreover, air toxic waste is further classified into primary and secondary pollutants. The first category of pollution elements enters the atmosphere directly from the ground, whereas the second category occurs as a result of compound substance effects caused by two pollutants reacting with each other. In 1968, the United States established a scientific advisory committee to think about the human environment, and subsequently in Stockholm (1972), where it was observed that environmental problems in India are becoming serious as a result of a variety of serious issues including an absence of political confirmation, the lack of a broad climate change policy, poor consciousness, operational disappearance of the public organization, poor corporate media consideration, and many more, which are responsible for increasing the severity of the problems.² In 1970, the U.S. also shaped the Environmental Protection Agency (EPA) for better protection of the environment and its consequences. It has also been observed that, as industries and trade grow on a global scale, the air quality index rises steadily, implying a sense of responsibility on the part of the

¹ T. Matsui, et al., *Cultivars Tolerant to High Temperature at Flowering: Anther Characteristics*, 89(6) ANNALS OF BOTANY 683 (2002).

² O.P. Dwivedi, *India: Pollution Control Policy and Programmes*, 43(2) INTERNATIONAL REVIEW OF ADMINISTRATIVE SCIENCES 123 (1977).

entire society. An appropriate time to learn a lesson from the past and to take effective measures against it.³

After a brief respite caused by the coronavirus shutdown, air pollution in Delhi, the world's most polluted capital city, has returned to pre-COVID-19 levels, and it has become very severe nowadays, especially during Diwali. Conferring to a WHO study of 1650 worldwide cities, India ranks last among the world's major capitals.⁴ According to statistics published in the IQ Air Visuals World Air Quality Report 2019, India has ranked 21st out of 30 main cities with poor air quality, and 6 Indian cities stand in the top 10 cities.^{5,6} Air pollution-related non-communicable illnesses considerably outnumber the worldwide average in Delhi, resulting in hundreds of thousands of early deaths each year. The capital's interior geographic site, harvest burning in adjoining states, car releases, manufacturing effluence, and substantial pollution from huge building projects are the primary causes of Delhi's worrisome air pollution levels.

Over the last decade, the Delhi government has implemented several steps to minimize air pollution in the national capital. Smog is also a continuous major air pollution problem in New Delhi and the neighboring districts of India's National Capital Territory. A thick layer of toxic fog was also discovered to be blanketing India's capital, New Delhi, hurting eyes and lungs, causing school closures and motivating locals to band together for action. As per India's National AQI, which measures the quantity of harmful particulate matter in the air, New Delhi is routinely ranked as one of the most polluted cities in the world, with air pollution reaching "hazardous" levels in early November. For years, officials in neighboring provinces have been engaged in tense and inconclusive talks over the cause and responsibility for the pollution, but Delhi's poor air quality has added a

³ A. Kibble & R. Harrison, *Point Sources of Air Pollution*, 55(6) OCCUPATIONAL MEDICINE 425 (2005).

⁴ Umair Irfan, *How Delhi Became the Most Polluted City on Earth,* VOX, https://www.vox.com/energy-and-environment/2017/11/22/16666808/india-air-pollution-new-delhi (last updated Nov. 25, 2017).

⁵ Arpan Chatterji, *Air Pollution in Delhi: Filling the Policy Gaps*, 17 MASSACHUSETTS UNDERGRADUATE JOURNAL OF ECONOMICS (2021).

⁶ Vinod Thomas & Chitranjali Tiwari, *Delhi, the World's Most Air Polluted Capital Fights Back*, BROOKINGS (Nov. 25, 2020), https://www.brookings.edu/blog/futuredevelopment/2020/11/25/delhi-the-worlds-most-air-polluted-capital-fights-back.

new sense of urgency.⁷ Delhi has earned a reputation as the most polluted city on the planet, with poor air quality these days.⁸ India's central government has declared a state of health emergency in Delhi to tackle invasive air pollution. Since India keeps taking legislative action to solve this chronic problem, this research gives an overview of the Delhi context to explain how air pollution affects human safety and business, as well as what the government did so far to address the issue.

According to CPCB estimations, Delhi has highly polluting industrial areas that are bordered by heavily polluting major industries that do not meet the air, water, or soil discharge regulations. The industrial sector is responsible for around 18.6 percent of Delhi's total air pollution, with factories alone generating ranging from a few hundred to over a thousand tonnes of pollutants each year while building dust is responsible for 30 percent of the air pollution. It is estimated that around 3,000 tonnes of air pollutants are released daily in Delhi, with vehicular pollution accounting for the lion's share (67 percent), followed by coal-fired thermal power stations (12 percent).9 The US diplomats reported PM2.5 levels in New Delhi's air that were more than 1,200 micrograms per cubic metre, which is 48 times the World Health Organization's threshold. According to the report, the average annual concentration of PM2.5 per cubic metre of air in New Delhi was 84.1, more than double the level in Beijing in 2020, which was 37.5. This ranking, in conjunction with Delhi's 2019 standings dropping into the undesirable scope and three months of the year rising a step higher into the very unpleasant scope, indicates that Delhi is experiencing pain from unbelievably high levels of air pollution.¹⁰ Between January and September, Derry's AQI is normally moderate (101-200), but it rapidly declines to very low (301 to 400), severe (401 to 500), or dangerous (500+) levels owing to a variety of causes such as stubble burning, road

⁷ Esha Mitra & Rhea Mogul, *A Silent Killer is Choking India's Capital. For Millions, There's no Choice but to Breathe it in*, CNN WORLD (Nov. 23, 2021), https://edition.com/2021/11/23/india/air-pollution-delhi-residents-intl-hnk-dst/index.html.

⁸ Hari Kumar & Emily Schmall, New Delhi's Air Turns Toxic, and the Finger-Pointing Begins, THE NEW YORK TIMES (Nov. 18, 2021),

https://www.nytimes.com/2021/11/18/world/asia/india-new-delhi-pollution.html. ⁹ S. A. Rizwan, et al., *Air pollution in Delhi: Its Magnitude and Effects on Health*, 38(1) INDIAN JOURNAL OF COMMUNITY MEDICINE 4 (2013).

¹⁰ Neha Arora, New Delhi is World's Most Polluted Capital for Third Straight Year – IQ Air Study, REUTERS (Mar. 16 2021), https://www.reuters.com/article/us-india-pollution/new-delhi-is-worlds-most-polluted-capital-for-third-straight-year-iqair-study-idUSKBN2B817F.

dust, vehicle pollution, and cold. According to Greenpeace's IQ Air monitoring network, toxic air kills tens of thousands of people in New Delhi each year.¹¹

The influence of PM10 and PM2.5 on human health may be investigated in Delhi in current ages and the prospective strength implications of living in this extremely dirty air, as it has both long-term and short-term impacts.¹² It was also discovered that while the particulate matter had a lower influence on overall nontraumatic mortality in Delhi than in the United States of America, one environmental emission death in Delhi resulted in the loss of many years of life.¹³ Furthermore, considerable amounts of Sulphur dioxide, nitric oxide, and carbon monoxide are found in Delhi's hazardous air, raising the risk of attacks, heart disease, and high blood pressure, as well as intensifying COVID-19-related respiratory issues. We believe that the 80 km x 80km area with the city government in the center is a decent work to improve conditions because it will protect all identified bases of effluence that could affect its air conditions, such as energy plant life, unit making, and industrial facilities, as well as the usual suspects: car emission, road construction, traditional fuels, open industrial wastes, and diesel engine sets.^{14, 15}

REVIEW OF LITERATURE

It is found that there is mounting evidence associating urban air pollution with acute and chronic diseases in people of all ages. As a consequence, measuring the environmental activity of different air pollutants, as well as quantifying the dosage absorbed, becomes critical, particularly given that in many countries, policy choices to reduce pollutant concentrations are focused on their health impacts. According to the findings, children face the greatest health risks as a result of air pollution in Delhi. The health hazards from SO2 (HR SO2) are the lowest across all age groups. According to Delhi-based studies on air pollution and mortality, all-natural-cause mortality and morbidity rose with rising air pollution. During the previous decade, Delhi has taken many initiatives to reduce the city's air

¹¹ Chatterji, *supra* note 5.

¹² Air quality in Delhi, IQ AIR, https://www.iqair.com/us/india/delhi (last visited on Feb. 3, 2023).

¹³ Irfan, *supra* note 4.

¹⁴ What's Polluting Delhi's Air?, URBAN EMISSION INFO (Mar. 2016), https://urbanemissions.info/blog-pieces/whats-polluting-delhis-air.

¹⁵ Chatterji, *supra* note 5 at 17.

pollution.¹⁶ It also examined the aforementioned problems, as well as the monitoring of India's AQI during the lockdown and partial lockdown using daily data from the Central Pollution Control Board (hereafter 'CBCB'). The GI-index, instability index, least squares regression, and frequency techniques were used to assess AQI hot spots, regional AQI instability, AQI trend, and consistency of Pollution State Presence Frequency (hereafter 'PSPF'). As a consequence, the average AQI has dropped from 110 before the lockdown to 73 during the lockdown and 93 during the partial lockdown.¹⁷ In addition, several industrial districts were suffocated with all four pollutants in varying concentrations and seasons. The quadratic polynomial trend was followed by a growth in the number of registered and operational industries in Delhi, as well as an increase in the concentrations of air pollutants. The Spearman's rho correlation method also found that respiratory illness entries from employees and their families had a statistically significant negative connection with temperature, rainfall, and wind speeds, but a statistically significant positive correlation with PM2.5, NO2, and CO.¹⁸ Many studies also revealed that pollution levels in the city are still excessively high in comparison to international and national norms. Data on pollution levels over the last few years, as given, demonstrates that the situation has worsened and that it is caused by several industries, and focusing on just one would have little effect on the air we breathe.19

CONSTITUTIONAL DIMENSIONS

The fundamental document, i.e., the Indian Constitution, evolves by taking into account the specific requirements for environmental protection to preserve the essence of the preamble, including the socialist pattern and the dignity of the individual. After independence, India faced many major issues, including environmental protection with the concept of welfare, and hence, in 1986, India introduced "the Air (Prevention and Control of Pollution) Act, 1981" and "the Environment (Protection) Act, 1986," which defined the environment by considering factors like air, water, land, human beings, and other living things.

¹⁶ Rizwan, et. al, *supra* note 9.

¹⁷ Priyanka Das, et al., *Short Term Unwinding Lockdown Effects on Air Pollution*, 296 J. CLEAN. PROD. 126514 (2021), https://doi.org/10.1016/j.jclepro.2021.126514.

¹⁸ Neha Parveen, et al., *Industries in Delhi: Air pollution Versus Respiratory Morbidities*, 152 PROCESS SAF. ENVIRON. PROT. 495 (2021), https://doi.org/10.1016/j.psep.2021.06.027.

¹⁹ Maureen L. Cropper, et al., *The Health Benefits of Air Pollution Control in Delhi*, 79 AM. J. AGRIC. ECON. 1625 (1997).

Furthermore, the preamble (social justice), fundamental rights (F.R.), and fundamental duties (g) under Article 51-A imposed mandatory duties on citizens to defend the environment to achieve actual welfare. Article 47 also talks about the mandatory duty of the state to maintain three things, i.e., the nutrition level, the standard of living, and public health, which is the key feature of the Directive Principles. In this support, Article 48 states that the state is to get initiatives to arrange farming and animal farming on current and systematic lines for the growth of the breed.²⁰

In addition, Article 48-A imposed the duty upon the state to prevent and improve wildlife and forests. Subsequently, fundamental rights, including Articles 14, 19, and 21, are mainly used to protect environmental issues by challenging them through writ petitions under Articles 226 and 32 before the High Court and the Supreme Court. In Maneka Gandhi v. Union of India,21 the case revealed the wide interpretation of Article 21 by counting the right to breathe in a healthy environment with human dignity, etc. Furthermore, in Rural Litigation and Entitlement, Kendra v. State of U.P.²² the Court raised many controversies relating to the atmosphere and environmental balance by restricting unlawful pulling out activities under the Environmental Act, 1986. The Supreme Court of India further said that living in an effluence-free environment is part of article 21 held in the M.C. Mehta v. Union of India.23 In addition, the Supreme Court has declared in many decisions that the freedom of trade and commerce granted by Article 19(1)(g) is subject to reasonable constraints outlined in Article 19(6) and the seventh schedule. The court must intervene to restore the balance established in Cooverjee B. Bharucha v. Excise Commissioner, Ajmer.²⁴ In PA Jacob v. The Superintendent of Police Kottayam,²⁵ the Kerala High Court held that noisy speakers or sound amplifiers are not included in freedom of speech. In Vellore Citizens Welfare Forum v. Union of

²⁰ Pooja P. Vardhan, *Emvironment Protection under Constitutional Framework of India*, EMPLOYMENT NEWS http://www.employmentnews.gov.in/Environment-Protection.pdf (last visited Feb. 03, 2023).

²¹ Maneka Gandhi v. Union of India, AIR 1978 SC 597.

²² Rural Litigation and Entitlement, Kendra v. State of U.P., AIR 1988 SC 2187.

²³ M.C. Mehta v. Union of India, AIR 1987 SC 1086.

²⁴ Cooverjee B. Bharucha v. Excise Commissioner, Ajmer, 1954, SC 220.

²⁵ PA Jacob v. The Superintendent of Police Kottayam, AIR 1993 Ker 1.
India,²⁶ the Judiciary noticed that "the Precautionary Principle" and "the Polluter Pays Principle" stand for the necessary qualities of "Sustainable Development."

PART-II: A CRITIQUE OF AIR POLLUTION, AND GOVERNMENT SCHEMES IN THE NCT OF DELHI

AIR POLLUTION IN DELHI: AN OVERVIEW

According to the WHO, Delhi is the worst city among 1650 world cities and the fifth city in India in terms of air quality index (AQI), where every year approximately 1.5 million people die and also damages the lungs of another 2.2 million people. Primary pollutants in the air also significantly contribute to air pollution involving complex photochemical reactions in Delhi.27 In addition, timeseries learning also exposed the impact of air pollution on daily mortality in Delhi with certain results, including a positive significant relation between pollution and daily no-shock deaths for certain age groups.²⁸ The direct impact of poor air quality could also be observed in various respiratory problems, including the reduction of lung functioning of schoolchildren in the urban area by 43.5 percent compared with 25.7% of the control group and combined lung functioning deficits, etc.29 It was also discovered that air pollution increased by forty to eighty percent during November, December, and January, but decreased by ten to sixty percent during May, June, and July.³⁰ In 2017, an incident of raising PM2.5 and PM10 particulate material was considered a huge smog, which is not acceptable in Delhi because the safe limits for those pollutants are between 60 and 100. The major reasons behind such poor air quality are generally considered to be a lack of poor administration, population growth, political priorities, huge traffic, etc.

On the other hand, some other factors, like wood fires, farming land fires, construction dust particles, etc., also contribute to the poor air quality index.

²⁶ Vellore Citizens Welfare Forum v. Union of India, 1996 5 SCC 647.

²⁷ C.K. Varshney & M. Aggarwal, Ozone Pollution in the Urban Atmosphere of Delhi, 26(3) ATMOSPHERIC ENVIRONMENT PART B. URBAN ATMOSPHERE 291 (1992).

²⁸ Maureen L. Cooper, et.al., *The Health Effects of Air Pollution in Delhi, India*, SSRN (Dec. 1997), https://ssrn.com/abstract=604994.

²⁹ S. Siddique, et al., *Air Pollution and its Impact on Lung function of children in Delhi, the Capital City of India,* 212(1-4) WATER AIR & SOIL POLLUTION 89 (2010).

³⁰ S.K. Guttikunda & B. R. Gurjar, *Role of Meteorology in Seasonality of Air Pollution in Megacity Delhi, India*, 184(5) ENVIRONMENTAL MONITORING AND ASSESSMENT 3199 (2012).

Further, "The Badarpur Thermal Power Station" is one more major cause of air pollution in Delhi. It generates approximately 90 percent of Delhi's particulate toxic waste from the electrical energy division. Since October 2018, it has been noticed by the NCT of Delhi and the Ministry of Earth Science that vehicular emissions, dust, and industries are major key factors in raising air pollution, i.e., 41, 21.5, and 18 percent, respectively. Furthermore, the NCT of Delhi's AQI is generally reasonable (101-200) between January and September, but then it's considered poor (400), tough (around 500), or risky (500+) stages in the 3 months during October to December, and considering numerous features such as dust, automotive pollution, and harsh climate. The census of 2011 also reveals that approximately ninety percent of households in Delhi use LPG for cooking, and the remaining ten percent still rely on wood, harvest residue, dung, and coal for preparing food.³¹ Recently, on November 2nd, 2019, the government of the NCT of Delhi declared a "Public Health Emergency" in Delhi, and on November 4th, 2019, odd-even rules were launched till November 15th, 2019 with exceptions to decrease vehicular pollution, but results show that no significant changes took place.

GOVERNMENT INITIATIVES FOR AIR QUALITY IN THE NCT OF DELHI

In 1974, the Ministry of Environment and Forest and Climate modified the system of government named "the Central Pollution Control Board" (CPCB) and entrusted with the authority under "the Air (Prevention and Control of Pollution) Act, 1981, which aims to encourage cleanliness of streams and to develop the quality of air in India". CPCB began the National Air Quality Monitoring Programme, the system for monitoring the Global Environment and Indian National Aquatic Resources, and the Yamuna Project, among other things introduced the Centre for Spatial Environmental Planning and the Municipal Solid Wastes (Management & Handling) Rules, 2000, etc. On the other hand, certain key initiatives, such as pollution assessment, research and development organization, the establishment of principles and recommendations for industry, pollution control technologies, and enforcement, have already begun.³² In 2001,

³¹ *11 Lakh Households Have no Electricity*, TIMES OF INDIA (Mar 14, 2012), https://timesofindia.indiatimes.com/india/11-lakh-households-have-no-electricity-85-of-rural-india-uses-firewood-as-fuel/articleshow/12256306.cms.

³² OECD, ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT IN INDIA: RAPID ASSESSMENT (Nov. 03, 2006), http://www.oecd.org/environment/outreach/37838061.pdf.

the Delhi government implemented a new plan to convert public transportation to CNG form, which has promoted CNG (Compressed Natural Gas) buses, taxis, cars, and three-wheelers, i.e., 2200, 6000, 10000, and 25000, respectively. This resulted in a considerable reduction in air pollution due to the implementation of CNG transportation.³³ The quality of air was found to be relatively good after the implementation of CNG in vehicles.³⁴ Furthermore, on November 8, 2019, the National Green Tribunal (NGT) issued an order prohibiting the use of PVC and chlorinated plastics for election banners and hoardings. On October 30, 2019, the NGT passed an order regarding pollution by spinning mills in Panipat for the unlawful process of spinning mills' industrialized yarns from waste rugs imported from abroad, which causes pollution. The NGT on October 22, 2019, also passed an order regarding the use of diesel generators in Ghaziabad, which caused noise and air pollution in Indirapuram and violated "the Air (Prevention and Control of Pollution) Act, 1981."³⁵

In addition, recently, the Delhi government launched the "Red Light On, Gaadi Off" campaign in the capital, and Mr. Gopal Rai (Environment Minister) urged individuals to turn off their automobiles at red lights to help minimize air pollution as "research findings reveal that automobile pollution has a significant impact on air pollution". The administration is responsible and operating in contradiction of dirt effluence, and a programme called "Red Light On, Gaadi Off" has been launched to combat traffic effluence, where volunteers at traffic lights are suggesting that people turn off their cars when the light turns red as part of the campaign. Further, Mr. Rai said:³⁶

The number of vehicles running inside Delhi in September is still the same. But at that time, the level of pollution was normal. The pollution levels are increasing in winter due to changing weather and stubble burning. As the incidents of stubble burning are increasing,

³³ P. Goyal, Present Scenario of Air Quality in Delhi: A Case Study of CNG Implementation, 37(38) ATMOSPHERIC ENVIRONMENT 5423 (2003).

³⁴ A. B. Chelani, & S. Devotta, *Air Quality Assessment in Delhi: Before and After CNG as Fuel*, 125(1-3) Environmental Monitoring and Assessment 257 (2007).

³⁵ *Delhi Pollution Control Committee (DPCC)*, INDIA ENVIRONMENTAL PORTAL (Apr. 27, 2022), http://www.indiaenvironmentportal.org.in/category/39343/thesaurus/delhi-pollution-control-committee-dpcc.

³⁶ Govt. Starts Campaign to Reduce Air Pollution, THE HINDU (Oct. 19, 2021), https://www.thehindu.com/news/cities/Delhi/govt-starts-campaign-to-reduce-air-pollution/article37063693.ece.

the pollution levels in Delhi are rising rapidly. We cannot do anything to stop the stubble burning that is going on in other states. That's why our effort is to reduce vehicular pollution in Delhi for some relief. For this, the 'Red Light On, Gaadi Off' campaign has been started.

In addition, Mr. Arvind Kejriwal, the Chief Minister, announced a "Yuddh Pradushan Ke Virudh" operation to regulate dirt and improve apps for grievances and a "war room" for observing. It is also said that the activities would continue over the winter months when pollution levels in Delhi skyrocket and pose a community health hazard each time. According to reports, maintaining pollution levels low was even more crucial this year than normal since COVID-19 directly affects the lungs of individuals infected, and pollution may intensify the condition.³⁷ Further, the Government has also started significant schemes including the "*National Clean Air Programme*" (hereinafter 'NCAP') under the "Control of Pollution Scheme", Comprehensive Action Plan (hereinafter 'CAP') recognizing timelines and executing agencies for schedules acknowledged for anticipation, regulator and modification of air pollution in Delhi. Many innovative steps have already been taken including the SAMEER app, Air quality information collection and distribution, enthusiastic digital platform, suggestions from the public and public participation etc.³⁸

It is also worth noting that, in the middle of Supreme Court hearings on the issue of pollution, the Centre has introduced a different rule through an order to establish an agency to address the issue of air effluence with requirements for punishing damages of its limits with a penalty of up to Rs. 1 crore or an imprisonment term of up to 5 years, or both. It is expected to take the place of various pollution-related bodies, notably the Environment Pollution (Prevention and Control) Authority (hereinafter 'EPCA'). And subsequently, President Ram Nath Kovind signed the directive for Air Eminence Supervision Ordinance 2020, which was declared by the ministry.

³⁷ Delhi Launches Plan for War on Pollution, HINDUSTAN TIMES (Oct. 6, 2020), https://www.hindustantimes.com/delhi-news/capital-launches-plan-for-war-on-pollution/story-UFMdvsklf4hIm7R8zYRwML.html.

³⁸ Ministry of Environment, Forest and Climate Change, Various Initiatives Undertaken by Government for Mitigation of Air Pollution, PRESS INFORMATION BUREAU (Nov. 22, 2019), https://pib.gov.in/PressReleasePage.aspx?PRID=1593056.

CRITICAL ANALYSIS OF GOVERNMENT SCHEMES

Recently, the situation of air effluence in Delhi has changed dramatically in terms of pollutant levels and management methods used to minimize them.³⁹ The CPCB report, it indicates that Delhi is home-based to extremely polluting industrial areas enclosed by extremely polluting industrial areas that do not meet air, water, or soil discharge limits. Environmental pollution is one of the most severe issues confronting the people and the authorities in Delhi today.⁴⁰ The WHO ranks Delhi as the world's fourth most polluted city in terms of suspended particle matter (PM),⁴¹ having poor air quality as compared to approximately 1650 international cities, and India is the most horrible among the world's immense capitals. Pollution in Delhi is a persistent primary source of air pollution in New Delhi and the surrounding districts of the NCT.

Furthermore, throughout the last decade, the administration of the NCT of Delhi has implemented several initiatives to lower air pollution levels in the city. As India begins to implement additional policy measures to combat this recurring issue, the above study attempted to provide a more appraisal of the facts in Delhi to describe how the environment affects patient safety and the economic system, and what the state has done thus far to reduce the problem.⁴² In January 2019, the government unveiled the NCAP, a five-year action plan to reduce air pollution, build a frying air quality control network, and enhance citizen engagement. The scientific, legislative, fiscal, and institutional basis of 102 publicly available Clean Air Action Plans filed under NCAP were examined. Current laws in the Environment (Protection) Act of 1986 and the Air (Pollution Prevention and Control) Act of 1981 allow the state government and various pollution control agencies to announce or offer legal support for NCAP-produced city plans. Current laws in the Environmental (Protection) Act of 1986 and the Air (Pollution Prevention and Control) Act of 1981 authorize state governments and public pollution control organizations to declare and/or provide legal support for city plans produced under NCAP. In addition to the long-term proactive

³⁹ Rizwan, et. al, *supra* note 9.

⁴⁰ Chatterji, *supra* note 5.

⁴¹ Planning Department, Government of NCT Delhi, *Environmental Concerns, in* ECONOMIC SURVEY OF DELHI 2022-23, https://delhiplanning.delhi.gov.in/sites/default/files/Planning/ch._8_environmental_concerns.pdf.

⁴² Id.

Comprehensive Action Plan (hereinafter 'CAP') to combat air pollution, which includes traffic management, cleaner fuels, and increased vehicle electrification, the Delhi office has an emergency response plan, the Gradual Response Action Plan (hereinafter 'GRAP'), which intervenes when pollution exceeds a dangerous level. The daring experiment with even-odd is a last resort; it should only be used on the worst pollution days as part of a larger emergency response that includes closing schools, some companies, and so on. Except for the minimal steps already in place in and around Delhi, there is little to no information on how air pollution control measures would be implemented.

Although some measures have been taken, industrial pollution needs to be further reduced.⁴³ All industries are encouraged to control pollution from diesel generator sets. As of 2020, the Delhi authorities also regulate construction dust and ban diesel generators, and government agencies such as factory inspection are also involved in pollution control. Every month, the Delhi Pollution Control Board measures air quality in 40 different areas in Delhi and takes corrective action if necessary.⁴⁴ India's central government has declared a health emergency in Delhi to deal with an invasive amount of air pollution. During the national blockade, when industrial activity halted, the city enjoyed significantly cleaner air.⁴⁵

Faced with criticism of deteriorating air quality in the national capital, the AAP government has unveiled a five-point plan to give Delhi residents a respite from pollution. For example, the Delhi plan lists action points to mitigate regional pollution. Because of Delhi's strategic importance and the central government's role in managing air quality in the region, according to Polash Mukherjee, programme manager for air quality and resilience to change, the emergency action plan was declared by the Union Ministry of Environment rather than any state governments. On the bright side, the NCAP recognizes that present regulatory measures have only achieved moderate reductions in air pollution levels, which are insufficient outside of Delhi and the NKR.⁴⁶ The persistently polluted air over

⁴³ Chetan Bhattacharji, 'Indian' Data? Really? Huge Government Scheme Falls into Easy Trap, NDTV (May 2, 2018), https://www.ndtv.com/blog/indian-data-really-huge-government-scheme-falls-into-easy-trap-1846022.

⁴⁴ Planning Department, *supra* note 41.

⁴⁵ Id.

⁴⁶ Id.

Delhi is a result of the city's present stage of economic growth, as it is in other developing-country cities.⁴⁷

The government of the NCT of Delhi recently launched "odd-even rules" to control air pollution levels, but the issue is whether this scheme minimizes toxic waste in Delhi or not. The study of IIT Delhi revealed that the large basis of air effluence is transportation, which accounts for 18-39% of the city's affluence, followed by road dust (18-38%) and industries (2-29%) in Delhi. It is also observed that this issue is not limited to the winter, but it is a problem every day and every month. From November 1st to November 5th, 2019, the air quality index (AQI) level of some cities was recorded, i.e., Noida (499), Ghaziabad (496), Delhi (484), Fatehabad (493), Faridabad (496), Jind (448), and Kanpur (463), which shows that it has become a major concern in every city nowadays, but due to the media, the chief target is usually Delhi. In addition, different studies, including those by the Energy Policy Institute (Chicago), "the Indian Institute of Tropical Meteorology, and the Indian Meteorological Department", also revealed that a mere odd-even scheme could not have a major impact on the pollution level. The study further shows that the contribution of pollution by various vehicles, including twowheelers (32 percent), diesel lorries (28 percent), private carriages (22 percent), CNG automobiles (7 percent), and autos (4 percent) overall affluence through transportation in Delhi (the "the Centre for Science and Environment").48 Now, the situation in Delhi has become dangerous and requires some effective measures with the proactive role of states and an individual to prevent air pollution.

PART-III: JUDICIAL PERSPECTIVE FOR AIR POLLUTION AND A BASIC HUMAN RIGHT IN DELHI

The above-mentioned facts show that, since 1996, the situation in Delhi and other states has become dangerous and the state government has failed to control such pollution by creating "The Central Pollution Control Board" (hereinafter 'CPCB') and

⁴⁷ Umair Irfan, *The Law That's Helping Fuel Delhi's Deadly Air Pollution*, VOX (Dec. 16, 2019), https://www.vox./science-and-health/ 2019/11/8/20948348/delhi-india-air-pollutionquality-cause.

⁴⁸ Bhaskar Tripathi, *Delhi's Air Pollution Year-Round Problem, Needs Reduction in Annual Pollution Levels*, INDIA SPEND (Nov. 9, 2019), https://www.indiaspend.com/delhis-air-pollution-year-round-problem-needs-reduction-in-annual-pollution-levels/.

state effluence prevention boards. In 1996, based on the "Slow Murder" report, the Supreme Court asked the Delhi government to provide an achievement map to manage air toxic waste in the city. Subsequently, the government of Delhi submitted its report by saying that public participation is required to control pollution along with policy execution. The Supreme Court further gave instructions to the Union Ministry of Environment and Forest to establish an institution to make recommendations on such issues. In 1998, the government established "the Environment Pollution (Prevention and Control) Authority" (EPCA) for the NCR along with a programme named "the National Air Quality Monitoring Programme" (NAMP) to observe environmental issues. In addition, the real facts show that Delhi's pollution is increasing, especially with the increase in vehicles, which rose from 4.24 to 10.8 million in 2004 and 2018 respectively. In 2010, the government applied BSIV principles to vehicular machinery and firewood in Delhi and other cities in India, which resulted in the entire country switching to BSIV in 2017. The government of Delhi started "odd-even rules" to control pollution, etc.,49 but no significant air quality is seen during these days, and conditions become very dangerous in the NCT of Delhi and other states as well. On November 4, 2019, the Supreme Court heard the air pollution case on an emergency basis when Delhi turned into a gas chamber and expressed dissatisfaction with the Centre and State's behavior of blaming each other. The court gave directions to the central government to call an expert from IIT Delhi to suggest an emergency so that some preventive steps could be taken.

The court also criticized the odd-even rules by saying that they would cause extra trouble by allowing taxis (diesel) on the road. The court also asked the Punjab and Haryana governments why the liability of gram panchayats should not be attributed while they know every fact (burning crop) and are accountable as well. Even after banning construction activities, many incidents still take place just by paying a fine along with the use of generators, which contribute to the huge pollution in Delhi. Subsequently, on November 6, 2019, the court called upon the chief secretaries of the states, including Punjab, Haryana, and UP, to make them accountable for toxic waste in the NCR of Delhi and passed certain directions, including the responsibility of the Chief Secretary, Collector, and Tehsildar to

⁴⁹ Anisha Raman & Polash Mukerjee, *Fighting Air Pollution in Delhi for 2 Decades: A Short but Lethal History*, DOWN TO EARTH (Nov. 4, 2019), https://www.downtoearth.org.in/blog/air/fighting-air -pollution-in-delhi-for-2-decades-a-short-but-lethal- history- 67585.

ensure no stubble burning, the accountability of Gram Panchayat, Delhi to take expert opinion, control entering vehicles in Delhi, etc., and any violation shall be penalized. The NCT of Delhi is to supply details by Friday on the explanation for the exception of two-and three-wheelers from the odd-even rules and what disparity it formulates and how the state governments should structure high-level committees. The government of Delhi is taking certain actions to stop pollution by considering diesel generators, water sprats on roads and traffic to avoid road dirt, etc. Further, metropolitan bodies should discontinue the open throwing away of waste.⁵⁰

But no significant difference is seen and the air quality index is increasing day by day. In recent times, on November 25, 2019, the Apex Court dragged up the government of Punjab and Haryana for enlarging the stubble on fire even though its order prohibited it and believed people in Delhi "can't be left to die". Furthermore, the court took the issue of stubble burning in Punjab and Haryana seriously, stating that the lives of millions of inhabitants have been shortened and people are suffocating as a result of the city's high levels of hazardous waste. This bench additionally noted that both states are doing nothing to control air pollution because the facts show that the pollution level is increasing in Delhi despite steps taken by both governments. This court again told the chief secretary of the State of Punjab that

Every machine in the state will be held responsible. You can't let people die like this. Delhi is close to suffocating. Because you aren't able to implement measures, does that mean people in Delhi-NCR should suffer from cancer and die?

The judge also asked, "*Can you treat people like way and allow them to perish as a result of pollution?*" The court questioned the "*Punjab's Chief Secretary*" what efforts he took to halt the existing issue and directed the Pollution Control Board (hereafter 'CPCB') to report on the factory's negative impact on the environment in Delhi. In addition, the court questioned Solicitor General asking, "*Why are people forced to live in gas chambers?*" It is advisable to kill them all at once and gather explosives in 15 bags at the same time. Why should individuals be subjected to all

⁵⁰ Rohan Gupta, *Supreme Court Holds Emergency Hearing on Delbi Air Pollution*, DOWN TO EARTH (Nov. 4, 2019), https://www.downtoearth.org.in/news/air/supreme-court-holds-emergency-hearing-on-delhi-air-pollution-67588.

of this? In Delhi, the blame game is in full flow. I'm surprised. In a letter to Delhi Chief Secretary Vijay Kumar, Justice Mishra enquired as to who would pay for the losses caused by air pollution, stressing that "this is shortening people's lives." They went on to say that because you aren't taking this seriously, other people are mocking our nation, which has deteriorated into hell. The Supreme Court ordered the Centre and the Delhi administration to reach a mutually agreed-upon strategy for building air-purification systems in various districts of the NCT of Delhi within 10 days.⁵¹

This study investigates the federal government's flagship NCAP and India's air pollution initiatives to reduce air effluence in Delhi, which has reached an incredible 485 Air Quality Index (hereinafter 'AQI') while individuals are below the permitted level of 100 AQI. Immediate action is necessary to help reduce air pollution in Delhi, one of the world's most polluted cities, and to restore a variety of air parameters to acceptable levels for the health of both residents and visitors.⁵² There are numerous estimates of the amount of pollution from external sources. It is widely accepted that Delhi's air quality would not improve much unless pollution in Haryana, Punjab, Uttar Pradesh, and Rajasthan is reduced. If straw burning is the only source of air pollution in neighboring states, then Lucknow, Chandigarh, and Amritsar, which are located between Delhi, Punjab, and Haryana, will also be a source of worry.⁵³ On November 15, the Supreme Court said that straw burning by farmers in neighboring states is not the main cause of Delhi's air pollution; rather, it is urban factors such as construction activity, industrial

⁵¹ Delhi Air Pollution Hearing: 'Better to kill all in one go'; Supreme Court Slams Punjab and Haryana Govt. for Increase in Stubble-Burning, FIRST POST (Nov. 25, 2019), https://www.firstpost.com/india/delhi-air-pollution-hearing-better-to-kill-all-in-one-go-supreme-court-slams-punjab-and-haryana-govts-for-increase-in-stubble-burning-7697621.html.

⁵² Arvinder S Brara, *14 Ways Citizens and Gort can Help Reduce Air pollution in Delhi*, DOWN TO EARTH (Nov. 15, 2018), https: //www. downtoearth. org. in/news /air/ 14- ways –citizens - and- govt -can- help-reduce-air-pollution-in-delhi-62138.

⁵³ Chandra Bhushan, *Here's Why it is Easier to Put up a Smog Tower, but Difficult to Curb Air Pollution in Delhi*, FIRST POST (Nov. 11, 2021), https://www.firstpost.com/india/heres-why-it-is-easier-to-put-up-a-smog-tower-but-difficult-to-curb-air-pollution-in-delhi-10127371.html.

emissions, and vehicle pollution.⁵⁴ In addition, dirt affluence is one of the biggest issues that suffocates this city every year.⁵⁵

Despite the high-profile claims made by various governments and organizations each year, India Today highlights the elements responsible for the growth in pollution. Recently, the situation of air effluence has changed dramatically in expressions of pollutant stages and management methods used to minimize them.⁵⁶ Mobile police teams, public awareness programmes, investments in fast transit systems, and the phase-out of older commercial vehicles have all been used to try to decrease vehicular pollution in Delhi. Delhi relocated extremely polluting industry to the suburbs, switched Delhi's public transportation to methane, shut down power plants, established rigorous vehicle emissions regulations, prohibited heavy vehicle access, reduced the number of generators sets, and distributed LPG cylinders.⁵⁷

According to Goyal (2014) of IIT Delhi's Atmospheric Science Center, cars are the major contributor to air pollution emissions in Delhi, followed by industry, power plants, and home sources. Vehicle unloading, heavy industry like power generation, small industries like brick kilns, dust suspended on roads from automotive traffic and development work, transparent waste destruction, trying to burn fuel for cooking, lighting, and heating, and on-site power generation with diesel generator sets are all major sources of air pollution in Delhi.⁵⁸ Because cattle occupy around 80% of agricultural land, animals can be considered one of the factors in Delhi's effluent problem. The livestock issue contributes to Delhi's pollution problem since farmers in neighboring states who burn their crops generate smoke and other harmful particles. The high level of air pollution in Delhi is produced by a combination of smoke from urban thermal power plants and brick kilns, runoff from a congested transportation network, stubble or biomass

⁵⁴ Narayanmoorthy & Alli, *Stubble Burning: Getting to the Root of Delhi's Air Pollution*, THE HINDU BUSINESS LINE (Nov. 17, 2021), https://www.thehindubusinessline.com/opinion/getting-to-the-root-of-delhis-air-pollution/article37525621.ece.

⁵⁵ Kumar Kunal, *Why Delhi Air Pollution Remains a Pressing Problem Despite Govt's Tall Claims?*, INDIA TODAY (Oct. 20, 2021), https://www.indiatoday.in/cities/delhi/story/delhi-air-pollution-winter-garbage-stubble-burning-possible-solutions-1867172-2021-10-20.

⁵⁶ Rizwan, et. al, *supra* note 9.

⁵⁷ Thomas & Tiwari, *surpa* note 6.

⁵⁸ Arpan Chatterji, *Air Pollution in Delhi: Filling the Policy Gaps* (ORF Occasional Paper No. 291, Dec. 2020), https://www.orfonline.org/wp-content/uploads/2020/12/ORF_OccasionalPaper_291_AirPollution.pdf.

burned by farmers in neighboring states, and a lack of purifying airflow. Rising levels of air pollution in Delhi are an annual winter test, as farmers in Punjab and Haryana's post-harvest burning of rice and wheat stubble.⁵⁹

Anumita Roichoudhary, "Executive Director of Research and Defense at the Center for Science and Environment" (hereinafter "CSE"), and Anil Kumar, "Former Director of Delhi's Department of Environment", discussed the issues and factors that contribute to the uncontrollable increase in pollution in the nation's capital and surrounding areas during the winter. Over the next month, a nine-member expert group created by the Air Quality Management Commission (hereafter 'CAQM') may deliver a comprehensive air pollution mitigation strategy to Delhi and the National Capital Region (NCR). The study also projects future industry emissions and air quality and tests several measures that could reduce Delhi's NCR pollution by 58 percent PM2.5 and 61 percent PM10 by 2030. The experiences of Singapore Beijing and Bangkok suggest that reducing air pollution by a third by 2025 is an ambitious but achievable objective that, if maintained, may lengthen people's lives by two to three years. Pollution reduction in Delhi must be accomplished by the use of clean energy.⁶⁰

PART-IV: CONCLUSION AND SUGGESTIONS

After analyzing the above-mentioned facts an interpretation may be taken that the existing measures must be enhanced and expanded to a bigger extent. The governments of the NCT of Delhi, Punjab, and Haryana are making efforts to control air pollution with the help of various schemes, and plans, but government actions alone are proved insufficient including odd-even schemes. The facts show that these efforts are not satisfactory. Further, the study of IIT Delhi, the Energy Policy Institute (Chicago), and the Indian Institute of Tropical Meteorology, etc. revealed that a mere odd-even scheme would not create a major impact on the pollution level. Further, the Apex Court also observed that by taking temporary measures the Government of Punjab, Haryana, and especially Delhi cannot escape from their liability towards the public. They have to take accountability and responsibility for preventing air pollution in Delhi. The Government (Centre and State) is also required to control the growth of vehicles especially two-wheelers

⁵⁹ Thomas & Tiwari, *supra* note 6.

⁶⁰ Bhushan, supra note 53.

and transportation level which is the main factor for poor AQI in Delhi. Finally, it is a parallel responsibility and accountability of an individual also be more conscious and would like to say super conscious for protecting air pollution only than a healthy nation with a healthy environment would be achieved.

Based on the abovementioned information, the author suggests some important points which may be incorporated by the concerned authorities for reducing air pollution, and ensuring a clean and healthy environment in the NCT of Delhi:

- Public Awareness: Sensitization programs should be carried out more efficiently to promote social awareness about the problem and instruct drivers regarding health safety, legislation requirements, and regulations.
- Mutual efforts of concerned governments including the NCT of Delhi, Punjab, and Haryana should be promoted.
- Accountability Parameters: The strict parameters should be framed, and the accountability of an individual as well as of the State government should be stricter for air pollution and violation of a basic fundamental right.
- Mass Emission Standards for New Vehicles: The mass emission norms must be more tightening along with high fines.
- The main causes are crop burning, construction activities, and pollution from automobiles and enterprises should be under the strict supervision of a particular authority.
- Promotion of Alternative tools among people should be increased including carpooling, use of bicycles, public transport, use of CNG vehicles, fuel-efficient cars, burning waste, solar power systems, etc.

In the end, it is also observed that an individual is also required to be more conscious regarding their rights and responsibility toward the environment as well as towards State, mere State actions cannot be enough for controlling air pollution. In addition, the government should also take more serious measures along with self-responsibility and accountability regarding this issue.

3

INCREASING INCIDENCE OF ENVIRONMENTAL CRIME IN INDIA: NEED TO ADOPT EFFECTIVE STRATEGIC STEPS

-Alpi Gupta*

Abstract

In the present era, environmental crime has emerged as one of the largest criminal activities. With the passage of time and adoption of developmental activities such as industrialisation, urbanisation, etc., proportion of such crime is getting higher. Everyone is in a race to be a part of this development without realising the cost of such development, which is generally paid by our environment in the form of pollution. Interestingly, in environmental crime, *mens rea* is not vital which makes it even more complicated. As such, as a preventive measure, a number of legislations have been enacted and tribunal have been established. But, how far these legislations and tribunal are fruitful in hampering the instances of environmental crime in India remains to be examined. Through this paper, an attempt has been made to analyse instances of environmental crime together with the role of enforcement mechanism in administering justice to the nature.

Key words: Environmental Crime, NGT, Enforcement, Pollution Control Boards

INTRODUCTION

Now a days, media headlines are dominated by issues regarding rise in environmental crime in India. And this has attracted attention of not only the academicians, environmentalists but also common man and compelled them to re-evaluate their day-to-day activities as members of the community. Thus, there

^{*} Research Scholar, Department of Law, Aligarh Muslim University, Aligarh.

has been a rise in concern about the environment and its protection. However, due to advent of urbanisation and modernisation, attention has been bifurcated between development and environment protection. For general public, former dominates the latter and this has led to the rise in environmental crime in India.

Tendency of human being is to transform the surroundings according to their need rather than to adapt the nature as it is. This transformation or developmental activities brings with it not only quality of life but also injures our environment, either in the form of air pollution, deforestation, water pollution, etc. When the level of such damage to environment increases, it may cause unprecedented and unaccountable harm to human being themselves and to other living creatures in the planet, in the form of global warming, climate change, etc.¹ In view of this, a number of laws and legislations have been enacted to put a form of restrictions on such anthropogenic activities.

Legislations for environment protection has been enacted and amended with the passage and necessity of time. For instance, Environment Protection Act, Air pollution Act, Water Pollution Act, etc. With a series of legislations, there exists vast regulatory provisions. However, in cases of environmental crimes, mere provisions are not sufficient, since the victim here is environment and human himself and state being the trustee have to maintain the standard safeguards for environment. From here arrives the role of enforcement agencies.

In environmental cases, agencies such as Pollution Boards plays a vital role. Judiciary has also played a significant role in enforcing the provisions of environmental legislations and constitutional mandate through the tool of Public Interest Litigation (PIL). In order to reduce the burden of judiciary in matters relating to environmental litigation, National Green Tribunal has also been established.

Irony here is that even after establishment of such expedient adjudication system in India, crime against environment is still rising. Thus, through this paper an attempt has been made to assess the principal cause behind such increase in crime against environment and what measures are announced by the government in respect to this matter.

¹ S.C. SHASTRI, ENVIRONMENTAL LAWS 10 (3d ed., 2008).

ENVIRONMENTAL CRIME – CONCEPTUAL ANALYSIS

Before moving forward, it is necessary to understand as to what the term "environmental crime" mean and include. As such attempt has been made to analyse the meaning of the term. Till now, there appears no exact meaning of the term "environmental crime", since there exists no definition of such term in any of the environmental legislations till date. However, one can define the term "environmental crime" simply as a crime against environment. So, there exists two terms "environment" and "crime".

This term "environment" means and includes "water, air and land and the inter-relationship which exists among and between water, air and land and human beings, other living creatures, plants, micro-organism and property".² And the term "crime" has been defined as "an act committed or omitted in violation of public law forbidding or commanding it" by Blackstone.³ Thus, from these two definitions, it can be said that environmental crime means and includes an act or omission which violates the environmental law.

Again, the question may arise as to the extent of environmental law. Here, it can be said that the term "environmental law" would cover all other laws which in one way or other tend to protect "environment" as stipulated in the definition above. Thus, in the absence of any distinct definition of the term "environmental crime", it can be considered as violation of statutes protecting environment, such as Air Act, Water Act, etc. In other word, any act or omission in violation of any of these statutes would be covered under the domain of environmental crime.

DIFFERENT FACETS OF ENVIRONMENTAL CRIME

Environmental crime can be classified under two headings as a social and legal phenomenon. While in former case, harm is determined on the basis of statutory terms and definition as in case of Environment Protection Act, 1986, Waste Management Regulation Act, Hazardous Regulation Act, 1999, etc. Later is broader and includes investigation of phenomenon and do not confine within the definitions and limitation prescribed and designed by the State. As such, many

² The Environment (Protection) Act, 1986, §2(a).

³ IV SIR WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 5 (17th ed., 1830).

times, harm is caused to the environment in the name of social practice and remains legal though otherwise disastrous to the nature or environment. For instance, submersing idol of gods in the water. This practice is social as well as legally acceptable but submersing idol painted with chemicals in one way or the other effects the water bodies and indirectly effects human health. Thus, it shows that in environmental crime, basic principle of criminal law, that is *mens rea* may be absent.

Urbanisation is a process of great economic and social significance, and is yet another example to elucidate the concept of environmental crime.⁴ It tends to bring forth a number of changes in not only economic, social and demographic conditions but also affects the environmental situations. No doubt, urbanisation brings with it better opportunities of jobs, better infrastructure, promotion of social and economic mobility, etc. At the same time, adverse impacts cannot be ignored as it causes decline in area under agriculture, forest and wetlands, etc.⁵ Similarly, dark side of industrialisation is evident from "the Bhopal Gas Tragedy (1984)", "the Chernobyl (USSR) Atomic Reactor accident" in 1986, etc. It is true that phenomena such as industrialisation has facilitated in upholding the standard and quality of human life but its adverse impact on the environment cannot be ignored. For instance, acid rain is one of the worst forms of pollution which is a result of industrialisation.⁶ As has been rightly held in the case of *N.D. Jayal v. Union of India*,⁷ that in balancing between the right to environment and right to development, importance must be given to sustainable development.

REGULATORY MECHANISM

While viewing the statutory instrument for the protection of environment, India has a vast history of legislations from 1860s that is enactment of Indian Penal Code, which criminalises defilement of water of a public spring or reservoir⁸ and other related provisions⁹ to Public Liability Insurance Act, 1991 and other statutes

⁴ Dr. V. NATH, URBANIZATION, URBAN DEVELOPMENT AND METROPOLITAN CITIES IN INDIA 10 (S.K. Aggarwal ed., 2007).

⁵ Id., at xvii.

⁶ SHASTRI, *supra* note 2, at 17.

⁷ N.D. Jayal v. Union of India, (2003) 6 SC 573.

⁸ The Indian Penal Code, 1860, §277.

⁹ *Id.*, §§ 269, 270, 278, 284, 285, 286 & 425-440.

such as NGT Act, 2010, etc., enacted till date. Thus, there exists a series of legislations for the protection of environment which also shows the concern of government towards the environment protection in India.

Though, it was "Stockholm Conference on Human Environment, 1972", which is of prime importance in the history of environmental movement. Prior to this event, no doubt there was statutory protection for the environment. But a momentum was caused after this event regarding conservation and protection of environment. After this landmark conference, a series of legislations were enacted to protect the environment. For instance, "the Water (Prevention and Control of Pollution) Act, 1974",10 which paved the way for the institution of Pollution Boards, "Air (Prevention and Control of Pollution) Act, 1981",11 "Environment Protection Act, 1986", etc. The statute regulating prevention and control of air pollution, follows the basic structure of the Water Act functionally and works in accordance to the Environment Protection Act.¹² In addition to this, there exists a constitutional mandate in the form of DPSP as well as Fundamental Duty to protect the environment. Judiciary has also given importance to the protection of environment by conferring wider interpretation to the Fundamental Rights as provided under Article 21 that "right to life includes right to a wholesome environment".13

As of now, there is a series of legislations in the area of environment protection which includes "the Forest (Conservation) Act, 1980" (referred to as "FCA"), "the Water (Prevention and Control of Pollution) Act, 1974" (referred to as "Water Act"), "the Air (Prevention and Control of Pollution) Act, 1981" (referred to as "Air Act"), "the Environment (Protection) Act, 1986" (referred to as "EPA"), "the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006" (referred to as "FRA"), "the Wildlife Protection Act, 1972", "the Biological Diversity Act, 2002", "the Hazardous Wastes(management, Handling and Transboundary Movement) Rules, 2008", "the Ozone Depleting Substances (Regulation and Control) Rules, 2000", "the Public Liability Insurance Act, 1991", "the Compensatory Afforestation Fund Act,

¹⁰ Legislation was passed by virtue of art. 252(1) of the Constitution of India.

¹¹ Came into existence by invoking power under art. 253 of the Constitution of India.

¹² SHYAM DIVAN & ARMIN ROSENCRANZ, ENVIRONMENTAL LAW AND POLICY IN INDIA 245 (2d ed., 2017).

¹³ R.L & E. Kendra v. State of U.P., 1987 AIR SC 1114.

2016", "the Noise Pollution (Regulation and Control) Rules, 2000", and many other. Thus, so far as regulation is concerned, there appears a bundle of regulatory provisions for environmental protection in India. And violation of any of the provisions of these statutes, would be regarded as "environmental crime".

VICTIM OF ENVIRONMENTAL CRIME

Environmental crime has two victims viz., people and the environment. And sometimes the population of an entire region may become the victim. However, their victimization may be gradual and silent, which may be left undetected for several years. Further, in environmental crime, victim is the environment, that is a public property or resources, on which there is no private claim.

TABLE 1. STATISTICS OF ENVIRONMENT RELATED OFFENCES AS PER STATESAND UTS						
States/UTs	2019	2020	2021			
States	34551	61627	64294			
Union Territories	125	140	177			
Total	34676	61767	64471			
(Source: NCRB) ¹⁴						

INCIDENCE OF ENVIRONMENTAL CRIME IN INDIA

TABLE 2: STATISTICS OF ENVIRONMENT CRIME AS PER DIFFERENT STATUTES							
Environmental Logiclations	States		Union Territories				
Environmental Legislations	2019 ¹⁵	2020 ¹⁶	2021 ¹⁷	2019	2020	2021	
The Forest Act and FCA (1980)	2111	2240	2230	1	47	62	
The Wildlife Act (1972)	612	651	579	6	21	36	
The EPA (1986)	487	992	251	0	0	1	
The Air Act (1981) & The Water	160	588	55	0	1	0	
Act (1974)							
The COTPA (2003)	22569	49639	53946	98	71	78	
Noise Pollution Acts (State/	8537	7318	7217	0	0	0	
Central)							
The NGT Act (2010)	90	199	16	0	0	0	

¹⁴ II NATIONAL CRIME RECORD BUREAU (NCRB), CRIME IN INDIA – STATISTICS, 917 (2021).

¹⁵ II NATIONAL CRIME RECORD BUREAU, CRIME IN INDIA – STATISTICS, 882 (2019).

¹⁶ II NATIONAL CRIME RECORD BUREAU, CRIME IN INDIA – STATISTICS, 890 (2020).

¹⁷ NCRB, *supra* note 15 at 918.

Total Environmental Offences (All	34566	61627	64294	105	140	177
offences under the legislations						
relating to Environment Protection						
Related Acts						
(Source: NCRB) ¹⁸						

ENFORCEMENT MECHANISM

POLLUTION CONTROL BOARD

The Pollution Control Board (herein after referred to as "Board") is an organisation instituted under the provisions of statute. There exists such Boards at two levels, that is, Central Board (CPCB) and State Boards (SPCB), on the basis of division of power.

Central Board was instituted under "the Water (Prevention and Control of Pollution) Act, 1974".¹⁹ Further, CPCB so constituted under "the Water Act" was, later on conferred with the powers and functions under "the Air (Prevention and Control of Pollution) Act, 1981".²⁰ Thus, CPCB acts as an agency of MoEF in implementing the provisions relating to protection of environment by ensuring technical and related services. CPCB is entrusted with a number of functions, which includes "prevention, control and abatement of water pollution, air pollution and also to improve the quality of air and promote cleanliness of streams and wells, etc".²¹

Similarly, SPCB has to be constituted in each State by the respective State Governments.²² Such State Board shall be "a body corporate, have perpetual succession, common seal with power". "Subject to the provisions of the statute",²³ "shall have right to acquire hold and dispose of property and to contract and may sue and be sued in its name".²⁴ SPCB has to has to perform functions as stipulated

¹⁸ Id. at 917.

¹⁹ The Water (Prevention and Control of Pollution) Act, 1974, §3, No.4.

²⁰ About Us, CENTRAL POLLUTION CONTROL BOARD, https://cpcb.nic.in/Introduction (last visited on Mar. 2, 2023).

²¹ Id.

²² The Water (Prevention and Control of Pollution) Act, 1974, §4.

²³ Id.

²⁴ Id., §4(3).

under the statute,²⁵ and is bound to comply the directions in writing of the CPCB and State Governments.²⁶ And in case of Union Territories, Committees are generally constituted to perform the functions as are performed by the SPCB in States.

COURTS - JUDICIAL CONTROL THROUGH PIL

Another enforcement instrumentality is "court of law'. Environment is not a private property and environmental crime is not a private wrong rather it is a public wrong, since deterioration of environment would affect not only a single individual but people of certain region without any discrimination. The innovation of PIL by the judiciary, is thus, contributing much influence in the protection of environment.²⁷ Prior to the introduction of PIL, "class action" was recognised under "Order 1 Rule 8" of "the Code of Civil Procedure, 1908". However, such class action or representative suit was confined to assert only class interest, while PIL asserts social or public interest.²⁸

Under PIL, courts are empowered to exercise wide powers in granting relief and preventing human environment from deterioration. PIL is a social action litigation, wherein petition may be brought by any public-spirited person for general interest or any activity which negatively or captiously affects the public in general and it is not necessary that the said person be aggrieved. PIL can also be instituted by a voluntary organisation.²⁹

The principal aim of invoking PIL is to induce public functionaries and the state to perform the obligations as stipulated by the statutory or constitutional provisions, which are meant to be complied by these authorities, in case there is denial or violation of human rights or where public cry of distress. Thus, it is procedural rules which permeate life into substantive rights, and activate them as effective provisions. Some of the cases decided by way of PIL has also became

²⁵ Id., §17.

²⁶ *Id.*, §18(1)(b).

²⁷ BENIMADHAB CHATTERJEE, ENVIRONMENTAL LAWS – IMPLEMENTATION PROBLEMS AND PERSPECTIVES, 137 (2003).

²⁸ Id., at 132-133.

²⁹ SHASTRI, *supra* note 2, at 53.

pioneer on the subject of public participation in rationalized manner, in other words, in participatory justice which ultimately aid in achieving 'social justice'.³⁰

NATIONAL GREEN TRIBUNAL

In accordance to the findings of the apex court in some judgements, namely, *M.C. Mehta v. Union of India*,³¹ *Indian Council for Environmental-Legal Action v. Union of India*,³² *A.P. Pollution Control Board v. M.V. Nayudu*,³³ *A.P. Pollution Control Board v. M.V. Nayudu II*,³⁴ an in-depth study on "Environmental Courts" was conducted by the Law Commission and a proposal was made to institute "a multi-faceted environmental court".³⁵ As per the commission, environmental courts are required to be instituted to relieve the courts from the burden of cases and also to enable speedy adjudication of environmental cases in India.

As a result, "the National Green Tribunal" (NGT) under "the National Green Tribunal Act, 2010" came into effect with the aim to resolve the environmental cases "in an effective and expeditious manner". However, scope of the Tribunal is limited only to cases relating to certain environmental legislations which includes, Water Act, Air Act, Water Cess Act, EPA, PLIA and Bio-Diversity Act. Thus, in cases relating to other legislations, NGT has no jurisdiction to entertain the cases.

The NGT consists of both judicial members and expert members.³⁶ In addition to these members, it may also seek assistance from persons "having specialised knowledge and experience in a particular case". The NGT has jurisdiction over all cases of civil nature provided it involve "a substantial question relating to environment (including the enforcement of any legal right relating to environment)",³⁷ and that "arises out of the implementation of enactments as may be specified in the Schedule-I of the statute".³⁸ It is empowered to "render relief and compensation to the victims of pollution and environmental damage arising

³⁰ Id.

³¹ M.C. Mehta v. Union of India, (1986) (2) SCC 176.

³² Indian Council for Environmental-Legal Action v. Union of India, (1996) (3) SCC 212.

³³ A.P. Pollution Control Board v. M.V. Nayudu, (1999) (2) SCC 718.

³⁴ A.P. Pollution Control Board v. M.V. Nayudu II, (2001) (2) SCC 62.

³⁵ LAW COMMISSION OF INDIA, REP. NO. 186, PROPOSAL TO CONSTITUTE ENVIRONMENT COURTS (2003).

³⁶ The National Green Tribunal Act, 2010, §4(1).

³⁷ Id., §2(1)(m).

³⁸ *Id.*, Sch. I.

under the statutes as stipulated in Schedule- I, orders restitution of property, restitution of the environment for such area or areas as it thinks fit".³⁹ However, the relief, compensation and restitution so granted shall be in addition to the relief given under PLIA.⁴⁰ An application for the aforementioned relief has to be made within five years from the date of its cause, which may extend to further period of sixty days if there appears sufficient reason which prevented applicant to file an application within limitation period of five-year.⁴¹

As per the statutory scheme, the tribunal has jurisdiction of an appellate authority.⁴² The decisions appealable under the water Act relates to an order of an appellate authority on the consent administration,⁴³ an order of the government under revision jurisdiction⁴⁴ or a direction of the board including closure of an industry or stoppage of electricity, water or any other facility.⁴⁵ The NGT has an appellate jurisdiction in cases relating to "an appellate order under sec. 13 of Water Cess Act 1977 relating to imposition of penalty", "an appellate order under sec. 29 of Water Act, 1974", "decision on prior approval under sec.2 of FCA", "appellate orders made under sec. 31 of the Air Act", "any directions issued under sec.5 of EPA" or "grant or refusal of clearance under EIA notification".⁴⁶ Appellate jurisdiction of the NGT also extends to adjudication of "an order as may be made by the National Bio-diversity Authority or the State Bio-diversity Board".⁴⁷

Civil court is barred to entertain an appeal which the NGT is empowered to determine.⁴⁸ Though there may be certain residuary areas which may not be barred or included in the scheduled enactments.⁴⁹ The period of limitation for approaching the NGT is thirty days for relief. The NGT has wide powers to determine relief and compensation as specified under Schedule II of the act. It can determine relief and compensation "for the death or injury to a person or damage

⁴⁶ *Id.*, §16.

³⁹ *Id.*, §§ 14(2), 15(1)(a) to (c).

⁴⁰ *Id.*, §15(2).

⁴¹ *Id.*, §15(3).

⁴² Id., §16.

⁴³ The Water (Prevention and Control of Pollution) Act, 1974, §28.

⁴⁴ Id., §29.

⁴⁵ *Id.*, §33-A.

⁴⁷ The Biological Diversity Act, 2003, §§19, 20, 21 & 24(2).

⁴⁸ The National Green Tribunal Act, 2010, §29(1).

⁴⁹ Id., §29.

to property or the environment resulting from an accident or adverse impact of an activity or operation or process specified under any scheduled enactment".⁵⁰ In matters of adjudication of accidental cases, NGT employs the principle of no fault.⁵¹ Further, NGT is guided with "the principles of sustainable development, the precautionary principle and the polluter pays principle" while passing "any order, decision or award".⁵²

PRINCIPLES FOLLOWED IN ADJUDICATION

In order to develop a better regime for protection of environment, certain principles are required to be followed in the matter relating to the adjudication of environmental crimes in India. These principles include, polluter pays principle,⁵³ precautionary principle,⁵⁴ and sustainable development.⁵⁵

TABLE 3: STATISTICS OF ENVIRONMENTAL CASES DISPOSED BY THE COURT OFLAW							
Court disposal of	Environment and Pollution – Related Acts						
Cases relating to Environmental Offence	2017 ⁵⁶	201857	201958	202059	202160		
No. of cases "pending for trial" from past year	38920	45008	47894	49915	77401		
No. of cases "sent for trial" in present year	37953	34503	33340	53138	59220		

ADJUDICATION OF ENVIRONMENTAL CRIME IN INDIA

- ⁵¹ *Id.*, §17(3).
- ⁵² Id., §20.
- ⁵³ UN Conference on Environment and Development (UNCED), Rio Declaration on Environment and Development, Principle 16 (1992) (popularly called as Rio Declaration).
 ⁵⁴ Id., at Principle 15.
- ⁵⁵ UNITED NATIONS, WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, OUR COMMON FUTURE (1987) (popularly called as Brundtland Report).
- ⁵⁶ II NATIONAL CRIME RECORD BUREAU, CRIME IN INDIA STATISTICS, 891-894 (2017).
- ⁵⁷ II NATIONAL CRIME RECORD BUREAU, CRIME IN INDIA STATISTICS, 891-894 (2018).
- ⁵⁸ NCRB, *supra* note 16 at 891-894.
- ⁵⁹ NCRB, *supra* note 15 at 899-902.
- ⁶⁰ NCRB, *supra* note 14 at 927-930.

⁵⁰ Id., §17(1).

	-						
Total no. of "cases for	76873	79511	81234	103053	136621		
trial" *							
No. of cases	51	109	180	22	71		
compromised or							
compounded							
No. of cases	100	139	219	29	1317		
conclusively							
determined without							
trial							
No. of cases in which	31765	31134	31138	25626	45999		
"trials were							
concluded" **							
No. of cases	31865	31273	31357	25655	47316		
conclusively							
determined by							
courts***							
No. of cases "pending	45008	48238	49877	77398	89305		
for trial" at the end of	10000	10200	12011	11020	07000		
the vear****							
Pendency (%) #	58 5%	60.7%	61.4%	75.1%	65.4%		
(Source NCPR)	50.570	00.170	01.1/0	/ 3.1 / 0	00.170		
(50000, 1000)							
* Lotal no. of "cases for trial" = No. of cases "pending for trial" from past year + No.							

* Total no. of "cases for trial" = No. of cases "pending for trial" from past year + No. of cases "sent for trial" in present year

** No. of cases in which "trials were concluded" = No. of cases "convicted" + No. of cases "discharged" + No. of cases "acquitted"

*** No. of cases conclusively determined by courts = No. of cases conclusively determined without trial + No. of cases in which 'trials were concluded''

**** Cases "pending for trial" at the end of the year = Total no. of "cases for trial" – No. of cases conclusively determined by courts

Pendency (%) = (Cases "pending for trial" at the end of the year/ Total no. of "cases for trial") x 100

From the data stated in the table above, it can be seen that incidence of environmental crime is getting high. But the rate of adjudication is declining. In 2017, cases for trial were 37953 which rose to 59220 in 2021. It can also be seen that among the total cases, in only half of them, trials were completed by the court. In 2017, among 76873, trials were completed in 31765 cases. Similarly, in 2021, among 136621 total cases for trial, trials were completed in only 45999 cases. Thus, this shows the high rate of pendency in adjudication of cases and delay in justice.

TABLE 4: ADJUDICATION OF ENVIRONMENTAL OFFENCES BY NGT (FROM 2017 TO 2021)

Dentioulens	National Green Tribunal Act						
Paruculars	201761	201862	2019 ⁶³	202064	202165		
No. of cases in which trials	0	0	1	0	6		
were concluded*							
No. of cases determined by	0	0	1	0	6		
courts**							
No. of cases "pending for	41	73	117	242	291		
trial" at end of the year***							
Conviction Rate****	-	-	0.0	-	50.0		
Pendency (%) #	100	100	99.2	100	98.0		

(Source: NCRB)

*No. of cases in which trials were concluded = No. of cases "convicted out of cases from past year" + No. of cases "convicted out of cases in present year" + No. of cases discharged + Cases acquitted

**No. of cases determined by courts = No. of cases "abated by court" + No. of cases "withdrawn from prosecution" + No. of cases compromised or compounded + No. of cases "disposed off by way of Plea Bargaining" + No. of cases "quashed" + No. of cases in which "trials were concluded"

No. of cases "pending for trial" at end of the year = Total no. of "cases for trial" -(No. of cases "abated by court" + No. of cases "withdrawn from prosecution" + No. of cases compromised or compounded + No. of cases "disposed off by way of Plea Bargaining" + No. of cases "quashed" + No. of cases in which "trials were concluded") *Conviction Rate = Cases Convicted / Cases which Trials were Completed.

[#] Pendency (%) = (No. of cases "pending for trial" at the end of the current year /Total no. of "cases for trial") x 100

The data in the table above shows the high rate of pendency in trial of cases relating to environmental offences. For instance, the pendency percentage is 98% in 2021. This is very high and indicates that the probability of violators being prosecuted for environmental crime may be very low.

⁶¹ NCRB, *supra* note 56, at 894.

⁶² Id.

⁶³ Id.

⁶⁴ NCRB, *supra* note 57, at 902.

⁶⁵ Id., at 930.

RECENT SCENARIO – AMENDING SOME PROVISIONS OF ENVIRONMENTAL LAWS

Recently, government has proposed to amend the principal legislations relating to environment, particularly "Environment Protection Act, 1986" at the first instance. As of now, under "the Environment Protection Act, 1986", there exists provisions of imprisonment and fine in case of violation of the provisions of the said statute.

A number of amendments have been proposed by the government in the present scheme of environmental legislations. First, the government proposes to dilute the provisions relating to imprisonment into simple fine. Further, as per the proposal, there is a need to have an "adjudicating officer" who would be empowered to decide and administer the penalty in cases of environmental offences which remains pending due to lack of report or information even on demand. Though in cases of "serious violations which lead to grievous injury or loss of life, provisions of Indian Penal Code, 1860 read with Section 24 of EP Act shall be invoked". And secondly, the amount so collected in the form of fine from the violators be deposited into the separate fund called as "Environmental Protection Fund".⁶⁶ Government has proposed to introduce said amendments relating to removal of prison terms into simple penalty of fine in other environmental laws also such as the Air Act and the Water Act.

Now, the question here lies, as to how far such amendment may be proved beneficial in the matters of environmental adjudication. After analysing the pendency percentage of cases relating to environmental offences, it seems quite realistic that imposition of fine instead of imprisonment in cases of environmental crimes be helpful in reducing the number of cases. But instead of imposing deterrent punishment like imprisonment and heavy fine, imposition of mere simple fine upon the respective violators would raise the incidence of environmental crime. Punishment by way of simply fine may only increase the amount in the Environmental Fund, but may not be helpful in reducing the

⁶⁶ Jacob Koshy, *Will New Penalties on Environment Violations Soften the Blow for Air, Water and Land Polluters?* THE HINDU (July 10, 2022), https://www.thehindu.com/news/national/explained-altering-green-laws/article65619681.ece.

incidence of environmental crime. Rather, it will become a kind of escape clause for corporate bodies who may easily get rid of such court proceedings and also their duty towards environment by paying a mere sum of penalty. Thus, amendments have to be made only after reviewing all the implications related to such changes.

CONCLUSION AND SUGGESTIONS

Above discussion brings into forth the issue regarding increase in the incidence of environmental crime in India. Till now, there exists no definition of the term "environmental crime" in the statute book. It is a wider term and is not limited to a mere one environmental legislation. As such, violation of any of the existing statutory provisions relating to environment amounts to environmental crime. Thus, it is wider in scope.

At the same time, it is also true that there exists a series of legislations for protection and conservation of the environment. In addition to these laws, there exists a constitutional mandate in the form of DPSP and Fundamental duties to protect and conserve the environment. Rules are also framed by respective States in the matter of environment protection. Even a bundle of provisions has been provided in other laws such as Indian Penal Code, etc., to protect environment. Thus, there exists a proper regulatory mechanism in environmental protection. Similarly, there exists a proper enforcement functionary for enforcement of environmental regulations, such as CPCB, SPCBs, Courts through PILs, and NGT. But, still the number of cases relating to environmental offences are increasing. So, the question arises as to, why the rate of environmental crime is still high? And what strategy may be adopted to reduce the rate of such crime in India?

From the analysis of statistics of cases relating to environmental offences in the present paper, it can be said that rate of such crime is high, due to high rate of pendency of cases relating to environmental offences. Thus, it is need of time to have an enforcement mechanism which provide speedy justice. Till now there exists only four benches of NGT and one Principal bench, requirement of time is to have more benches of NGT, so that the rate of pendency be reduced. Second, with the advent of modernisation and urbanisation, focus of general public is development while protection of environment is given relatively less importance. As such, awareness program should be organised to make people aware and educate about the importance of environment. And to make them aware about the concept of sustainable development.

No doubt that the courts have acted pro-active role in the matter of protection of environment as they have taken considerations of even the letters,⁶⁷ reports⁶⁸ as petitions and made governing judgements. But, law, regulations and PILs cannot solely save environment if there is absence of sense of environmental responsibility among citizens, government functionaries, corporate bodies, etc. Thus, need is to invoke sense of environmental ethics which may to some extent reduce the number of environmental offences. And importance be given to "Sustainable Development" rather than simply development.

⁶⁷ Banwasi Sewa Ashram v. State of U.P., AIR 1987 SC 374.

⁶⁸ M.C. Mehta v. Kamalnath, (1997) 1 SCC 388, 391, 397.

4

THE HERCULEAN FIFTH LABOUR - JUST, PROMPT AND CONSUMER-CENTRIC ENERGY TRANSITION

-Karthikeyan Murugan*

Abstract

Nations of the world are taking to extreme measures to ensure that their Nationally Determined Contributions (NDCs) are met so as to contribute towards their part fulfilment in the global campaign against climate change. This is largely seen through the transition towards green energy and investment in renewable energy research. The list consisting of prospective replacements for natural gas and fossil fuel is rather short but it is seldom hopeless. Speaking about Renewable energy, myths surrounding nuclear energy and the hesitancy of the global public to accept the same in the backdrop of the Fukushima Nuclear Disaster has to be addressed institutionally since nuclear power is the biggest prospect to meet the energy needs of the current day in a sustainable and responsible manner. The end goal of all these reforms is the need to ensure an inclusive, sustainable, and holistic transition towards renewable energy creation, transfer, and consumption, all of which is done with consumer affordability and accessibility in mind. The correction of the Harm brought to life by the industrial revolution i.e., Climate Change mitigation cannot be at the expense/detriment of human development. Planned, phased, and calculated transition towards a grid designed to run on renewable energy without losing sight of the analogous applications like Electric vehicles, renewable energy cells, and other appliances which will all come full circle to ensure a sustainable and affordable living which is very much the need of the decade. The market and the governments shall alone not foot the bill and the public(consumers) shall also bear the lion's share of the responsibility in ensuring climate conservation through observing a climate-conscious

^{*} Student, LL.M., National Law University, Delhi.

code of conduct and in ensuring sustainable consumption. This must take to the common man ideas like Inter and Intra generational equity which shall contribute towards fulfilment of the Sustainable Development Goals.

Keywords: Climate change, clean energy transition, nuclear energy, consumer perception management, public policy.

INTRODUCTION

The contemporary world order has been a result of consistent and planned investment, innovation, development, and diplomacy designed by the conductor nations to ensure that their strategic interests in the global realm are protected and future-proofed. The most important contributor to this existing global order be it economic, political, or social has been unmistakably the previous energy transition¹ (from biomass to fossil fuel) and the complete exploitation of the ensuing energy to better the military, technological, and economic prowess at the cost of our shared abode which we simply can't seem to take the necessary steps to protect.² While this has been largely documented and accounted for, there has been increased hesitancy and a general lack of willingness³ to take the initiative on the part of the world nations today to work towards the necessitated clean energy transition which if we learn anything from history is all too well sure to define the world order of tomorrow⁴ howsoever that may look like.

The situation can simply not be clearer than it already is since we already have a striking understanding of the threat our realm faces and of what is expected of us collectively. While there are political questions which are seldom easy to

¹ Hugo A. Loáiciga, *Challenges to Phasing Out Fossil Fuels as the Major Source of the World's Energy*, 22(6) ENERGY & ENVIRONMENT 659–79 (2011); Kassia. Yanosek, *Policies for Financing the Energy Transition*, 141(2) DAEDALUS 94–104 (2012).

² Norman Myers, et al, *Consumption: Challenge to Sustainable Development*, 276(5309) SCIENCE 53 (1997).

³ Mari Luomi, *The Global Governance of Sustainable Energy: Access and Sustainable Transitions*, INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT (Nov. 2020), https://www.iisd.org/system/files/2020-11/still-one-earth-sustainable-energy.pdf. ⁴ Loáiciga, *supra* note 1.

answer like the global north-south burden-sharing debate,⁵ climate mitigation⁶ v. adaptation,7 and the G-20 v. IPCCC, the climate mandate has simply been handed to our collective selves and assiduously nobody wants to split the check, at least not yet. This delay in making headway in the early years shall impact what we hold dear rather unpleasantly in the later years dramatically⁸ by even the most liberal predictions which although important has been defining the narrative surrounding Energy and climate governance inimically for far too long than ought to be permitted i.e., Development and regional/ national economic factors. The goal of this paper firstly shall be to address the general lack of coordination9 in the global climate theatre towards answering the call of duty while also addressing the visceral discrimination that has become a leitmotiv of the renewable energy discussion owing to reasons which are clearly not based on facts or science. Secondly, we shall also discuss the various pitfalls that the world nations shall embark upon in their expedition towards clean energy transition with decarbonisation at the core considering the impact that shall have on the market and the consumer as a direct consequence of the public policy that the governments shall put in place. While all is said and done the imperative of the century that is climate conservation shall not be realised at the expense of development.

GLOBAL ENERGY GOVERNANCE

The discussion surrounding the sustainable and green energy transition has been characteristically protean with multiple waves of growth and de-growth all understandably originating at the international level impacted largely by geopolitics.¹⁰ The unique nature of the dispute has been such that there are innumerable agencies at the international level¹¹ all with overlapping areas of operations and with little to no coordination or any form of institutional structure with the objective of working towards an accepted objective. Although we have

⁵ Norman Myers, et al, *supra* note 2.

⁶ Francesco Bosello, *Climate Policy and the Optimal Balance Between Mitigation, Adaptation and Unavoided Damage*, 1(2) CLIMATE CHANGE ECONOMICS 71 (2010).

⁷ Charles Di Leva, *Financing Climate Mitigation and Adaptation*, 11(4) CARBON & CLIMATE L. REV. 314 (2017).

⁸ N. Höhne, et al, *Emissions: World has Four Times the Work or One-third of the Time*, 579(7797) Nature 25 (2020).

⁹ Luomi, *supra* note 3.

¹⁰ Nandakumar Janardhanan, *Transition to Energy Secure Future: Policies Enabling Energy Transition in India* (Institute for Global Environmental Strategies, Working Paper No. CC-2011-09, 2012).

¹¹ Luomi, *supra* note 3.

succeeded as hard as it may be to realise the scale of the feat settled on a level which is more so scientific¹² than political i.e. to prevent a rise in global temperature by 2 degree Celsius compared to pre-industrialisation levels,¹³ we have yet to accept or establish a uniform coordinating mechanism which will run interference between different agencies and ensure that their objectives and missions are supplementary to each other which will ensure maximum utilization of resources and increased efficiency in climate action. Researchers have been using the term 'global energy governance'¹⁴ to denote what has been largely missing from the global discourse. It is important to note that this shall be not mistaken to represent the absence of any international organisation working towards climate change mitigation or adaptation since they are a dime a dozen¹⁵ and what is missing is a body to coordinate the projects undertaken by all the different players across the boards to ensure that the invested time and resources are in fact utilized to the maximum benefit towards the betterment of the global society.

The role played by Multi-National Corporations¹⁶ (MNCs) and other corporations shall also be noted while discussing about global climate action since apart from other non-governmental organisations (NGOs), Non-profit organisations, and International Organisations (IOs), MNCs play an important role in influencing consumption pattern,¹⁷ consumption cycle and climate change perception across political boundaries. While there are those who make the argument that luxurious consumption is itself unsustainable,¹⁸ the luxury market has responded in kind to this argument by adapting their production and packaging to more sustainable or organic or recycled materials.¹⁹ They have also to a large part incorporated commitments of the nature of corporate social responsibility and corporate environmental responsibility²⁰ in their mandate,

¹² Höhne, et al., *supra* note 8.

¹³ Id.

¹⁴ Id.

¹⁵ Luomi, *supra* note 3.

¹⁶ Paolo Antonetti & Stan Maklan, Feelings that Make a Difference: How Guilt and Pride Convince Consumers of the Effectiveness of Sustainable Consumption Choices, 124(1) JOURNAL OF BUSINESS ETHICS 117 (2014).

¹⁷ Id.

¹⁸ Marie-Cécile Cervellon & Lara Shammas, *The Value of Sustainable Luxury in Mature Markets: A Customer-Based Approach*, 52 JOURNAL OF CORPORATE CITIZENSHIP 90 (2013).
¹⁹ Id.

²⁰ Id.

strategy, and objective which is sure to cause a snowball effect impacting and influencing other similar partners and competitors to also take active steps towards making sustainable alternatives.

The importance of climate change has been repeatedly stressed by every subsequent IPCCC assessment report and repeatedly emphasized by multiple players in yearly COPs (Conference of Parties) but the saddening part has to be the fact that despite all these actions it has been recorded that investment in renewable technology has, in fact, slowed down²¹ and it could be said with relative ease that without public and private investment into Renewable energy Research and Development (R&D) alongside commercialisation of the Renewable energy technology the future shall seem malaise and some might even say hopeless.

Global energy governance shall be envisioned as a global alliance against impending doom and the state parties to this alliance must balance development²² and sustainable energy transition.²³ Global partnership engendered by a global vision is not unheard of since the world nations have been incredibly successful in controlling and rehabilitating the Ozone layer by reducing global CFC emissions under the Montreal protocol²⁴ by bringing to life an institutional and streamlined approach of research and investment towards a goal which then seemed as distant as climate change and the ensuing wrath as it seems today. The success of international participation was to the extent of recorded phasing out of 99% of the banned ozone-depleting substances²⁵ which proves that the approach towards addressing climate change is field tested²⁶ and is likely to produce results if approached with the necessary rigour.

While it is true that the increased enthusiasm on the part of multiple stakeholders in the past decades has impacted the world today and we see today

²¹ UNITED NATIONS ENVIRONMENT PROGRAMME, TOO LITTLE, TOO SLOW – CLIMATE ADAPTATION FAILURE PUTS WORLD AT RISK, ADAPTATION GAP REPORT 2022.

²² Frédéric Teulon, *Economic Growth and Energy Transition: Overview and Review of the Literature*, 40(1/2) JOURNAL OF ENERGY AND DEVELOPMENT 247 (2014).

²³ Luomi, *supra* note 3.

²⁴ Graham Epstein, et al., *Governing the Invisible Commons: Ozone Regulation and the Montreal Protocol* 8(2) INTERNATIONAL JOURNAL OF THE COMMONS 337 (2014).

²⁵ Id.

²⁶ Chris Peloso, Chris, *Crafting an International Climate Change Protocol: Applying the Lessons Learned from the Success of the Montreal Protocol and the Ozone Depletion Problem*, 25(2) JOURNAL OF LAND USE & ENVIRONMENTAL LAW 305 (2010).

clearly the effects of the same. An example of this would be the exponential fall in renewable energy prices compared to its prices a couple of decades ago.²⁷ This fall in price is directly due to the conscious transition choices that state parties make and is the most relevant contributory indicator of the clean energy transition. The International Renewable Energy Agency²⁸ (IRENA) has released reports saying that the generous and climate-conscious investments of the past have put us at the starting line which and now these renewable energy technologies after decades of research, development, and balancing have become cost competitive29 with those of the conventional energy generation techniques and in fact the renewable energy generation costs are falling still. It is said that the investments in the then rapidly growing semiconductor technologies³⁰ have catapulted our technological superiority in the construction of solar panels and today as a direct culmination the cost of generating energy from these solar panels is cheaper than from coal and fossil fuels.³¹ It is said that the real cost of a solar panel has declined from \$80 per watt to below \$0.50 per watt between 1978 and 2015.32 It would be a no-brainer to suggest that the impending large-scale species level energy transition will cause multiple shocks one of the most predominant ones of which shall be of the nature of shocks in employment levels which shall result in global unrest and issues of law and order. Even going by current estimates more jobs are created in the renewable energy sector than in the fossil fuel industry by almost three times per dollar investment.³³ Therefore, now that we are at the starting line towards meeting our climate change mitigation goals which shall be completely attributable to the investment of the past, it is worrisome to append to this the fact that the investments in renewable energy are falling.³⁴ Therefore, increased global coordination and participation are necessary to ensure dedicated continuous climate action.

²⁷ Varun Sivaram, Unlocking Clean Energy, 33(2) ISSUES IN SCIENCE AND TECHNOLOGY 31 (2017).

²⁸ Luomi, *supra* note 3.

²⁹ *Id*; *See also* INTERNATIONAL RENEWABLE ENERGY AGENCY, RENEWABLE POWER: SHARPLY FALLING GENERATION COSTS (2017).

³⁰ Sivaram, *supra* note 27.

³¹ Id.

³² Id.

³³ Yanosek, supra note 1.

³⁴ UNITED NATIONS, SUSTAINABLE DEVELOPMENT GOALS REPORT 2022, at 14 (2022); *See also* UNITED NATIONS ENVIRONMENT PROGRAMME, *supra* note 21.

Global energy governance shall also entail offering assistance and guidance to states that are in the process of transitioning their installed capacity to greener alternatives.³⁵ The assistance and coordination between states should be towards addressing issues that may and shall arise at multiple levels including managing market issues be it supply side or demand side,³⁶ public policy issues, or at the institutional level facilitating technology transfer or offering skill training³⁷ to prospective workers who shall go on to manage and run these renewable energy technologies. The endeavour to transition at the civilizational scale from one form of energy production³⁸ to another is an arduous task and will have to be built on the back of a workforce which is specially trained and imparted with the de rigueur skill sets to face the challenges come what may with increased motivation to ensure that development based on such energy generation shall be consistent and effervescent.

DISCRIMINATORY CLEAN ENERGY PERCEPTION AND POLICY

Despite all the existing emission levels there are still as of 2020,³⁹ 733 million people who still have no access to electricity. Even in the 21st century according to data released by the International Energy Agency, over 31% of the global population uses cooking systems which are highly inefficient and polluting.⁴⁰ This affords a clear understanding of the need to increase development and take to the disadvantaged man the benefits of technology and development.⁴¹ But this has to be done while attributing due regard to the global environmental reality and the impending doom our generation faces in the form of large-scale climate

³⁵ Luomi, *supra* note 3.

³⁶ Yanosek, *supra* note 1.

³⁷ Jolene Lin, *Supporting Adaptation in Developing Countries at the National and Global Levels, in* CLIMATE LAW AND DEVELOPING COUNTRIES: LEGAL AND POLICY CHALLENGES FOR THE WORLD ECONOMY 127 (Benjamin J Richardson, et al., eds., 2009).

³⁸ Teulon, *supra* note 22.

³⁹ UNITED NATIONS, SUSTAINABLE DEVELOPMENT GOALS REPORT 2022, at 14 (2022); *See also* UNITED NATIONS ENVIRONMENT PROGRAMME, *supra* note 21.

⁴⁰ Loáiciga, *supra* note 1.

⁴¹ MAY THANZIN AUNG & MICHAEL BOYLAND, ENSURING JUST AND EQUITABLE ENERGY TRANSITIONS (Stockholm Environment Institute, 2020).
migration⁴² and climatic events like that of the rise in ocean levels. Now a synoptic cognizance of these points would lead us to understand that there is a need to increase energy productivity while reducing anthropogenic reasons for climate change. While the reality is as such the clean energy policy of most of the world nations has been driven by reasons which simply escape logical comprehension. The national and in fact popular response to clean energy has been largely supportive which in the last decade engendered a sizeable contribution in the form of climate action from state actors and investments from many players in the international theatre towards clean energy, but this is in complete contradistinction to the public's decry of nuclear energy citing the putative harmful effects of nuclear exposure.43 This has only worsened post the Fukushima Nuclear Disaster44 and many nations have promised targets to phase out nuclear power which is simply an emotional response and at best symbolic of the failure of public policy to drive and demystify popular perception of disasters. This discriminatory attitude towards nuclear energy is not one that humanity can afford at this juncture considering the rate of climate change45 and the need to speed up mitigation efforts⁴⁶ which brings us to the need of the hour which is more clean energy.⁴⁷ While considering the available technological options the only existing clean energy generation technology which can contribute towards energy generation at the scale that is necessary is nuclear energy. It would be quixotic to think and frame policy off demagoguery while making rosy and optimistic promises at the global level towards national targets⁴⁸ on emission reduction and energy transition which is by all standards illusionary and shall never materialise49 towards the global mission on climate change mitigation which in essence is inimical to the global effort than not making promises at all in the first place.

⁴² Phillip Dane Warren, Forced Migration After Paris COP 21: Evaluating the 'Climate Change Displacement Coordination Facility', 116(8) COLUMBIA LAW REVIEW 2103 (2016).

⁴³ David Ropeik, David, *Clean Energy Mind Games*, 33(4) ISSUES IN SCIENCE AND TECHNOLOGY 59 (2017).

⁴⁴ Id.

⁴⁵ Höhne, et al., *supra* note 8.

⁴⁶ Myers, et. al., *supra* note 2.

⁴⁷ Simon Skillings & Nick Smailes, The Clean Energy Transition and Industrial Strategy: Developing a Coherent Approach (E3G, 2017).

⁴⁸ Höhne, et al., *supra* note 8.

⁴⁹ Elise Remling, Elise & Amar Causevic, *Climate-Related Security Risks in the 2020 Updated Nationally Determined Contributions*, SIPRI INSIGHTS ON PEACE AND SECURITY NO. 2021/1 (2021).

This narrative has been pervasive in the psyche of the global citizen and the nuclear reactor disasters of the past in the form of the Three Mile Nuclear disaster, Chernobyl Nuclear Disaster⁵⁰ and the Fukushima Nuclear Disaster have severely hampered the public's trust on the Nuclear Reactors and the general Nuclear Energy Generation Technology unsurprisingly. While this is in response to fundamental myths which have found their way to the mainstream discussion around nuclear energy it must not be let to steer and lead the discussion away from the climate mandates we have been served with. This skittish behaviour when it comes to nuclear energy ought to be attributed in large part to the culture cognition⁵¹ of the popular public and even the self-proclaimed intellectuals amongst the public are also seldom immune from the impacts of culture cognition while losing sight of the logical and rational argument making decisions based off these debased assumptions.⁵²

THE DAMNED NUCLEAR POWER

The everlasting fear of the devastating effects of nuclear weapons and the ensuing ill-effects it brought down on those sinful souls who were exposed to the wrath of Oppenheimer's invention in Hiroshima and Nagasaki is haunting the living to this day. Culture cognition⁵³ in being able to see and understand cognitively energy generation from coal and fossil fuel while the same is not possible in the case of nuclear power the workings of which for a larger section of the public is still treated as esoteric knowledge and unlike other existent sources of energy generation which only furthers this public perception of 'bad' nuclear energy.⁵⁴ While it might be important to account for the potential ill-effects of nuclear exposure which does warrant a higher threshold for⁵⁵ safety guidelines and precautions but it would be a shame to put in the ground the most prospective sustainable alternative to the carbon-intensive fossil fuel-based energy the production of which accounts for the release of over 90% of the CO₂ in the

⁵⁰ Ropeik, *supra* note 43.

⁵¹ Id.

⁵² Jay Lehr, Nuclear Energy: Past, Present and Future, 21(2) ENERGY & ENVIRONMENT 97 (2010).

⁵³ Ropeik, supra note 43.

⁵⁴ Daniel J. Levi & Elaine E. Holder, *Psychological Factors in the Nuclear Power Controversy*, 9(3) POLITICAL PSYCHOLOGY 445 (1988).

⁵⁵ Ropeik, supra note 43.

atmosphere today. There is a dire need for public perception management through consumer-citizen engagement⁵⁶ and education based on the sciences and not visceral demagoguery. It shall run corollary that managing public perception and enabling the public⁵⁷ to make educated and in essence rational decisions will go a long way at all levels of the energy transition as we shall see in the latter part of this article.

The public perception management shall also include debunking myths surrounding nuclear power58 with exaggerated figures of deaths from exposure and otherwise in the case of Fukushima and Chernobyl.⁵⁹ In fact, there are reports which suggest that the most recent and devastatingly portrayed Fukushima Nuclear disaster had not caused the death of not one worker or civilian. Even the disaster-related deaths saw only a marginal increase in the death rate and were considered by most researchers to be negligible.⁶⁰ While it is true that the effect on human life was kept to a minimum the environmental impacts are certainly farreaching and shall clearly sanction stringent safety measures and signal an imminent need to upgrade the technology involved in the current nuclear reactor models which as discussed are over 70 years old.⁶¹ Furthermore, other mythbusting would include setting the record straight on nuclear waste recycling methods and nuclear waste storage62 which receives too much more negative attention than it deserves. The Earth's crust is filled with nuclear material63 providing us a nearly unlimited supply of clean energy which if extracted responsibly shall benefit mankind for the foreseeable future.

⁵⁶ Andrea Prothero, et al., *Sustainable Consumption: Opportunities for Consumer Research and Public Policy*, 30(1) JOURNAL OF PUBLIC POLICY & MARKETING 31 (2011).

⁵⁷ Id.

⁵⁸ H.-Holger Rogner, *Nuclear Power and Sustainable Development*, 64(1) JOURNAL OF INTERNATIONAL AFFAIRS 137 (2010).

⁵⁹ Ropeik, *supra* note 43.

⁶⁰ Id.

⁶¹ Lehr, supra note 52.

⁶² K. R. Rao, *Radioactive Waste: The Problem and Its Management*, 81(2) CURRENT SCIENCE 1534 (2001); Jie Liu & and Fangxin Wei, *Waste Management Strategy for the Nuclear Energy Cycle: Evidence from Coastal Nuclear Power Plants*, 94(spl) JOURNAL OF COASTAL RESEARCH 73 (2019).

⁶³ *Supply of Uranium*, WORLD NUCLEAR ASSOCIATION, https://world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/supply-of-uranium.aspx (last updated May 2023).

Technology lock-in⁶⁴ in the nuclear energy industry has also regrettably only made realistic the speculations of anti-nuclear demagogues since what we have now are au fond outdated reactors⁶⁵ which need to be reassessed for their operational safety⁶⁶ and retrofitted with modern techniques and safeguards to ensure that the chances of disasters/meltdowns are kept at a minimum.

The predicted energy demand⁶⁷ and the climate mandate while accounting for the public bias and discriminatory reaction towards nuclear energy also added with the decreasing trend of investment in renewable energy research and development shall make the future look more and more uncertain and Orwellian with little to no hope of getting back on the bandwagon that is global Climate governance. The Governments have to through policy measures ensure that nuclear energy also gets to contribute towards the pie that is total energy demand as a result of which we end up with increased private participation into nuclear fission reactor design⁶⁸ research and nuclear fusion⁶⁹ tokamak research which will further guarantee proactive safeguards against adverse conditions and situations.

INCLUSIVE CLEAN ENERGY

The fundamental distinction and the point of diversion between the present and the earlier energy transitions across human history⁷⁰ is that the previous ones were market driven and the present one is driven by the state.⁷¹ The unique difficulty with this being a state-driven energy transition is that a larger chunk of the bill with regard to the investment into sustainable energy research and development or commercialisation of the technologies that have already proven their competitive marketability and sustainable or in fact incentivising increased

⁶⁴ Sivaram, *supra* note 27.

⁶⁵ Id.

⁶⁶ Peter Van Ness, et al., *Lessons of Fukushima: Nine Reasons Why, in* LEARNING FROM FUKUSHIMA: NUCLEAR POWER IN EAST ASIA 349 (Peter Van Ness & Mel Gurtov, eds., 2017). ⁶⁷ *Id.*

⁶⁸ Karl Grandin, et al., Nuclear Energy, 39 AMBIO 26 (2010).

⁶⁹ Id.

⁷⁰ Levi & Holder, *supra* note 54; *See also* Ben Gales, et al., *North versus South: Energy Transition and Energy Intensity in Europe over 200 Years*, 11(2) EUROPEAN REVIEW OF ECONOMIC HISTORY 219 (2007).

⁷¹ Yanosek, *supra* note 1.

research or participation in the renewable and clean energy sector⁷² has to be footed by the state exchequer which is simply impractical considering the idiosyncratic nature of the situation that the states around the globe shall be facing.⁷³ This is often referred to as carbon entanglement⁷⁴ which shall pose a marked and unyielding challenge in climate and renewable energy financing considering that the state shall lose almost all or shall face a considerable fall in revenue borne from taxing fossil fuels.⁷⁵ The role played by private players and non-state actors shall also as already discussed make considerable contributions to the project and ensure that the requisite capital⁷⁶ is infused at multiple levels of the Energy transition endeavour and at multiple nodes (nations) since at the end of the day it is a global reduction in emission levels that will engender into the preservation of our fragile environment.

As already seen the inherent discrimination in the public perception of clean energy shall be adroitly addressed which ought to be followed by a review of the market history in similar circumstances. The market at times behaves like a living creature and this creature often prefers to build institutional mechanisms and associated financial access around established and recognised (safe and proven) technologies which has par for the course and proven to be very helpful in ensuring affordable and efficient access to products based on market favoured technologies. But the problem with this is the effect that this creates, which is one of the natures of technology lock-in.77 Technology lock-in happens when a particular technology has proven itself successful in the market following which the market institutions will create mechanisms that enable maximum marketability and commercialisation of the particular technology and this as a consequence creates a crowding out effect owing to the fact that this technology now holds considerable market share and has come to influence the market behaviour and in turn decide direction of progression of the market and investment. This poses a considerable risk to technologies and processes which have the potential to dethrone the technology that has locked in since access to market or even

⁷² Van Ness, et al. *supra* note 66.

⁷³ Laveesh Bhandari & Aasheerwad Dwivedi, *India's Energy and Fiscal Transition* (CSEP Working Paper No. 27, Sept. 2022).

⁷⁴ Nick Mabey, et al., *Key Political Economy and Entanglement Issues of the Low-Carbon Transition in G20 Countries* (Input paper for the OECD Report E3G, 2017).

⁷⁵ Bhandari, et al., *supra* note 73.

⁷⁶ Yanosek, *supra* note 1.

⁷⁷ Sivaram, *supra* note 27.

investments in research and development of these sustainable technologies shall be deterred by the locked-in technology and considered to be undesirable by the different free market players. This is born from the logical conundrum⁷⁸ that the very existence of this new technology be it cleaner, greener, or more sustainable is a very threat to the existing energy market since a particular technology has locked-in and holds a larger chunk of the market.

This as multiple researchers suggest has to be avoided since this shall lead to considerable loss of technology and a fall in the rate of adaptation and mitigation to climate change. This can be seen in the case of nuclear energy the world over and biofuels79 in the U.S.A especially. Technology lock-in is not a market phenomenon in a vacuum and public policy is often unless specifically corrected to check for such lock-in has proven to facilitate technology lock-in which crowds out investments into new and sustainable energy domains. It must be noted that the public policy referred here although put in place with the intention to facilitate renewable energy investment and commercialisation the effect that this has supposedly created is the exploitation of these incentives⁸⁰ by First generation renewable energy technologies at the expense of new and upcoming second or further generations of renewable and clean energy. This first generation energy being incentivised with the intention that this shall promote further investment in similar technologies while relieving the financial stress on the private sector players involved is seldom materialised since this technology has proven itself and the market is more interested in commercialising this than making this technology more efficient or looking of investments opportunities in similar renewable and sustainable energy projects which shall prove to be a competition to the existing first-gen technology and simply more a gamble than an extravagant investment.

Therefore, it is necessary that while making public policy it is indispensable to account for such technology lock-in within the different renewable energy sectors like Solar, Wind, Hydroelectric, geothermal, nuclear, biofuel, and other technologies like nuclear fusion⁸¹ which are still at the stage of

⁷⁸ Id.

⁷⁹ Id.

⁸⁰ Yanosek, *supra* note 1.

⁸¹ Grandin, et al., *supra* note 68.

research and show incredible prospects.⁸² This will ensure that the mitigation and adaptation efforts will grow at a steady pace to ensure greater coordination and shared global welfare. This will further ensure that the impugned clean and sustainable energy shall be inclusive and affordable to the consumer which shall further ensure a productive, competitive, and a sustainable market culture with healthy supply side and demand side variables.⁸³ Such a clean energy policy will facilitate equally all the different players in the renewable energy sector to facilitate maximum welfare, economic and human development all while conserving the fragile environment.

SUSTAINABLE ENERGY TRANSITION WITH CONSUMER AT THE CENTRE

No amount of fiscal stimulus or incentivising the supply side of the renewable energy market will work as long as the demand side issues are fixed first. The nature of the issues on the supply side and demand side are two very different battles. The most notable supply-side challenges include ensuring that considerable investment into renewable energy technology research, development, and commercialisation is done in a fair and equitable manner so as to check technology lock-in or any other regression in the standards of production or fall in the sustainability of the technology used for energy generation.⁸⁴ But to a larger extent, the supply side challenge shall be capital intensive while sustaining market interest and investment in the existing and upcoming renewable and sustainable technologies towards energy generation.

The nature of the challenge on the demand side is primarily one of awareness generation or rather to be crass one of myth-busting. There are fundamental and rudimentary issues that the government and the state machinery cannot begin addressing with the public perception being so very far from reality. This would be the public policy equivalent of fighting a two-front war one on the market side encouraging private players to invest and bring to the shelf products which are sustainable and at the same time convincing the public to actively choose sustainable and green products over other conventional goods. The

⁸² Sivaram, supra note 27.

⁸³ Yanosek, Kassia. supra note 1.

⁸⁴ Yanosek, supra note 1.

kerfuffle with this approach is that this shall be unrewarding if done simultaneously since the ratio of incidence to impact of the public policy on the supply and demand side are not the same. It could be said that the difference in ratios is so very profound that the rate at which public policy influences supplyside behaviour is much higher than the rate at which the demand-side behaviour is influenced to the point at which it is reflected in the actualisation of sustainable consumption patterns and practices. The distinctive feature of this is that the very nature of the demand side awareness generation is as already discussed one of culture cognition⁸⁵ and a general lack of instruments that diffuse climate accountability from the state and the producer to the individual consumer which is again a failure of public policy to enable the consumer in making educated consumption choices. This demand side - consumer education and awareness generation are slow processes and therefore the demand side reforms and policy actions must be already be put in place before we start with supply-side policy reforms which can in theory happen overnight but for the sluggish process that is research and development which unambiguously can take decades to yield any marketable technology/process.

This layered approach becomes even more warranted when we look at what happens if we follow any other approach to answering the dialectical demand-supply reform quandary. The lack of awareness and climate conscious consumption on the part of the consumer will fail to create any demand for the commercialised renewable/sustainable energy product which in due course of time will impact the willingness of the producer/companies producing and investing in commercialising the renewable energy technology to keep producing a particular good which does not have a market demand or rather the prices of the new market sustainable goods will rise over time due to insufficient demand which will further impact the already existing low market demand for these alternate clean products. The inference here is that the supply-side reforms would be a nonstarter unless the consumers are ready and willing to accept the goods, a contemporary parallel could be drawn from the pandemic wherein the governments were pooling in resources to invent a cure and vaccine for the novel coronavirus (Covid-19) while a considerable portion of the western hemisphere and in the later part even the developing world was growing hesitant of the vaccine for corona. This created a catch-22 situation where the governments were

⁸⁵ Ropeik, supra note 43.

investing more and more in increasing the efficacy and efficiency of the initial variants of the vaccine which to no avail had the citizens taking to the streets protesting against the vaccines. Therefore, to avoid a similar occurrence in the energy sector, increased consumer awareness of sustainable development and sustainable energy generation with additional education on sustainable consumption is necessary.⁸⁶

The demand side measures shall also be complemented with investment in Electric vehicles, batteries/Energy storage devices, and grid optimisation to ensure efficient energy transmission all of which require increased investment and research. Furthermore, a comprehensive energy transition plan shall also ensure that the consumer faces no inconvenience while using the sustainable option by installing necessary infrastructure in the form of charging stations and ensuring the availability of skilled workmen which will all come full circle to ensure a seamless transition motivating the consumers to choose sustainable and clean products over polluting and 'dirty' options available in the market. Such consumerfirst layered public policy is necessary towards the global mitigation effort and further sets the stage for climate adaptation-oriented research, development, and investment.

TALKING TO THE CONSUMER-CITIZEN

The role played by the consumer in our current meander of a climate policy could be significant in that it could help reprioritise the climate efforts and give it the impetus that it requires to cross the line or keep 'it' (global average temperature) from not crossing the line. Sustainable consumption and production are considered to be a large part of the sustainable development effort since, the leitmotiv of sustainable development is that it has seemingly multifarious goals in 17 different forms for example, SDG-1⁸⁷ (No Poverty) and SDG-7⁸⁸ (Affordable and Clean Energy) whereas it would be a simpler mandate to ensure sustainable consumption and production. Research in the form of consumer behaviour

⁸⁶ Mee Young Choi & Robert J. Didham, *Pathways for Promoting Sustainable Consumption: How Governments Can Initiate Effective Education for Sustainable Consumption, in Institute of Global Environmental Strategies, Sustainable Consumption and Production in the Asia-Pacific Region: Effective Responses in a Resource Constrained World* 47 (IGES White Paper III, 2010).

⁸⁷ UNITED NATIONS, SUSTAINABLE DEVELOPMENT GOALS REPORT 2022, at 26 (2022).
⁸⁸ Id., at 40.

studies, citizen science, and consumption pattern studies have been around for some time now but little has been taken cognizance of by policymakers and operationalised. The importance of consumer awareness creation and consumer education as was stressed in the previous chapter is an uphill battle much like every other battle in this war on climate change and has to be fought in a consistent and coordinated manner with the global picture in mind.

THE MIDDLE-CLASS CRISIS

It is known that the developed world has associated good life with increased consumption⁸⁹ which is inherently unsustainable and the trend these days is that through institutions of soft power like television, films, and movies this view has also taken mainstay in the psyche of the middle class⁹⁰ in the developing world which includes both India and China the two most populous country with a 'sea of middle class' who have all come to associate good life with increased material consumption of resources. It is worth noting that this is purely an issue of perception management and it ought to be regarded as a matter of utmost import since the association of good life with increased consumption by this ever-growing population with enough purchasing power to make a difference in our global climate action shall deepen the chasm that is the climate mandate. Therefore, the following are some suggestions from different fields which involve multiple stakeholders and are all targeted toward an overhaul and reconstruction of a rather sustainable and environmentally responsible consumer perception while making consumption choices.

While it is true that economic and policy incentives go a long way in ensuring that consumers make educated choices, it is largely short-lived⁹¹ and consumer education on sustainable and responsible consumption helps counter culture cognition over time, nevertheless, research in this field has been sluggish but very rewarding. These techniques ought to be employed towards maximising the climate objectives through consumer perception management.

⁸⁹ Peter King, We Are What We Consume: Sustainable Consumption in a Resource Constrained World, in Institute of Global Environmental Strategies, Sustainable Consumption and Production in the Asia-Pacific Region: Effective Responses in a Resource Constrained World 1 (IGES White Paper III, 2010). ⁹⁰ Id.

⁹¹ Choi & Didham, supra note 88, at 50.

CLIMATE AS A COMMON POOL RESOURCE

It must be noted that climate⁹² can be referred to as a common pool resource⁹³ and in that regard, it shall be largely rewarding to study the existing arrangements and mechanisms in place around the globe where throughout history localised institutional⁹⁴ and inter-generational social regulation of appropriation from a common pool resource has been done for generations without affecting the ability of the resource to replenish and ameliorate itself or without depleting the resource⁹⁵ to the point of no return. This study shall help draw parallels between various resources with climate and help adapt new sustainable practices and further help understand how the people involved in accessing the resource do not act in a matter that is egregious or rapacious. This shall further help educate public policymakers to understand these local methods⁹⁶ and implement them at a national scale or enable new approaches towards instilling sustainable and responsible consumption practices in the populace.

DEPLOYING A SOCIAL MEDIA PANACEA

The media outlets of today and other players involved in reporting of stories or incidents including policy narratives can also play an important role in combating the predatory consumption practices of today. It is proven that media and more importantly social media can change the scale of any conversation and take it to millions if not billions the message that one hopes to spread. The importance of reporting while employing specific frames⁹⁷ to instil amidst the public special messages touching important topics like climate conservation and sustainable consumption will create a remarkable impact on the citizen thereby increasing awareness in the target domain. Frames are proven to draw attention to the

⁹² Gary Brase & Larry E. Erickson, Reducing Greenhouse Gas Emissions, and Improving Air Quality: Two Interrelated Global Challenges 135-150 (2019).

⁹³ ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (1990).

⁹⁴ Elinor Ostrom, Collective Action and the Evolution of Social Norms, 14(3) JOURNAL OF ECONOMIC PERSPECTIVES 137 (2000); Christiaan Boonen, et. al., Governing as Commons or as Global Public Goods: Two Tales of Poner, 13(1) INTERNATIONAL JOURNAL OF THE COMMONS 553 (2019).
⁹⁵ Ostrom & Elinor, supra note 95.

⁹⁶ Michael D. McGinnis & Elinor Ostrom, *Social-Ecological System Framework: Initial Changes and Continuing Challenges*, 19(2) ECOLOGY AND SOCIETY (2014).

⁹⁷ Michael D. Jones & Geoboo Song, *Making Sense of Climate Change: How Story Frames Shape Cognition*, 35(4) POLITICAL PSYCHOLOGY 447 (2014).

multiple dimensions within a narrative or message and this helps people to cognitively organise⁹⁸ and sort information from a message with structure and this caters to the masses and help form opinions on matters of great implication. This method of subliminal messaging can be employed while reporting to take to the consumer frames possessing dimensions which signify the imminence of climate change and the need to take sustainable and responsible choices.

The importance of social media has been time and again mentioned in the recent past and it has also started to play a seminal role in citizen science⁹⁹ and studies whereby it helps to both collect data on consumer-citizen behaviour¹⁰⁰ at a ginormous scale and take to the citizen, scientific proof and data possessing important information on climate conservation¹⁰¹ which then helps educate him on the happenings of the day and thereby be a responsible consumer-citizen. Furthermore, through the data collected from the citizen, it helps inform policymakers¹⁰² on methods of addressing existing social issues or social challenges to multi-sectoral issues.

THE IMMORTALITY PROJECT

The recruitment of psychology and the study of consumer behaviour could also be fundamental in this attempt at consumer perception management. The employment of the 'immortality projects'¹⁰³ opined by Ernest Becker in his works towards giving man (consumer) a hero system in which he will strive ever so harder to achieve the coveted idea of immortality in his escape from the mortality that his body suffers from. Such a hero system could be one that preaches and brings about increased environmental conservation and climate sensitisation while also ensuring that the consumer-citizen's perception of his life is also greatly benefitted.

⁹⁸ Id.

⁹⁹ Hiromi Kobori, et al., Citizen Science: A New Approach to Advance Ecology, Education, and Conservation, 31 ECOLOGICAL RESEARCH 1 (2016).

¹⁰⁰ Prothero, et al., *supra* note 56.

¹⁰¹ Roger P. Owen & Alison J. Parker, *Citizen Science in Environmental Protection Agencies, in* CITIZEN SCIENCE: INNOVATION IN OPEN SCIENCE, SOCIETY AND POLICY 284 (Susanne Hecker, et al., eds., 2018).

 ¹⁰² Heidi L. Ballard, et al., Conservation Outcomes of Citizen Science, in CITIZEN SCIENCE: INNOVATION IN OPEN SCIENCE, SOCIETY AND POLICY 254 (Susanne Hecker, et al., eds., 2018).
 ¹⁰³ Janis L. Dickinson, The People Paradox: Self-Esteem Striving, Immortality Ideologies, and Human Response to Climate Change, 14(1) ECOLOGY AND SOCIETY 34 (2009); James Hardie-Bick, Transcendence, Symbolic Immortality and Evil, 35(3) HUMAN STUDIES 415 (2012).

In order to employ such counter-measures its pivotal to understand consumer-citizen duality¹⁰⁴ and following it with a synoptic targeted policy-driven action shall motivate the consumers to also be assiduous citizens and thereby make environmentally friendly and sustainable consumption choices. Policymaking should also attempt to address and remedy the attitude-behaviour gap¹⁰⁵ when it comes to consumption patterns where the consumer although wants to be more environmentally friendly and certainly articulates her willingness nevertheless fails to act accordingly while making consumption choices. Furthermore, of wider importance is that consumption patterns¹⁰⁶ ought to be studied in full and given importance since sustainability resides not only in purchasing a good but also in the method of usage of the goods purchased, frequency and quantity of usage, and more importantly disposal or recycling of the good/ packaging after usage. The study of these patterns shall enable a better understanding of what type of consumer education shall produce maximum results towards managing consumer perception.

CONSUMER EDUCATIVE POLICY MAKING

Sustainable consumption education¹⁰⁷ shall be of the nature of formal, informal and non-formal education which shall create a new social movement of enabling sustainable consumption. Public policy must be employed to create an environment of sustainable consumption¹⁰⁸ where sustainable choices are appreciated and reinforced thereby catalysing the shift from the Dominant Social Paradigm¹⁰⁹ (DSP) of consumption to the New Environment Paradigm¹¹⁰ (NEP). Policy initiatives should incentivise conscious sustainable choice-making by the consumer at a social level thereby rewarding model citizens all the while motivating others to follow their example. Numerous researchers have proven that no amount of scientific proof of a catastrophe will excite the common man into action at least not like the direct confrontation with the ill effects of his

¹⁰⁴ Prothero, et al., *supra* note 56.

¹⁰⁵ Id.

¹⁰⁶ Stefano Pogutz & Valerio Micale, *Sustainable Consumption and Production: An Effort to Reconcile the Determinants of Environmental Impact*, 33(1) SOCIETY AND ECONOMY 29 (2011).

¹⁰⁷ Choi & Didham, *supra* note 88.

¹⁰⁸ Id.

¹⁰⁹ Prothero, et al., *supra* note 56.

¹¹⁰ Id.

unsustainable choices and the direct experience¹¹¹ with adverse climate outcomes all of which shall lead to responsible behavioural change. Therefore, packaging of products must be included to depict the impact, the consumption of the specific good has on the environment which will inform the consumer about the direct causative nature of his consumption.

These are various public policy initiatives which shall prove to be most successful in galvanising the consumer-citizen into climate conservation and sustainable energy transition thereby ensuring that we reach closer to the climate targets. Moreover, this shall further set in motion a butterfly effect like scenario whereby this new consumer behaviour might inspire what one might only speculate to have advantageous changes in the society and to our fragile environment.

CONCLUSION

The repeated target of climate action has been the industries and the regulation of the same through public policy and governmental action. This has been largely fruitful but as we have seen even if the states parties to the United Nations Framework Convention on Climate Change (UNFCCC)¹¹² are able to meet the optimistic targets they have placed for themselves (meeting which for most of them might not be in the top of their priority list) we would be unable to meet the climate mandate that is the 2 degrees rise in the global average temperature. Therefore, additional, and complementary measures in the form of voluntary consumer action instigated by public policy through consumer-citizen perception management and education on sustainable development needs are very much necessary.

As seen throughout the paper the measures which are already being put in place in the form of public policy and supply-side reforms shall yield much better results if also accounted for the silent but deadly role that consumer-citizen plays in operationalising and advancing the mitigation efforts. It has been repeatedly stressed throughout the paper the unnerving scale of the challenge that

¹¹¹ Dickinson, *supra* note 103.

¹¹² United Nations Framework Convention on Climate Change, UN General Assembly, resolution / adopted by the General Assembly, A/RES/48/189, 20 January 1994.

is energy transition and at the edifice of this momentous mission we have to adopt the co-benefits-based approach involving the end consumer thereby creating a holistic and integrated approach towards energy transition. Exploring a layered scientific energy transition public policy will certainly enable the state parties to combat the challenges that may come their way in the future in their pursuit of net zone carbon emissions.¹¹³

All these approaches, techniques, and contingencies become relevant only when the state parties start prioritising climate conservation and environmental protection over their more short-term political and economic goals. Hence, the onus is now as it always has been on the world nations to explore and adopt appropriate and more aggressive climate mitigation goals and involve the consumer-citizen towards the realisation of the same which one might even refer to as the democratisation of climate action and energy transition.

¹¹³ SKILLINGS & SMAILES, *supra* note 47.

5

CORPORATE GREENWASHING IN INDIA: ASSESSING THE SUFFICIENCY OF THE CURRENT LEGAL FRAMEWORK

-Jaibatruka Mohanta* & Anushka PS**

Abstract

Consumers shifting their preference towards environmentally sustainable alternatives has given a fresh impetus to green consumerism. However, this has also ushered in an undesirable turn of events where entities claim to be engaged in environment-friendly business practices by making false or deceptive assertions about their products whereas a deeper scrutiny would reveal a contradictory scenario. This phenomenon, called Greenwashing, is a cause for concern as far as the regulation of activities having a deleterious impact on the environment is concerned. Through this paper, the authors attempt to demonstrate that the Indian regulatory framework concerning greenwashing is fragmented and fraught with ambiguities. The authors further seek to establish that the regulatory framework needs an overhaul with the incorporation of standards and best practices from comparative jurisdictions.

Keywords: Greenwashing, Consumer Protection, Misleading Advertisements, SEBI

* Research Fellow, Centre for Environmental Law, Research and Advocacy (CEERA), National Law School of India University (NLSIU), Bengaluru.

^{**} Student, B.A. LL.B. (Hons.), National Law School of India University (NLSIU), Bengaluru.

INTRODUCTION

Since the 1990s, environmental records have influenced consumer purchases significantly, with 66% of global consumers preferring to purchase environmentally sustainable products over other unsustainable alternatives.¹ Consumer choices have tilted exceedingly towards "green" products.² This phenomenon has pursued their awareness of the rarity of Earth's resources and the detrimental impact of their actions on it.³ While this scenario can potentially operate as a bulwark of environmentalism, it has also given rise to Corporate Greenwashing- a practice characterized by deceptive marketing claims of environmental sustainability.

With corporate entities being pressurized to internalize ESG (Environmental, Sustainability and Governance) goals, they have begun to adopt strategies to *appear* sustainable by making unsubstantiated or out rightly false claims about the sustainability of their products, services or operations.⁴ They exploit consumer preferences for green products by portraying themselves as "caring environmental stewards" while their core business models remain environmentally unsustainable.⁵ Greenwashing has evolved over the decade, with companies adopting intricate and ingenious methods of deceiving their consumers.

In that light, the authors in this article will seek to achieve two objectives. First, the authors will demonstrate that the Indian Government has taken *piecemeal* steps to curb the menace of greenwashing. Second, the authors will argue that these steps remain slightly inadequate due to a *lack of definitional clarity*, allowing companies to evade protective measures by postulating vaguely accurate

¹ Bruce Watson, *The Troubling Evolution of Corporate Greenwashing*, THE GUARDIAN (Aug. 20, 2016) https://www.theguardian.com/sustainable-business/2016/aug/20/greenwashing-environmentalism-lies-companies.

² Greg Petro, *Consumers Demand Sustainable Products and Shopping Formats*, FORBES (Mar. 11, 2022) https://www.forbes.com/sites/gregpetro/2022/03/11/consumers-demand-sustainableproducts-and-shopping-formats.

³ Id.

⁴ Sarah Gibbens, *Is Your Favourite 'Green' Product as Eco-friendly as it Claims to be?*, NATIONAL GEOGRAPHIC (23 Nov. 23, 2022)

https://www.nationalgeographic.com/environment/article/what-is-greenwashing-how-tospot.

⁵ Watson, *supra* note 1.

sustainability claims. Lastly, the authors will scrutinize corporate greenwashing in the broader framework of policy implementation and will argue that there are *no concrete standards* to hold corporate entities accountable for the same.

ADJUDICATING GREENWASHING CLAIMS UNDER THE CPA

India has no specific legislation to rein in greenwashing. Instead, greenwashing complaints filed against companies are litigated under the provisions of the Consumer Protection Act of 2019 ("the CPA") dealing with **false and misleading advertisements**.⁶ The CPA, under Section 2(28) defines a "misleading advertisement" as:

"an advertisement, which — (i) falsely describes such product or service; or (ii) gives a false guarantee to, or is likely to mislead the consumers as to the nature, substance, quantity or quality of such product or service; or (iii) conveys an express or implied representation which, if made by the manufacturer or seller or service provider thereof, would constitute an unfair trade practice; or (iv) deliberately conceals important information."

Therefore, greenwashing- a misleading advertisement made by a company to disguise its failure to meet sustainability expectations- falls under Section 2(28). Further, Section 21 of the CPA allows the Central Authority to impose a fine of up to 10 lakh rupees when it is satisfied, after investigation, that the marketing claims made by an entity are misleading.⁷

Under Section 18, the CPA empowers the Central Authority to issue guidelines to protect consumers' interests. In furtherance of this, the Central Authority issued Guidelines for Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements on July 9, 2022. These guidelines are directed at outlining various definitions associated with misleading advertisements.⁸ They further concretize the existing legal framework against

⁶ The Consumer Protection Act, 2019, § 2(28)

⁷ The Consumer Protection Act, 2019, § 21

⁸ Keerthana Thangavel, CPS's Guidelines on the Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements 2022, CITIZEN CONSUMER AND CIVIC ACTION GROUP

greenwashing by imposing particular duties on corporate entities.⁹ As per Guideline 12, every advertiser has the following relevant obligations- one, an obligation to ensure that all descriptions, claims and comparisons in an advertisement which relate to matters of objectively ascertainable facts are capable of substantiation if required by the Central Authority; and two, an obligation to include the source and date of independent research or assessment in cases where claims in the advertisement are expressly stated to be based on or supported by such research or assessments.¹⁰

These two duties are pivotal to the prevention of greenwashing- they require corporate entities to *demonstrate* the *accuracy* of their sustainability claims. Purportedly scientific claims necessarily have to be backed by concrete, scientific data. Such data should be made available to both consumers and the National Authority. When companies are mandated to defend their claims with data, they are less likely to resort to greenwashing tactics to attract environmentally-sensitive consumers. Instead, they will be constrained to introduce effective alterations to their governance frameworks to make their services and functions truly "green." Any digression would culminate in the imposition of a fine under the CPA.

SEBI'S MANDATES FOR ESG REPORTING

Environmentally conscious investors have also begun to turn towards sustainable investing, making sure they fund corporate entities having established ESG-Environment, Sustainability, Governance- objectives. Termed "ESG Investing," this phenomenon involves investors assessing a company's efforts towards incorporating environmental safeguards and generally protecting the fundamental rights of affected individuals before investing in those companies. ESG investors make a broader range of investigations to determine a company's sustainabilitythese include checking if a company is involved in oil production, gambling, coal

⁽Oct. 10, 2022) https://www.cag.org.in/newsletters/public-newsense/ccpas-guidelinesprevention-misleading-advertisements-and-endorsements.

⁹ Id.

¹⁰ Central Consumer Protection Authority, The Guidelines for Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements, 2022 (Issued on June 9, 2022).

mining, excessive greenhouse emission, and so on. ESG investors rely on ESG reports released by independent third-party rating organisations.

Corporate ESG reporting in India is primarily governed by the Securities and Exchange Board of India (SEBI). In 2012, SEBI made it mandatory for the top 100 listed companies to file a Business Responsibility Report (BRR), capturing the non-financial ESG aspects of companies' governance.¹¹ SEBI expanded the BRR in 2021 by implementing the **"Business Responsibility and Sustainability Reporting" (BRSR) requirements** for the top 1000 listed corporate entities.¹² Under the BRSR regime effective from 2023, companies must outline initiatives undertaken by them from an ESG standpoint annually. These annual reports are submitted to shareholders and published on the company's webpage. Entities are mandated to disclose- (i) ESG opportunities and risks, and measures undertaken to adapt or mitigate the same; (ii) Sustainability targets, along with *data on performance* in furtherance of the same; (iii) Environment-aggravating factors like greenhouse gas emissions, resource usage and waste generation; (iv) Social disclosure including the impact of the product on the health and safety of consumers.

As demonstrated exhaustively by Prof. Sairam Bhat & Rohith Kamath in their article, these norms are directed towards increasing transparency with the government and various stakeholders.¹³ Thereby, they can reduce greenwashing by requiring corporate entities to submit data regarding the impact of their operations on the environment. Since this data is available in the public arena, cognizant consumers can accommodate it into their decision-making processes. As the ESG Head of KPMG India observed, the BRSR "will definitely help

¹¹ Securities and Exchange Board of India, *Business Responsibility Reports* (Circular No. CIR/CFD/DIL/8/2012 issued on Aug. 13, 2012), https://www.sebi.gov.in/legal/circulars/aug-2012/business-responsibility-reports_23245.html.

¹² InCorp Advisory, BRSR- A New Avatar of ESG Reporting, INCORP (Aug. 16, 2022), https://incorpadvisory.in/blog/brsr-a-new-avatar-of-esg-reporting/; Securities and Exchange Board of India, Business Responsibility and Sustainability Reporting, https://www.sebi.gov.in/sebi_data/commondocs/may-

^{2021/}Business%20responsibility%20and%20sustainability%20reporting%20by%20listed%20 entitiesAnnexure1_p.PDF (last visited Feb. 22, 2023).

¹³ Sairam Bhat & Rohith Kamath, Business, Environment and Sustainability Reporting in India- A Note on the SEBI Guideline, CEERA PUBLICATIONS (June 10, 2021), https://ceerapub.nls.ac.in/business-environment-and-sustainability-reporting-in-india-a-noteon-the-sebi-guideline/.

address greenwashing and help India attain its net-zero emission goals."¹⁴ By extending these to unlisted companies in the future, SEBI can respond adequately to investors' and consumers' greenwashing concerns. In 2022, SEBI also issued a "Consultation Paper on ESG Ratings Providers for Securities Markets" to streamline and standardise the ESG rating process with global processes. This paper proposes to allow recognised credit-rating companies to provide speedy ESG rating services.¹⁵ This would make the current rating system more reliable and robust.

SEBI'S CIRCULAR ON GREEN FINANCING

To assuage greenwashing in the bond market, SEBI has introduced an amendment to the SEBI (Issue and Listing of Non-Convertible Securities) Regulations to widen the definitional ambit of "Green debt securities." Termed the "**Dos and Don'ts relating to Debt Securities to Avoid Occurrences of Greenwashing**," these principles aim to align bond financing in India with the IOSCO-recognised ICMA Green Bond Principles by preventing greenwashing of bonds.¹⁶

Green bonds are financial instruments where the proceeds will be used to finance a Green (environment/sustainability-directed) project. To prevent instances where corporate entities raise money through green bonds by guising their projects as green projects, the Guidelines require the entities "not to use misleading labels, cherry-pick data from research or hide trade-offs."¹⁷ As a result, investors keen to engage in "sustainable financing" will be made aware of the environmental impacts of their investments.

¹⁴ India's New ESG Rules to Address Corporate Greenwashing, BLOOMBERG NEWS (Sept. 26, 2022), https://www.bloomberg.com/professional/blog/indias-new-esg-rules-to-address-corporate-green-washing/.

¹⁵ Securities and Exchange Board of India, *Environmental, Social and Governance (ESG)* Rating *Providers for Securities Markets* (Consultation Paper, Jan. 24, 2022), https://www.sebi.gov.in/reports-and-statistics/reports/jan-2022/consultation-paper-onenvironmental-social-and-governance-esg-rating-providers-for-securitiesmarkets_55516.html.

¹⁶ Securities and Exchange Board of India, Dos and Don'ts Relating to Green Debt Securities to Avoid Occurrences of Greenwashing, (Circular No. SEBI/HO/DDHS/DDHS-RACPOD1/P/CIR/2023/020 issued on Feb. 03. 2023), https://www.sebi.gov.in/legal/circulars/feb-2023/dos-and-don-ts-relating-to-green-debtsecurities-to-avoid-occurrences-of-greenwashing_67828.html. 17 Id.

LACK OF DEFINITIONAL CLARITY

As outlined above, India has promulgated several legislations and regulations to abate concerns about greenwashing. However, companies have adopted novel forms of greenwashing where they make only "vague" and "general" claims of sustainability. For instance, a product could be labelled- "50% more environment-friendly than before." In reality, the biodegradable content has been increased from 2% to 3%. This label gives the façade of the product being substantially greener while not being so in reality. Yet, the claim remains *true*, thereby exempting the entity from prosecution. Since these regulations do not define precisely what constitutes a "green" product or service, companies can circumvent them by adhering *minimally* to sustainability goals.

Such vague advertisements do not describe the product falsely. They cannot even be said to mislead consumers as to the quality of the product since they are couched in clear language. Further, companies can easily substantiate their claims through relevant data without their being challenged as inaccurate by the Central Authority. Therefore, such instances cannot be litigated under the CPA or its attendant rules. Similar problems arise with green bonds- if the project sought to be financed is minimally green, SEBI's green bond guidelines can be evaded.

Nevertheless, the increased data-collection mandates imposed by the BRSR can reduce greenwashing by improving corporate governance. By providing ESG ratings for the company as a whole, based on their adherence to business responsibilities, the data-collections rules retain the ability to eliminate greenwashing *institutionally*, as against focusing on individual products and services. Ultimately, greenwashing is a matter of ethics, reflecting the purported social responsibilities of corporate entities. At its core, greenwashing depends upon the policies adopted by the Board of Directors and measures undertaken by key managerial personnel. It depends upon the values espoused by the company as a whole. Therefore, optimising the governance of the company would play a pivotal role in curbing greenwashing.

CONCLUSION

To ensure a level playing field for businesses marketing their greenness and to reinforce consumer trust in products that are genuinely "green," there is a pertinent need to combat greenwashing. India has resorted to "data-collection" methods directed at improving corporate governance to combat greenwashing. Yet, some legislations in this regard lack definitional clarity, allowing corporate entities to circumvent their application.

To resolve these problems, it might be expedient for India to subsume policies from the United States Federal Trade Commission, the European Union's Greenwashing Directives, etc. These would make the Indian framework more comprehensive and robust. It would also ensure clarity, thereby assisting us in avoiding frivolous litigation. Attempts at curtailing greenwashing can be fructified only through collaborative initiatives involving the Government and concerned stakeholders. Increasing the awareness of people is also a relevant step in this direction. It is also pertinent to note that greenwashing, as a principle or doctrine, defies definition by its very nature. Therefore, education and awareness play important roles in this regard.

Many Indian companies use greenwashing as a marketing strategy to capitalize on the growing interest in sustainability among consumers. However, the lack of regulation and monitoring in the country allows companies to make unverified or misleading claims without facing any consequences. One example of greenwashing in the Indian context is the use of terms like "organic" or "natural" on food and cosmetic products. In many cases, these claims are not backed up by any certification or standard, and the products may still contain harmful chemicals or ingredients. Another example is the use of vague terms like "eco-friendly" or "sustainable" on products that have only minor environmental benefits. This creates confusion among consumers who may believe they are making a more significant impact on the environment than they actually are.

Lastly, greenwashing is a significant problem in the Indian context, and consumers should be wary of claims made by companies about their environmental credentials. There is a need for stricter regulations and monitoring to prevent companies from misleading consumers and undermining their efforts towards sustainability.

6

CLIMATE CHANGE LITIGATION: AN OVERVIEW

-Soumya Bhattar*

Abstract

The issue of climate change is one that is recognized on a global scale and is being discussed outside of political boundaries. The number and variety of cases involving climate change issues in various national and international jurisdictions have been on the rise. It has an effect on every living thing on the earth. Ironically, the worst of it is suffered by those who have contributed the least towards the situation. In recent years, the topic of climate change has been brought up in legal proceedings an increasing number of times. This is due to the fact that the implications of a warming climate system have become increasingly apparent, and countries all over the globe are striving to adopt measures of adaptation and mitigation. However, although defining what qualifies a lawsuit is a relatively simple process, the process of determining what forms a lawsuit about climate change is more complex. The reason for this is that global warming is caused by the combined impact of countless actions carried out by individuals, businesses, and industries, which have been done by humans.

Keywords: Climate Change, Climate Change Issues, Climate Change Litigation, Environmental Litigation

INTRODUCTION

The significance of climate change litigation is growing as a way to speed up or delay carrying out effective climate change mitigation strategies.¹ The phrase

^{*} Student, B.L.S. LL.B., Pravin Gandhi College of Law, Mumbai University.

¹ James Whitaker LGB, The Grantham Research Institute on Climate Change and the Environment Publishes Its 2022 Global Trends in Climate Litigation Report, EYE ON ESG (July 2022),

"climate change litigation" encompasses a wide array of lawsuits dealing with climate change that is presently being heard in courts, as well as regulatory agencies, and is characterized by its diversity and heterogeneity.² The number of legal challenges to the climate change impacts has been growing on a global scale. The number of lawsuits globally related to climate change has risen from approximately 1,890 in February 2022 to 2,419 by September 2022.³ Furthermore, lawsuits have been brought on defendants in a broader range of high-emitting as well as resource-intensive industries. The rise in the number of climate change litigation is a consequence of developments in both society's evolving awareness of the critical nature of confronting climate change and the modifications that have been made to the legal system.⁴ Leaders from all member states accepted a resolution from the Intergovernmental Panel on Climate Change Working Group III in 2022, which recognized the impact that litigation has on shaping the overall result and level of ambition of climate action.⁵ To this day, people all over the world whose lives have been impacted by climate change continue to seek justice in court in the hopes of getting fair compensation. The United States has been a hotspot for such lawsuits.6

Over the course of the past decade, the number of climate claims that have been made in Europe, the Pacific, and Asia has considerably increased. The Indian court, in its role as a watchdog, is always working to improve the environmental laws and legislation of the country by broadening the scope of

https://www.eyeonesg.com/2022/07/the-grantham-research-institute-on-climate-change-and-the-environment-publishes-its-2022-global-trends-in-climate-litigation-report/.

² Kleoniki Pouikli, *Editorial: A Short history of the Climate Change Litigation Boom Across Europe*, 22 ERA FORUM 569–586 (2021).

³ Elisa de Wit, *Climate Change Litigation Update*, NORTON ROSE FULBRIGHT (Feb. 2022), https://www.nortonrosefulbright.com/en/knowledge/publications/901a1a41/climate-change-litigation-update.

⁴ Nigel Brook, Zaneta Sedilekova & Wynne Lawrence, *Insight on the Global Trends in Climate Change Litigation: 2022 Snapshot*, CLYDE & CO (July 1, 2022), https://www.clydeco.com/en/insights/2022/07/insight-on-the-global-trends-in-climate-change-lit.

⁵ Joana Setzer & Catherine Higham, *Global Trends in Climate Change Litigation: 2022 Snapshot*, GRANTHAM RESEARCH INSTITUTE (June 30, 2022), https://www.lse.ac.uk/granthaminstitute/publication/global-trends-in-climate-changelitigation-2022.

⁶ Arindam Basu & Sharda Mandal, *Litigating for Future: Climate Change Litigation*, 4 KAMKUS LAW JOURNAL 130–147 (2020).

environmental rights.⁷ So far, climate change lawsuits have been on the rise, with cases filed in over 25 different nations. The litigation trend in the first half of 2020 is somewhat slanted towards a rights-based perspective.⁸

TYPES OF CLIMATE LITIGATION

The phrase "climate litigation" is used to define various legal actions and processes associated with climate change and its consequences. Recently, there has been a significant rise in the number of environment-related incidents worldwide, which has led to a significant rise in climate lawsuits. The number of climate litigation cases filed between 1986 and 2014 exceeded 800, however, since 2015 alone, more than 1,000 cases have been filed.⁹ The growing number, complexity, and diverse legal grounds of these cases have made it challenging to classify them.

LAWSUIT AGAINST THE GOVERNMENT

There is an increasing trend of using litigation as a strategic tool worldwide, particularly in relation to emission reduction goals and the Paris Agreement. Such "strategic" litigation aims to bring about broader societal changes, raise public awareness, or influence the actions of authorities and industry actors.¹⁰ This type of litigation includes claims to compel government organizations or agencies to publish regulations or policies that limit greenhouse gas emissions, as well as challenges to laws and policies designed to reduce emissions or address climate change.¹¹ Lawsuits that pertain to the assessment of environmental impacts and permits required for land use and planning are also part of the climate cases. Overall, this type of litigation is focused on both procedural and substantive requirements related to climate change and its impact on the environment.

⁷ Id.

⁸ Id.

⁹ Pouikli, *supra* note 2.

¹⁰ Joana Setzer & Rebecca Byrnes, *Global Trends in Climate Change Litigation: 2020 Snapshot*, GRANTHAM RESEARCH INSTITUTE (July 3, 2020), https://www.lse.ac.uk/granthaminstitute/publication/global-trends-in-climate-changelitigation-2020-snapshot.

¹¹ Meredith Wilensky, *Climate Change in the Courts: An Assessment of Non-US Climate Litigation*, 26 DUKE ENVIRONMENTAL LAW & POLICY FORUM 131–179 (2015).

(i) Environmental Lawsuits

In 2018, the government of Tamil Nadu ordered the irreversible shutdown of the *Sterlite Copper Plant*,¹² which had been accused of violating environmental norms and causing pollution. However, the ruling was reversed by the National Green Tribunal, allowing the facility to reopen.¹³ This ruling was contested before the Apex Court, which directed the NGT to re-examine the case. In August 2020, the NGT upheld its earlier decision and allowed the plant to reopen, but the Supreme Court later stayed the NGT's order.¹⁴

Two congressmen petitioned the Federal Supreme Court to examine political-administrative infractions leading to high crimes and misdemeanors against former Brazilian Environment Minister Ricardo Salles in 2019.15 The claimants claim that the defendant's public management as Ministry head violated officeholders' probity and decency. They accuse the Brazilian government of violating international climate change agreements, including the Paris Accord. They say the defendant's ministry policy hasn't helped Brazil meet its greenhouse gas reduction goals (GHGs). They demonstrated a lack of dedication to stopping the Amazon Rainforest's destruction. They also claimed that IBAMA's budget had been cut, compromising its environmental tracking and regulation. Justice Edson Fachin rejected the case because the claimants lacked standing.¹⁶ The Supreme Court of Nepal, in the case of Prakash Mani Sharma v. HMG Cabinet Secretariat,¹⁷ reached the verdict that the Nepalese government had a constitutionally mandated obligation to address the issue of automobile-related air pollution. In order to address the insufficient implementation of measures to reduce air pollution, the court has instructed the government to take necessary actions within two years to safeguard public health from emissions produced by different vehicles in the Kathmandu Valley. These measures must be implemented in order to address the insufficient implementation of measures to reduce air pollution.

¹² Sterlite Industries (I) Ltd v. Union of India, Appeal No. 22 & 23 of 2013 (SZ), decided on Aug. 08, 2013 (NGT).

¹³ Id.

¹⁴ Tamil Nadu Pollution Control Board v. Sterlite Industries (I) Ltd., Civil Appeal Nos.4763-4764 of 2013, decided on Feb. 18, 2019 (SC).

¹⁵ Fabiano Contarato v. Ricardo Salles, AG. REG., Petition No. 8351 (2019) (Brazil). ¹⁶ *Id.*

¹⁷ Prakash Mani Sharma v. HMG Cabinet Secretariat, Supreme Court of Nepal, WP No 3440/2053, decided on 11 March 2003.

(ii) Climate change Lawsuit

In the year 2017, a group of youthful environmental activists in India took the Indian government to the Supreme Court to challenge the government's inaction regarding climate change. The petition called for the creation of a national climate recovery plan and encouraged the government to implement a number of policies that would both lower the pollution of greenhouse gases and lessen the negative effects of climate change. The Supreme Court issued an order to the government requiring it to provide a response to the petition and has conducted multiple sessions on the topic. *Pandey v. India*,¹⁸ is significant because it marks the first time an Indian court has recognized, in the light of climate change, the right to a clean and healthy atmosphere as stated in Article 21 of the Constitution. This makes the case significant. Additionally, it has established a precedent for future litigation in India and has increased the pressure on the authority to take extra decisive steps in order to fight climate change.

In Association for Protection of Democratic Rights v. The State of West Bengal and Others,¹⁹ the court issued an order creating an expert group to create scientific and policy rules to regulate tree cutting for development projects. This was in reaction to a plea challenging the state government's intentions to chop down dozens of trees in hopes of constructing roads over bridges and broadening roads. The Court emphasized the significance of contemplating the impact of such initiatives on carbon sequestration and global warming, noting India's pledge to expand tree cover from 23% to 33%.²⁰ The group was given four weeks from its first gathering to complete the guidelines. In March 2019, in the case of Hanuman Laxman Aroskar v. Union of India,²¹ the Supreme Court ordered the government to review the environmental approval for an airport in Goa due to concerns that vital environmental effects were not considered during the assessment process. The court emphasized the importance of balancing environmental concerns with development goals, citing the Paris Agreement and India's Nationally Determined Contribution as key factors in India's environmental rule of law. The court also

¹⁸ Ridhima Pandey v. Union of India, Original Application No. 187/2017 (NGT).

¹⁹ Association for Protection of Democratic Rights v. The State of West Bengal, 2007 (4) CHN 842.

²⁰ Id.

²¹ Hanuman Laxman Aroskar and Ors. v. Union of India, MANU/SC/0444/2019.

noted that the impact of the airport on the nearby Western Ghats, a region known for its biodiversity, had not been properly evaluated.

The Bombay High Court, in *Smoke Affected Residents Forum v Municipal Corporation of Greater Mumbai*,²² instructed to reduce air pollution for the sake of future generations. The measures may include the elimination or conversion of specific taxi models and older three-wheelers. The aim of the ruling was to protect the right to health, enshrined in the Constitution, of the residents of Mumbai. It is argued in the case *Verein Klimaseniorinnen v. Switzerland*,²³ that the Swiss climate policy is insufficient to address climate change issue and is placing a population of senior natives in danger of adverse medical outcomes, due to future heat waves caused and aggravated by climate change. In the future, these heat surges are anticipated to be induced by climate change.

(iii) Lawsuit against decision-makers

The other type of climate lawsuit involves legal action taken against decisionmakers with the aim of overturning their authorization to issue licenses, permits, and planning authority. These cases relate to the approval of actions carried out by third parties, such as energy projects, which result in a rise in the amount of greenhouse gases released into the air. In most of these cases, legal challenges are made against licensing procedures for new projects that require significant use of fossil fuels, like airport expansions or coal mines.

In Norway, the initial climate lawsuit in the Apex Court was *People v Arctic Oil*,²⁴ which addressed the question of whether the Norwegian government's issuance of petroleum licenses violated the right to a healthy environment. This claim was ultimately dismissed, finding that constitutional environmental protection acts as a limited barrier to governmental activity, and only in specific situations. Rather than providing clear guidance on this constitutional requirement, the Court's decision appeared to align with the current political preference for continued petroleum exploitation in Norway.

²² Smoke Affected Residents Forum v. Municipal Corporation of Greater Mumbai, 2002 (4) BomCR 479.

²³ Verein Klimaseniorinnen Schweiz and Others v. Switzerland, App no 53600/20 (ECHR, Communicated Case, 17 March 2021).

²⁴ Christina Voigt, The First Climate Judgment Before the Norwegian Supreme Court: Aligning Law with Politics, 33 JOURNAL OF ENVIRONMENTAL LAW 697–710 (2021).

LAWSUIT WITHIN THE PRIVATE SECTOR

To be considered an action taken by the private sector, a case must be brought against a company or financial institution in the private sector that is to blame for contributing to climate change. In such form of litigation, the defendants are typically businesses that are engaged in the extraction, refining, and sale of fossil fuels. The plaintiffs argue that the defendants' activities directly impact the production of greenhouse gases. These kinds of litigation have a tight connection to the elements being litigated, as investors evaluate companies based on ESG criteria and try to forecast their future financial performance using those standards. The claimants in the case of Notre Affaire à Tous v. Total,25 depended on French legislation on corporate due diligence, which forces businesses to take action to preserve human rights and the environment. This legislation was used by the claimants in the case. They wanted Total to be held responsible for the dangers that were linked with its commercial operations, and they wanted the corporation to be required to align its actions with the aim of reducing climate change to 1.5 degrees Celsius. In 2020, Friends of the Earth and three individuals lodged a complaint with the Australian National Contact Point for the OECD Guidelines for Multinational Enterprises against ANZ bank,26 alleging infringement of OECD Guidelines in three areas: insufficient climate-related disclosure and due diligence, inadequate environmental policies and management, and lack of concern for consumer interests. The complaint included specific demands for ANZ to withdraw its investments in coal and other fossil fuels. Later on, the NCP issued an Initial Assessment accepting the complaint but not including the request for fossil fuel divestment.

²⁵ Notre Affaire à Tous v. France, No. 1904967, 1904968, 1904976/4-1, Paris Administrative Court (Feb. 03, 2021).

²⁶ Specific instance filed to the Australian National Contact Point under the OECD Guidelines for Multinational Enterprises by Friends of the Earth (FOE) Australia v. ANZ Bank Group Limited, CLIMATE CHANGE LITIGATION, http://climatecasechart.com/non-us-case/specificinstance-filed-to-the-australian-national-contact-point-under-the-oecd-guidelines-for-

multinational-enterprises-by-foe-australia-and-others-v-anz-bank-group-limited/ (last visited Feb 27, 2023).

ENVIRONMENT LITIGATION VS CLIMATE LITIGATION

Climate change litigation and environmental litigation are both legal actions that involve environmental issues, but they have distinct differences in their focus and goals. Environmental litigation is a more general term that refers to legal action against individuals or companies that have violated environmental laws or caused harm to the environment. This type of litigation can include cases related to pollution, toxic waste disposal, and habitat destruction, among other things. The goal of environmental litigation is to hold those responsible for environmental harm accountable and to prevent further damage. This may involve seeking damages or penalties for violations of environmental laws, seeking injunctions to stop ongoing harm, or forcing companies to clean up polluted sites. Environmental litigation is often brought by individuals or environmental organizations, and it can be prosecuted in both civil and criminal courts.

Whereas, climate change litigation is a more specific type of environmental litigation that looks at the effects of climate change caused by people. This may involve cases about the release of greenhouse gases, deforestation, as well as other activities that contribute to climate change. Climate change litigation tries to get legal solutions for the damage resulting from global warming, such as compensation for damages, injunctive relief, or policy changes that would reduce greenhouse gas emissions. It is a relatively new and rapidly developing field, reflecting the increasing urgency of addressing the climate emergency. This kind of court case can be brought by governments, individuals, and advocacy groups, among others. There have been lawsuits against fossil fuel companies for their part in causing climate change, and there have also been lawsuits to force governments to do more to reduce greenhouse gas emissions.

Climate change litigation is a subset of environmental litigation that focuses specifically on the factors that contribute to and are affected by climate change. While environmental litigation and climate change litigation both investigate the impact of human practices on the natural environment, climate change litigation is a more specialized form of environmental litigation. Both types of litigation are important tools for holding polluters accountable and protecting the environment, and they will probably keep having an important part in efforts to address the global climate crisis.

WHERE DOES INDIA STAND?

Only in the middle of the 1980s did environmental issues in India begin to receive significant attention as an issue. It is a much newer field of law and is still an extremely impulsive field even now as compared to other fields of the law that largely trace their heritage to the common law traditions. However, during the 1990s, environmental quality continued to deteriorate despite the passage of a large number of laws and regulations designed to protect it. At this point, the court stepped in and began closing the gaps in the law that had been left by the executive branch's acts or inactions. In particular, the Supreme Court of India issued numerous landmark decisions, which contributed significantly to the improvement of Indian environmental legislation. In 1980, the Indian Supreme Court declared that Article 21, which provides the right to life,²⁷ comprehends a constitutional right to a healthy environment.²⁸ India has, for a very long time, pursued a policy that demonstrates compassion for its residents and advocates on behalf of legal problems that are neglected by the government and the courts. PIL has a long tradition in the nation, with some of the most important lawsuits involving climate change occurring here.²⁹ The apex court in Subhash Kumar v. State of Bihar, 30 ruled that people have a constitutional right to clean water and air as part of their "right to life," which is guaranteed by Article 21.31

Supposedly, hardly any climate-related suit was filed with India's highest court prior to 2011.³² According to the climate litigation databases, there have been fifteen lawsuits that have been recognized as being connected to climate litigation; but, in order to do so, they have adhered to a stringent definition of

²⁷ India Const. art. 21.

²⁸ Municipal Council Ratlam v. Vardhichand, AIR 1980 SC 1622.

²⁹ Eeshan Chaturvedi, *Climate Change Litigation: Indian perspective*, 22 GERMAN LAW JOURNAL 1459–1470 (2021).

³⁰ Subhash Kumar v. State of Bihar, AIR 1991 SC 420 (1991).

³¹ Specific instance filed to the Australian National Contact Point under the OECD Guidelines for Multinational Enterprises by Friends of the Earth (FOE) Australia v. ANZ Bank Group Limited, *supra* note 22.

³² M P Ram Mohan, Els Reynaers Kini & Sriram Prasad, *India's Progressive Environmental Case Law: A Worthy Roadmap for Global*, (IIMA Working Paper No. 2022-09-01, 2022), https://iima.ac.in/sites/default/files/rnpfiles/8436975721-2022-09-01.pdf.

climate litigation.³³ Nonetheless, according to their categorization, a great number of other instances could potentially be considered climate litigation, which the database has otherwise missed.³⁴ The constitutional right to the environment has frequently been used as a foundation for climate litigation brought before Indian courts and tribunals.35 In a number of climate lawsuits, which have been brought before various tribunals and authorities in the legal system, the right to a pollutionfree or healthy environment has been used as the groundwork for appropriate measures to mitigate climate change.³⁶ Nonetheless, environmental lawsuits have had a significant impact on Indian climate change jurisprudence. In State of Himachal Pradesh v. Ganesh Wood Products,37 the Indian apex court emphasized the necessity of preserving the environment for the succeeding generations when it refused to grant permission for the opening of new factories. Although the term "climate change" was not utilized in this particular case, the court ruled against the building of a new plant to safeguard the environment. Indian context's issue is best shown by such examples. While they may not call it "climate litigation," they do advocate for the use of the law to reduce environmental pollution.

The government of India has not yet enacted comprehensive climate change legislation.³⁸ However, there are additional laws that deal with different elements of climate change, such as its causes and its effects; these laws have the potential to serve as catalysts for climate-related legal claims. These laws can be broadly categorized into three types - constitutional law, environmental law, and energy-related laws that regulate the production, consumption, and sources of energy. The Indian legal system gives its citizens the right to a healthy environment,³⁹ which contains access to clean air as well as clean water.⁴⁰

³³ Id.

³⁴ Id.

³⁵ Id.

³⁶ Id.

³⁷ State of Himachal Pradesh v. Ganesh Wood Products, (1995) 6 SCC 363.

³⁸ Shibani Ghosh, *Climate Litigation in India*, IUS COMPARATUM - GLOBAL STUDIES IN COMPARATIVE LAW 347–367 (2021).

³⁹ Lavanya Rajamani, *The Right to Environmental Protection in India: Many a Slip between the Cup and the Lip?*, 16 REVIEW OF EUROPEAN COMMUNITY & INTERNATIONAL ENVIRONMENTAL LAW 274–286 (2008).

⁴⁰ Subash Kumar v. State of Bihar, (1991) 1 SCC 598; MC Mehta v. Union of India, (1992) 3 SCC 256; Virender Gaur v. State of Haryana, (1995) 2 SCC 577.

Environmental rights have also been recognized in India,⁴¹ with the Part VI of the constitution mandating the conservation and development of the environment,⁴² and the protection of forests and wildlife.⁴³ India has implemented several environmental regulations to tackle various challenges,⁴⁴ with key legislation including the Environment (Protection) Act,⁴⁵ the Forest (Conservation) Act,⁴⁶ and the Air (Prevention and Control of Pollution) Act of 1981.⁴⁷ These laws, along with their associated guidelines and notifications, offer potential avenues for climate-related lawsuits to be pursued in Indian courts.

CHALLENGES TO CLIMATE CHANGE LITIGATION

Despite the grave danger to the environment that climate change poses, many nations have failed to implement a comprehensive national regulatory response. As a result, environmentalists are increasingly turning to the legal system to seek justice. They have initiated broad climate change lawsuits in various countries, including Australia and the United States, as well as pursuing such claims under international law. It is imperative that courts and legislators take responsibility for developing a regulation solution to the climate change issue.

Climate change litigation presents several challenges, such as the need to address difficulties related to providing evidence, tackling the cumulative and unintended impacts of climate change, and establishing a significant connection to global warming. Addressing these challenges requires careful consideration of the scientific, legal, and social implications of climate change. It is crucial to establish an effective legal framework that promotes sustainable development and protects the environment for descendants. Ultimately, a collaborative effort between legal and scientific communities, policymakers, and the public is needed to lessen the consequence of climate change and create a sustainable future.

⁴¹ Animal Welfare Board of India v. A Nagraja, (2014) 7 SCC 547; Lalit Miglani v. State of Uttarakhand, 2017 SCC OnLine Utt 392.

⁴² India Const. art. 37.

⁴³ *Id.*, art 48A.

⁴⁴ Rajamani, supra note 39.

⁴⁵ The Environment (Protection) Act, 1986.

⁴⁶ The Forest (Conservation) Act, 1980.

⁴⁷ The Air (Prevention and Control of Pollution) Act, 1981.

The major obstacle for claimants in climate change lawsuits is to show that the release of greenhouse gases into the aerosphere from a specific facility or activity will have a direct impact on a particular area or people. This is a significant challenge for this type of litigation, irrespective of the legal foundation of the claims, be it tort law, public law, or international law. This requirement of establishing factual evidence can be challenging in the aforementioned form of litigation. The impact of environmental change is not always immediate, and the specific impact of GHG emissions on a particular region or community may not be clear. This inherent difficulty in establishing facts can hinder the success of claims in climate change litigation. The challenge of showing a causal relationship between a specific action as well as damages created as a result of environmental change gets typically more challenging in the context of litigation the more stages there are in a putative causal chain.⁴⁸

Given these challenges, a concerted effort is necessary to build a robust legal framework for this litigation. This can be achieved by drawing on the expertise of scientific communities, as well as legal professionals, to develop a comprehensive understanding of the complex issues surrounding climate change. By working collaboratively, it may be possible to establish effective legal mechanisms that support sustainable development, reduce the impact of the climate crisis, and promote environmental justice.

The Indian government has created several policies and strategies regarding energy and climate change, such as the National Tariff Policy,⁴⁹ the National Electricity Plan,⁵⁰ and National Electricity Policy.⁵¹ The NITI Aayog has proposed the National Energy Policy⁵² as an expansion of the Integrated Energy Policy from 2006, which aims to provide information on the government's energy usage and supply projections and policy objectives. Furthermore, the government has implemented policies such as the National Forest Policy,⁵³ National

⁴⁸ Jacqueline Peel, *Issues in Climate Change Litigation*, 5 CARBON & CLIMATE LAW REVIEW 15–24 (2011).

⁴⁹ Tariff Policy, 2016.

⁵⁰ National Electricity Plan, 2018.

⁵¹ National Electricity Policy, 2005.

⁵² National Energy Policy, 2017.

⁵³ National Forest Policy, 1988.

Environment Policy,⁵⁴ National Wildlife Action Plan,⁵⁵ and Green Highways (Plantation & Maintenance) Policy⁵⁶ that specifically target the impacts of climate change and work towards minimizing them.

CONCLUSION AND SUGGESTIONS

Achieving environmental sustainability in today's world is an urgent and critical task that requires a rational perspective on governance and a clear understanding of the complex relationships between economic and ecological systems. This means that governments, organizations, and individuals must work together to find solutions that balance the needs of people, the environment, and the economy. However, achieving this balance is easier said than done. It requires careful planning, thoughtful decision-making, and long-term thinking. It also requires a commitment to accountability, transparency, and integrity in governance. This is where the judicial system plays a vital role. The judicial system must maintain constant vigilance over the policies and long-term ambitions of the government to ensure that they align with the goal of environmental sustainability. This involves monitoring the implementation of environmental policies and holding the government accountable for any actions that harm the environment or vulnerable communities. However, maintaining accountability within the judicial system is not always easy. Corruption and other forms of improper behavior can arise, which can undermine the integrity of the system. Therefore, it is essential for the judiciary to remain open-minded and level-headed while maintaining a strong commitment to integrity and transparency.

Climate change lawsuits in India have increased as communities become more vulnerable to the effects of climate change. It is a potential method for holding the government and companies liable for their conduct related to climate change and its consequences for vulnerable members of society. However, while legal and policy frameworks provide a strong foundation for climate action, there is a need for greater implementation and enforcement. To address this, there is a need for greater collaboration between civil society organizations, lawyers, and affected communities, as well as greater support from the government and the

⁵⁴ National Environment Policy, 2006.

⁵⁵ National Wildlife Action Plan, 2017.

⁵⁶ Green Highways (Plantation, Transplantation, Beautification & Maintenance) Policy, 2015.
judiciary. This requires a commitment to transparency, accountability, and a willingness to work together to find solutions that promote environmental sustainability and protect vulnerable communities.

In conclusion, achieving environmental sustainability in today's world requires a rational perspective on governance and a clear understanding of the complex relationships between economic and ecological systems. The judicial system plays a vital role in maintaining accountability and ensuring that policies align with the goal of environmental sustainability. However, achieving this goal requires greater collaboration and commitment to transparency and accountability from all stakeholders involved.
